

PD-AA7-040

ISN 53892

EVALUATION  
OF  
PL 480  
TITLE II

MCH  
PROGRAM  
IN EAST AND  
CENTRAL  
JAVA



For USAID/Indonesia  
August, 1982

EVALUATION OF PL 480 TITLE II  
MCH PROGRAM IN EAST AND  
CENTRAL JAVA

Conducted and Prepared  
by

Ir. M. Khumaidi, MSc.  
Nutritionist,  
Department of Gizi Masyarakat dan Sumberdaya Keluarga  
Fakultas Pertanian,  
Institut Pertanian Bogor

Dr. Hiroko Horikoshi  
Anthropologist,  
Department of Anthropology,  
University of Washington

Dr. Helen Johnson  
Communication and Education Specialist  
USAID

Dr. A.A. Mattjik  
Statistician, Department of Statistics and Computer  
Fakultas Pertanian,  
Institut Pertanian Bogor

Ir. A. Rambe, M.St.  
Statistician, Department of Statistics and Computer  
Fakultas Pertanian,  
Institut Pertanian Bogor

For USAID/Indonesia

August, 1982

TABLE OF CONTENTS

	<u>Page</u>
List of Tables . . . . .	iv
List of Figures . . . . .	vi
Preface . . . . .	vii
EXECUTIVE SUMMARY . . . . .	viii
I. PROGRAM CONTEXT AND EVALUATION SITES	
A. The Indonesian Government (GOI) Nutrition Improvement Programs . . . . .	1
B. Program Identification . . . . .	5
1. CRS Nutrition Improvement Programs in Indonesia . . . . .	5
2. MCH Program: Selection Criteria and Administration . . . . .	11
C. Identification of Evaluation Sites . . . . .	15
1. Profile of Ponorogo Kabupaten . . . . .	15
2. Profile of Kebumen Kabupaten . . . . .	19
II. OBSERVATIONS AND ANALYSIS . . . . .	23
A. Nutritional Impact of MCH Programs Compared with other Nutrition Improvement Programs . . . . .	23
1. Coverage and Participation . . . . .	23
2. The Quality of the Data . . . . .	32
3. Short-term Impact Analysis . . . . .	45
4. Longitudinal Analysis:	
a. Nine-month Swadaya Programs and MCH Programs . . . . .	50
b. The Nutritional Status of Graduating Balita . . . . .	51
5. Nutrition Improvement . . . . .	57
B. Improvement in the Household Diet . . . . .	61
1. Preference for Title II Commodities - Acceptability . . . . .	61
2. Preparation of Meals and the Use of Title II Commodities . . . . .	61
3. Title II Commodities in Markets . . . . .	65

C.	Targeting Nutrition Interventions . . . . .	67
1.	Concept of Targeting . . . . .	67
2.	Special Care for Severely Malnourished Children - Group 'C' . . . . .	69
D.	Nutrition Education and Involvement of the Community . . . . .	70
1.	Analysis of Social Data: Comparative Study of Two Desa . . . . .	70
2.	Nutrition Education and Training . . . . .	
3.	Social Participation in Nutrition Programs . . . . .	
III.	CONCLUSIONS AND RECOMMENDATIONS . . . . .	77
A.	Nutritional Impact of The MCH Program . . . . .	77
1.	Coverage, Participation and Targeting . . . . .	77
2.	Impact Analysis . . . . .	81
B.	Improvements in Household Diets . . . . .	82
C.	Nutrition Education and Community Participation . . . . .	83

#### Appendices

I.	Research Protocol . . . . .	86
II.	Description of Sample Desa Used in Study . . . . .	94
III.	Glossary, Abbreviations and Acronyms . . . . .	95
IV.	Nutrition Standards for Children under 5 years by Age and Weight, and Height and Weight . . . . .	102
V.	Recipes and Costs of Title II Food Prepared by MCH Kaadres . . . . .	104
VI.	Additional Recipes and Costs of Indigenous Foods Prepared by PKK . . . . .	107
VII.	Sample Menu (2 weeks) from UPGK-Dinkes On-Site Feeding Program (PMT) . . . . .	109
VIII.	Average Weight Change (" ") by Month for Children in Karang Tanjung, during 1979 and 1981 . . . . .	111
IX.	Sample Computer Print-Out: Weight for Age by Month for Children in MCH Program, Serangan, Ponorogo during 1979-80 . . . . .	113
X.	Sample KMS Card . . . . .	114

## LIST OF TABLES

	Page
Table 1:	The Nature of YSBS and LKD-MCH Programs . . . . . 9
Table 2:	Characteristics of UPGK-Dinkes UPGK-BKKBN, YSBS-MCH and LKD-MCH Programs . . . . . 10
Table 3:	Profile of Ponorogo Kabupaten . . . . . 15
Table 4:	Land Area and Land Use in Three Kecamatan . . . . . 17
Table 5:	Profile of Kebumen Kabupaten . . . . . 19
Table 6:	MCH Recipients in Kebumen . . . . . 21
Table 7:	Balita and Household Size in Four Desa in Kebumen . . . . . 22
Table 8:	Date of Last Evaluation for MCH Desa in Ponorogo . . . . . 24
Table 9:	Evaluation Dates and Balita Recipients for the Current Program Year in Five MCH Desa in Ponorogo . . . . . 25
Table 10:	Current MCH Recipients in Five Desa in Ponorogo . . . . . 26
Table 11:	Nutritional Status of Non-participating Balita Recipients in Tugurejo . . . . . 26
Table 12:	MCH Recipients in Four Villages Kebumen . . . . . 27
Table 13:	Nutritional Status of Drop-Outs Before Leaving the Program in Tugurejo, Kebumen . . . . . 28
Table 14:	Coverage of PMT Beneficiaries of UPGK-Dinkes in in Five Desa in Kebumen and Ponorogo . . . . . 30
Table 15:	Concentration Tendency of the Age Records . . . . . 33
Table 16:	Percentage of Children whose Age is Recorded in Units of One-year, Half-year and Month . . . . . 34
Table 17:	The Average Monthly Weight Increase Among Balita Recipients in Karang Tanjung, Kebumen . . . . . 36
Table 18:	Percentage of the Data with Average Gain $\geq$ 1.0 Kg/month for Children $\leq$ 12 months of Age and with Average Weight Gain $\geq$ 0.3 Kgs/ month for Children 1-6 Years of Age. (MCH Programs only) . . . . . 43
Table 19:	The Effect of UPGK-Dinkes PMT Program After Three Months Operation Shown by the Shifts in Nutritioanal Status . . . . . 46
Table 20:	The Effect of UPGK-Swadaya PMT Program After Three Months Operation Shown by the Shifts in Nutritional Status . . . . . 46
Table 21:	The Proportional Changes of Nutritional Status of UPGK-BKKBN after Three Months Operation in Two Desa In Kebumen . . . . . 47
Table 22:	The Effects of MCH Programs After Three Months Operation in Four Desa in Kebumen and Five Desa in Ponorogo Shown by the Shifts in Nutritional Status . . . . . 49

Table 23:	The Shifts in Nutritional Status of 'B' and 'C' Groups Balita After Three Months in the Program . . . . .	50
Table 24:	The Shifts in Nutritional Status of 'B' and 'C' Groups Balita after Nine Months in Programs . . . . .	51
Table 25:	Nutritional Status of Graduating (at the age of 6 months) Children in Four Desa in Kebumen . . . . .	52
Table 26:	Change of Nutritional Status Among Balita Graduates in Four Desa in Kebumen . . . . .	52
Table 27:	Nutritional Status of Graduating Balita in the Five Desa in Ponorogo . . . . .	53
Table 28:	Change of Nutritional Status Between the Evaluation Study and Graduation in Five MCH Desa in Ponorogo . . . . .	54
Table 29:	Land and Population in Five Ponorogo MCH Desa . . . . .	54
Table 30:	Household Size, Land Holding and Balita Children In Five Desa in Ponorogo . . . . .	55
Table 31:	Change of Nutritional Status of Graduating Balita in Five Desa in Ponorogo (1980) . . . . .	55
Table 32:	Overlap Between MCH and Other Nutrition Oriented Programs in Kebumen . . . . .	84

## LIST OF FIGURES

	Page
Figure 1: Areas of CRS MCH Title II - PL-480 Programs, Java, Indonesia . . . . .	7
Figure 2: Map of Ponorogo Kabupaten . . . . .	16
Figure 3: Map of Kebumen Kabupaten . . . . .	20
Figure 4: Changes in Body Weight by Age Group for Children after 0, 3 and 6 months in the MCH Programs during 1979 and 1981 in desa Karang Tanjung . . . . .	37
Figure 5: Changes in Body Weight by Age Group for Children after 0, 3 and 6 months in the MCH Program during 1980/81 in desa Pujodadi . .	38
Figure 6: Changes in Body Weight by Age Group for Children after 0, 3 and 6 months in the MCH Program during 1980/81 in desa Sukomuljo . .	39
Figure 7: Changes in Body Weight by Age Group for Children after 0, 3 and 6 months in the MCH Program during 1980/81 in desa Candimulyo . .	40
Figure 8: Changes in Body Weight by Age Group for Children after 0, 3 and 6 months in the MCH Program during 1980/81 in desa Sukomulyo and desa Candimulyo combined . . . . .	41
Figure 9: Changes in Body Weight by Age-specific Groups of Children 0, 3 and 6 months in the MCH Program during 1980/81 in Sukomulyo and Candimulyo combined . . . . .	42
Figure 10: Short-term Impact of Nutrition Programs . . . . .	48

P R E F A C E

The Evaluation Team of the PL-480 Title II Maternal Child Health Program has analyzed and interpreted in this Report an extensive and complex data set related to many aspects of MCH program implementation.

The evaluation was carried out under a contract between USAID and the Research Foundation of the Institut Pertanian Bogor and with the technical assistance of two American residents. The protocol for the evaluation study (attached as Appendix I), background ideas, hypotheses, methodology and the scopes of work for the team were provided by USAID/Jakarta.

The team is grateful to the many local institutions, local authorities and persons who contributed either directly or indirectly by supporting us in this evaluation endeavor. Without this help this report could not have been completed.

Institutions: Cabinet Secretariat (SEKKAB), Directorate of Nutrition Department of Health and USAID Mission to Indonesia.

Authorities: Governor of the Province of East Java, Governor of the Province of Central Java, Bupati of the Kabupaten of Kebumen, Bupati of Kabupaten of Ponorogo, Camats of the Kecamatans of: Sukorejo, Slahung, Mlarak, Rowokele, Mirit, Karanganyar, Alian and Kebumen, and Lurahs of the villages of: Nglumpang, Serangan (in Kecamatan: Mlarak), Caluk, Tugurejo, Wates, Serangan (in Kecamatan: Sukorejo), Nambangrejo, Nampan, Bangurrejo, Sukomulyo, Radisari, Mrentul, Pujodadi, Karangkembang, Karangtanjung and Candimulyo.

Persons: Mr. Patrick C. Johns (Director, Catholic Relief Services/Indonesia in Jakarta), Frater P. van Hees (Director, Lembaga Karya Dharma in Surabaya), Father Charlie C. Burrows (Director, Yayasan Sosial Bina Sejahtera at Cilacap Central Java), Dr. Tonny Ungerer (Head, Research Foundation of the Institut Pertanian Bogor), Dr. Darwin Karyadi (Director, Center for Nutrition Research and Development, Department of Health at Bogor), Mr. Yosef Kastari (MCH Program Supervisor of East Java), Mr. Kun Mardiyanto (MCH Program Supervisor of Central Java), Mr. Riyono (MCH Program Coordinator at Ponorogo), Miss Linawati B.Sc. (Nutritionist of the CRS/I Jakarta), Miss Susi (Field Worker of the YSBS Cilacap), Miss Sri (Field Worker of the YSBS Cilacap) and Miss Ni Luh Rini (Field Worker of the LKD at Ponorogo).

EXECUTIVE SUMMARYA. Statement of the Problem

The Government of Indonesia recognizes malnutrition as a serious national problem. One of the groups most severely effected by protein-energy malnutrition is the Balita group of five and under preschool children. The Indonesian National Bureau of Statistics reports a mortality rate of 91 out of 1,000 Balita. Closely related to the welfare of the Balita is the nutritional status of the pregnant woman and the nursing mother. It is toward these high-risk segments of the population that the Maternal-Child Health (MCH) program focuses its efforts.

B. U.S. Humanitarian Assistance: Public Law - 480 Title II

The major objective of the MCH program in Indonesia is to provide simple, integrated health and nutrition services in rural areas and to contribute toward the alleviation of malnutrition through the distribution of high-protein foods among the vulnerable groups of the community (preschool children, pregnant women and nursing mothers). In achieving this objective, PL 480 Title II food commodities play an important dual humanitarian role, i.e. contributing a nutritionally improved diet and, in its program context, informing and educating people in the principles of nutrition and hygiene.

C. Evaluation Purpose and Methodology

The purpose of this evaluation is to assess the impact of the PL-480 Title II Maternal Child Health Program on its recipients and to determine the effect of the instruction and educational programs on the recipient households.

The methodology for this study has been set forth in the Research Protocol (attached as Appendix I). The basis for this evaluation and its hypotheses for study are as follows:

Because the Catholic Relief Service distributes 95% of the Title II commodities for Indonesia, this evaluation will focus on CRS. And because the MCH program is designed to alleviate malnutrition, and because data are available to enable quantitative assessment of impact, this protocol focuses on a sample of CRS, MCH village programs. In FY81, CRS distributed 3,641 MT of wheat, 2,016 MT of corn-soy blend, and 1,764 MT of wheat-soy blend through its MCH programs, 80-90% of which are on Java. For this reason the study will be conducted on Java, and will focus on MCH village-based programs (Title II supported), and on the UPGK (the GOI's Family Nutrition Improvement Program) program (which does not receive Title II support).

Three hypotheses have been formulated as a basis for the evaluation:

- (A). The Title II supplied foods explain a significant positive weight difference in MCH-UPGK over UPGK program children.
- (B). Title II supplied foods explain an improvement in the household diet for children, pregnant, and nursing mothers.
- (C). The MCH-UPGK programs are more effective than the UPGK programs in improving child, pregnant and nursing mothers' nutritional status.

D. Conclusions Based on the Hypotheses:

The Evaluation Team presents the following results with respect to the proposed hypotheses:

Hypothesis A - Title II supplied foods explain a significant weight difference in CRS-UPGK program over UPGK program children.

Of approximately 20,000 MCH program recipients in both Kabupaten Ponorogo (East Java) and Kebumen (Central Java), 73% were children 5 years and under (Balita), and the remaining 27% were pregnant women and nursing mothers. The number of Balita participating represents about 4.5% of the eligible Balita population of both Kabupaten. The CRS MCH program participants per desa are 3 to 4 times greater in number than other UPGK-feeding programs.

According to the weight for age records of the Balita, about 50% are well-nourished (group 'A' status), 46% are mildly or moderately malnourished (group 'B') and 2% are severely malnourished (group 'C').

About 58% of "graduated" Balita are still considered malnourished (group 'B'). Most of the data by age and weight collected by the kader are not reliable for statistical analysis. Only two of seventeen desa (Sukomulyo and Candimulyo) had records which were considered reliable. The

data from these desa show that the impact of the UPGK program appears to be better than the MCH program in terms of those numbers of children who progressed from group 'B' status to group 'A'. However, the CRS MCH program seems to be more effective for reaching children in the high risk 'C' group and moving them to 'B' status. The UPGK program does target the 'C' group malnourished children in the sense that they are in theory referred to the local Puskesmas (Public Health Center) or hospital for intensive care. In practice, group 'C' children are generally ignored by the UPGK Program. ✓

The coverage of the MCH feeding program varies between 50 to 100% of eligible Balita in program desa. Attendance rates have been variable, tending towards low rates.

There is little evidence which suggests that the MCH program is effective for improving the status of children who entered the program after the age of 3 years. The data show that 6 months of carefully monitored participation in the MCH program can result in positive weight gain. Program continuation for three more months or 9 months indicates considerable decrease of the prevalence of malnutrition compared to the prevalence rated after a 3 month program. (See Table 23 and Table 24 on pages 50 and 51). Unfortunately, the unreliability of the KMS, weight-for-age measurements and records do not inspire confidence in the results of the data analysis with respect to testing the Protocol's first hypothesis.

- Hypothesis B - Title II supplied foods explain an improvement in the household diet for children, pregnant women, and nursing mothers.

Extensive interviews with mothers participating in the MCH feeding program established that their children like 1 foods prepared with Title II commodities (primarily Soy fortified bulgur wheat and Corn-soy blend). SFBW is utilized as rice-extender; CSB is added to gruels, to thicken soups with vegetables or fruit, and baked into cookies or cakes for snacks. Both are served to children as supplementary foods.

Theoretically, the nutritional context of the Title II food ration provides adequate calorie and protein requirements for each Balita. However, the evaluation found that family members share the food supplement so that each member gets only 8-10% of the calorie and 18-25% of the daily protein requirement. In terms of comparable value, the Title II foods are cheaper than local foods, and can be important supplements during periodic food shortages.

- . Hypothesis C - The MCH-UPGK feeding program is more effective than the UPGK program in improving children, pregnant, and nursing mothers' nutritional status.

From interviews and field observations the MCH feeding program could not be declared consistently better than the UPGK program. A significant finding is that recipients from desa where an MCH program had been operating for the past 5 years did not necessarily score better (in the distribution by nutritional status group) than those children from desa with newer programs. The success or failure of the MCH program inevitably rests with the commitment and capability of project field personnel - both CRS social workers and desa kadre - in management and administration.

The program "holder" (or leader) at the desa level is the lurah (village head). The involvement of the lurah and his wife, and their interest in and encouragement of nutrition activities influences the success of these programs. Involvement of the PKK (Family Welfare Movement) in the various programmatic and logistical aspects of the feeding program is also essential for generating continued community support.

E. Recommendations:

1. The MCH Program, relying as it does on Title II food commodities, is likely to be "short term" assistance rather than permanent support. In order to begin planning for the eventual absence of outside assistance, CRS/Jakarta needs to begin developing a strategy for the gradual phase-out of imported commodities.
2. It is recommended that the AID/Jakarta Food for Peace Office review the calorie and protein balance of the Title II commodities being provided to determine nutritional adequacy for maximum nutritional impact for the target groups (especially the Balita) and the family's economic benefit by taking the intra-familial distribution of the food into account.
3. The effectiveness of the Title II ration can be enhanced by integrating the feeding component with specific health services and, particularly, with nutrition education focussing on the mother. Therefore, the educational component must be considerably provided at the weighing and feeding sessions and tied to service delivery.

4. CRS/Jakarta and its local counterparts need to establish closer coordination and cooperation with the GOI UPGK counterparts at all operational levels.
5. A CRS protocol (in conjunction with the GOI's UPGK policy) needs to be established regarding follow-up treatment for group 'C' (severely malnourished) children.
6. The absence of careful monitoring of childrens' growth status is a weakness of the MCH program. The data show that 6 months of carefully monitored participation in the MCH program can result in positive weight gain and that improvement remains to occur up to 9 months in the program. Age-weight data are being sporadically collected and are not used to optimal effectiveness to monitor these nutritional status changes. It is recommended that CRS review and improve training procedures for their field workers in the use of age-weight data for better recording and reporting.
7. In order to enhance the nutritional impact of Title II commodities on program recipients and to improve cost-effectiveness, CRS/Jakarta and its local counterparts must strengthen the targeting elements of the MCH program - both in terms of identifying specific program desa, and also, in identifying and delivering services to "at risk" individuals in the desa, especially among 6-36 month Batita (children 3 years and under), pregnant women in their last trimester, and nursing mothers. It is recommended that CRS review the monitoring and management information systems and establish a simple, practical system.
8. The primary weakness of Title II MCH Programs is the lack of qualified manpower in the field of nutrition. The entire management and supervision systems, particularly concerning manpower constraints, need to be reviewed and re-evaluated. It may be necessary to employ at least one nutritionist or assistant nutritionist at each provincial center and two social workers at each kabupaten sub-center.
9. An annual systematic review of all CRS MCH program desa and program services and recipients needs to be established.
10. Continued training and retraining are needed for CRS field workers, especially in administration, growth monitoring, and nutrition education. A re-definition of job duties may be necessary.

Part I

PROGRAM CONTEXT AND EVALUATION SITES

A. THE INDONESIAN GOVERNMENT (GOI) NUTRITION IMPROVEMENT PROGRAMS

Nutrition improvement programs to alleviate nutrition problems in Indonesia have been carried out since the early 1950's. Even with changes in scope, target priorities, and methods of operations the programs have continued and have been expanded. The major nutritional problems, however, remain:

1. Protein Energy Malnutrition (PEM) among vulnerable groups namely: children under five, pregnant women and nursing mothers.
2. Vitamin A deficiency.
3. Nutritional anaemia due to iron deficiency.
4. Endemic goiter due to iodine deficiency.

According to the master plan of operation (MPO) between GOI and UNICEF, the activities of nutrition improvement program (Usaha Perbaikan Gizi Keluarga, UPGK) during the 3rd Five-Year Development Plan (PELITA III) will be jointly carried out by four institutions viz. Department of Health (DOH), Department of Agriculture (DOA), Department of Religious Affairs (DORA), National Family Planning Coordinating Board (Badan Koordinasi Keluarga Berencana Nasional, BKKBN) and assisted by UNICEF.

In operating UPGK as a cross-sectoral program, some principles have been agreed upon. They are as follows:

1. There is to be only one UPGK program concept with identical objectives, activities, operational guide-lines and contents.
2. During the Fiscal Year 1981/82 DOH and DOA will conduct UPGK in twenty-six provinces covering 189 kabupaten (regencies), 697 kecamatan (sub-districts) and 2,022 desa (villages).
3. The BKKBN plans to conduct UPGK in 7,500 additional desa in Java, the province of Lampung and West Sumatra, separately from the DOH/DOA program.
4. In the UPGK-Dinkes (Dinkes = Dinas Kesehatan, DOH provincial or regency office) areas, the field workers of the BKKBN aid in the development of the program activities. Dinkes officials at the PUSKESMAS (PUSKESMAS = Pusat Kesehatan Masyarakat, Public Health Center) also aid the activities of UPGK-BKKBN.
5. To accelerate the recording and reporting processes the PUSKESMAS official should employ the family planning field worker (Petugas Lapangan Keluarga Berencana, PLKB).

6. A close cooperative action will be established among relevant sectors. DOH will be the leading sector in carrying out training programs either at the kecamatan or desa level.
7. The DORA is responsible for motivating religious leaders to support and to contribute to the implementation of UPGK, especially in Java.

The general objective of UPGK is to raise the nutritional status of the people, particularly in alleviating the prevalence of PEM among the pre-school children (children under five years, anak bawah lima tahun = BALITA) with special attention to toddlers (children under three years, anak bawah tiga tahun = BATITA). Some of the UPGK activities in implementing such an objective can be quoted as follows:

1. Steps of preparation:

- 1.1. Consultation meetings from the provincial level down to kecamatan to organize programs.
- 1.2. Workshop at the kecamatan level to discuss the terms of reference and operational guide-lines, attended by all representatives from participating institutions chaired by the Camat (head of sub-kabupaten).
- 1.3. Meetings at the desa level to arrange training programs for the village cadre, to discuss the need for facilities and budget, and to arrange base-line data collection.

2. Steps of operational activities:

- 2.1. Balita weighing and nutrition education.
- 2.2. Supplementary feeding program in the new desa (priority is given to children who have a constant or decreased body weight at a three-time respective weighing, or severely malnourished children)
- 2.3. The distribution of nutrition first-aids (high dosage vitamin A capsules, iron tablets for third trimester pregnant women and 'oralit' salts to combat dehydration from diarrhea)
- 2.4. The intensification of home gardening to grow nutritious food plants.

UPGK, by simply employing step 2.1. is called UPGK-dasar (basic-UPGK) and UPGK, employing all steps is called UPGK lengkap (complete-UPGK).

3. Maintenance activities such as incentive/honorarium provision for the field workers, supervision, technical guidance and so forth.
4. Recording, and reporting for monitoring the progress of the program. There are three main reporting tools: KMS (Kartu Menuju Sehat, Growth Chart = Road to Health), weight record book and monthly report.

The DOH, through the PUSKESMAS, is appointed as 'leading institutional sector'. The coordinating body of the UPGK is the Badan Perbaikan Gizi Daerah (Regional Body of Nutrition Intervention, BPGD) at the provincial level and Badan Pelaksana Perbaikan Gizi Daerah (Regional Implementing Body of Nutrition Intervention, BPPGD) at the kabupaten (regency) and kecamatan (sub-district) level. BPGD is chaired by the Governor and administered by the head of provincial Department of Health (Kepala Kantor Wilayah Kesehatan, Ka-Kanwilkes). The BPPGD (BP2GD) is chaired by the Bupati (Regency head) and administered by the head of Public Health Office (Kepala Dinas Kesehatan, Ka-Dinkes). The UPGK program conducted by the DOH is called UPGK-Dinkes. The UPGK conducted by the BKKBN is called UPGK-BKKBN or KB-Gizi (Family Planning-Nutrition). The UPGK-Dinkes could be either UPGK-dasar or UPGK-lengkap, but the UPGK-BKKBN is only UPGK-dasar.

During the Fiscal Year 1980/1981 the UPGK-Dinkes in Central Java covered 18 regencies, 58 kecamatan and 174 desa. In East Java UPGK-Dinkes can be found in 37 regencies/municipalities, 144 kecamatan and 210 desa. The UPGK-BKKBN has more or less six times as many UPGK-Dinkes program locations. Many desa also carry out nutrition improvement programs without any external supports which is the UPGK-swadaya (swadaya: self-reliance). The UPGK-swadaya is an expression of the desa's own concern for health and nutrition matters.

In Kebumen, a Kabupaten in Central Java (one of two sites evaluated), there were 9 desa in three kecamatan implementing UPGK-Dinkes during the FY-1980/81 and another 9 desa implementing programs during FY-1981/82. Of those UPGK-Dinkes in Kebumen, this study sampled two desa. Both desa are maintaining UPGK-Swadaya because the UPGK-lengkap supported by the Dinkes concluded one year ago. According to the UPGK guidelines, the Dinkes is responsible for continuing the UPGK program for at least 2 years. But, in fact, supervision usually terminates after the two months food supplement program is finished. The situation may be due to lack of personnel at the Dinkes (only one assistant nutritionist for the whole area of regency).

In Ponorogo of East Java, (the second site evaluated) there were UPGK-Dinkes in two kecamatan, covering six desa during the FY-1980/81 and another two kecamatan covering six additional desa during the FY-1981/82. Of those twelve UPGK-Dinkes desa, two desa had been chosen as sample desa for this study.

All operational nutrition instruction programs in the desa are controlled by women of the Pembinaan Kesejahteraan Keluarga (PKK, Family Welfare Movement). The PKK is organized by wives of desa officials (pamong desa) and usually chaired by the desa-head's wife (ibu lurah). Though PKK is established in every desa as a compulsory organization, it is a non-formal organization. Structurally, it is part of the Lembaga Ketahanan Masyarakat Desa (LKMD, Village Community Defense Board).

The PKK engages in local activities such as mass immunizations, home-crafts, home gardening, family planning motivation, mother care nutrition center (Taman Gizi), infant feeding, poultry raising, arisan (raffling in turns) and other women-oriented concerns.

Village level nutrition activities are organized by the Kader Gizi Desa (village nutrition cadre), who are volunteers from each selected desa. Minimal training covers 5 days of 4 hours per day. The function of the trained nutrition cadre is to facilitate the participation of the desa mothers in nutrition activities and to encourage shared responsibility for implementation of the village nutrition program.

Before village training begins, a one day desa meeting is executed to coordinate local arrangements. This one day meeting is attended by the kecamatan representatives and the desa key-persons; the cost of meeting is funded by UNICEF by as much as Rp.10,000.- per desa. The budget for desa cadre training is also provided by UNICEF; usually this is about Rp.35,000.- per desa for ten to twenty participant nutrition cadre. Desa with the UPGK-lengkap program are provided one set of cooking equipment (home economic set), nutrition session guide-book and educational tools, a balance scale (dacin), weighing trowsers, KMS, nutritional first aids (high dosage vitamin A capsule, iron tablet, oralit-salt, spoon) and recording/reporting materials including a monthly weighing book, monthly activity book, a list of facilities and materials, a recording book for patient referrals to the PUSKESMAS and a book for listing visitors.

An important UPGK-lengkap component is the PMT (Pemberian Makanan Tambahan, food supplement program). It can be briefly described as follows:

1. PMT is executed after a 4-time successive weighing of BALITA. The PMT will be distributed to the children with constant or decreasing body-weight after a 3-time weighing or to severely malnourished children ('C' group category). The place for PMT activity can be the desa hall, Lurah (desa head) house, school room, etc. It is suggested that PMT be distributed daily, but if this is not possible the PMT distribution may be done at least once a week. In some instances, PMT is provided as take-home food to be prepared by the mother.
2. The food commodities for PMT must fulfill certain conditions:
  - locally produced or locally available at a low price.
  - commonly eaten by children.
  - containing about 350 kcals (kilo-calories) and 10-15 grams of protein per day.
3. During the time children come together for receiving PMT, a session on nutrition, home gardening, immunization, family planning, etc. is given to the mothers. Sometimes there are also food/handicraft demonstrations or raffling in turns (arisan).
4. PMT is provided for a new village at Rp. 60.- per portion per meal. The total budget is 3,600 child-feeding days per village or  $Rp. 60.- \times 3,600 = Rp.216,000.-$  per desa, or about 10 weeks' program with 50 participating children.

Thus, the GOI UPGK nutrition improvement program is the governmental effort to motivate people to realize their problems and to promote a way of overcoming these problems through a "top-down" process.

The CRS-MCH program promotes nutrition improvement through a process described as "bottom up" community involvement.

#### B. PROGRAM IDENTIFICATION

1. Catholic Relief Services (CRS) Nutrition Improvement Program in Indonesia.

The Catholic Relief Services of the United States Catholic Conference (CRS-USCC) began operations in Indonesia in 1957. The CRS Indonesia Program operates in 11 of Indonesia's 27 provinces. In these provinces CRS works together with cooperating sponsors. Generally, the sponsor is a diocesan supported voluntary agency.

A summary list of CRS' cooperating sponsors and the provinces in which they work is below:

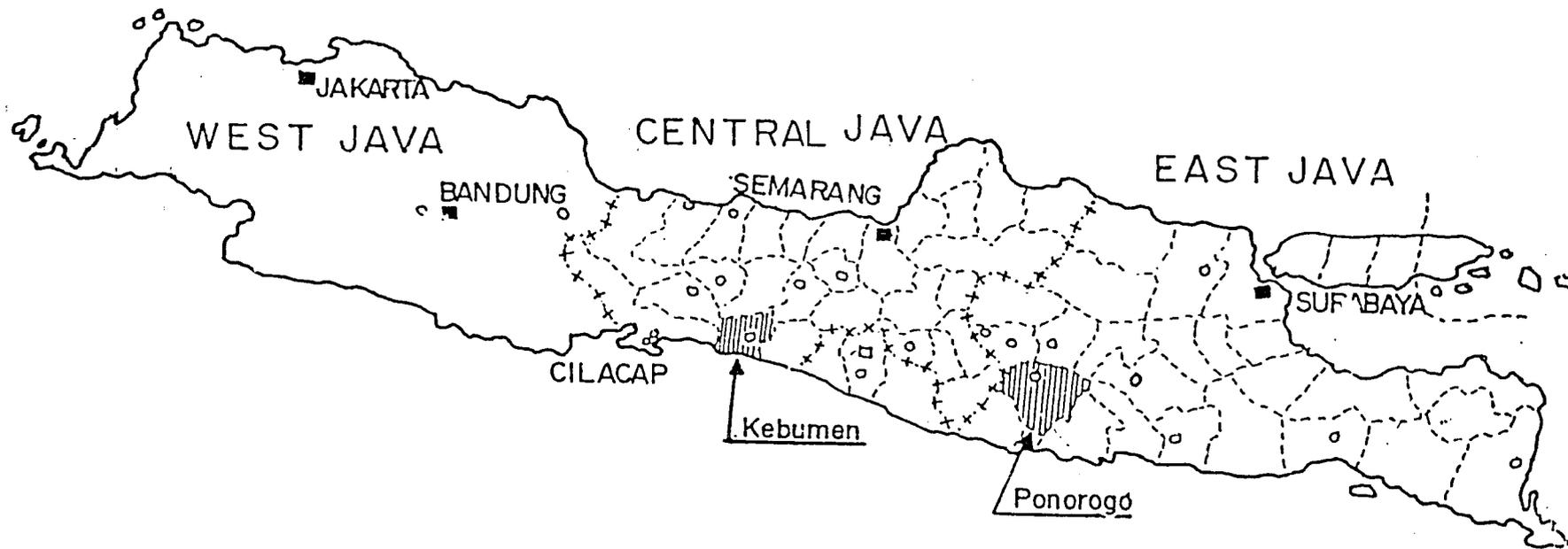
- a) Lembaga Karya Dharma - Surabaya (East Java)
- b) Yayasan Sosial Bina Sejahtera - Cilacap (Central Java).
- c) Yayasan Sosial Soegiyapranoto - Semarang (Central Java).
- d) Lembaga Karya Bhakti - Tanjung Karang (Lampung)
- e) Lembaga Karya Sosial - Palembang (South Sumatera, Bengkulu)
- f) Lembaga Sosial Usaha Bersama - Pontianak (West Kalimantan)
- g) Department of Transmigration - Banjarmasin (South Kalimantan)
- h) Department of Transmigration - Balikpapan (East Kalimantan)
- i) Department of Transmigration - Padang (West Sumatera)

Under the agreement between CRS and the Government of Indonesia (GOI), PL 480 Title II commodities enter the country free of duty. In accordance with both US government and Government of Indonesia regulations, the commodities donated through CRS are distributed to those in need without regard to race, creed, color or political beliefs. To date CRS has been unable to obtain funding support from the GOI for inland transport and handling costs for the Title II program.

Using indigenous Catholic Social Welfare Agencies, CRS provides Title II commodity assistance to a variety of projects throughout Indonesia. Most are concentrated on Java. (See Figure 1.) Management of the program is carried out at the local level by the Catholic Welfare Agencies. Monitoring is provided by the CRS/Indonesia staff. The dimensions of the program are determined by the managerial capacity both at local level, as the operating counterpart, and CRS at the central level, rather than by the number of people in need.

The primary objectives of the Maternal - Child Health Program are to improve the nutritional status of pregnant and lactating mothers, and malnourished or borderline children under five years of age. This is accomplished through providing supplementary foods and nutrition education which focuses on the preparation of nutritious family meals emphasizing the use of low cost foods. Lessons are conducted by social workers, village kadre, or other qualified instructors trained in basic nutrition. Often training is also given in health, hygiene, child care, home gardening and family planning. Home visits by these instructors are made as required.

Figure I . AREAS OF CRS MCH TitleII-PL480 Programs,  
Indonesia



Children are enrolled in the program through a weight for age nutrition survey. Those eligible for enrollment are severely, moderately, or mildly malnourished children, or children who center operators determine to be "at risk" of becoming malnourished. Children are normally enrolled in the program for 24 months or until their nutritional status reaches normal levels.

Each month the nutrition center, which may be a village hall or health clinic, weighs each child at the time of distribution of supplemental foods. The weight of each child is then plotted on their individual growth charts (KMS) as well as in a master ledger maintained by the center. (See Appendix X as an example).

At present CRS counterparts operate nearly 250 MCH centers serving over 100,000 recipients. Nutritional status surveys performed by CRS counterparts in Central and East Java indicate an immediate need to reach an additional 50,000 mothers and dependent children. Regency, sub-district, and village governments have requested CRS counterpart assistance to meet this need through the opening of additional MCH centers in these areas.

This study has evaluated the MCH programs carried out by two local CRS counterparts namely the Lembaga Karya Dharma (LKD, Social Support Agency) in Surabaya (East Java) and Yayasan Sosial Bina Sejahtera (YSBS, Social Welfare Foundation) in Cilacap (Central Java). The MCH programs of those two CRS counterparts is quite different. The LKD distributes the Title II commodities for the MCH program by closely following the UPGK system (the Government of Indonesia nutrition intervention program), as previously described in Section A. This involves formal cooperation with local governments, employing local coordinators and field workers for organizing the programs. The common name of the program used is not MCH, but Program Nutrisi (nutrition program).

The YSBS, however, distributes the Title II commodities for MCH program in a very simple way; it does not use the official government agencies. There is no formal cooperation established between YSBS and local government or government institutions. Each desa grants permission for the MCH program. The program is directly controlled by YSBS staff and organized by the desa head (Lurah) as the program holder at each MCH location. There is no indication that YSBS follows the system of UPGK.

A 'systematic' distribution method was initiated by CRS/Jakarta in 1977. The following table shows a brief picture of MCH programs conducted by those two agencies:

Table 1. The Nature of YSBS and LKD-MCH Programs

Items	YSBS	LKD	
Both			
1. Starting date	September 1978	August 1977	-
2. Total Kabupatens	19	9	28
3. Total kecamatans	36	39	75
4. Total Desas/ Distribution sites	51	185	236
5. Total beneficiaries (FY-1980/1981)			
-pregnant women	3263	4622	7885
-nursing mothers	6362	16711	23073
-preschool children	31230	46951	78181
Total	<u>40855</u>	<u>68284</u>	<u>109139</u>
6. Average number of beneficiaries per site	800	369	462
7. Commodities distri- buted: average/month			
-Soy Fortified Bulgur (SFB)	122.6 tons	204.9 tons	327.5 tons
-Wheat Soy Blend (WSB)	-	204.9 tons	204.9 tons
-Corn Soy Blend (CSB)	143.0 tons	-	143.0 tons
<u>Total grain products</u>	<u>265.6 tons</u>	<u>409.8 tons</u>	<u>675.4 tons</u>
<u>Skimmed milk*</u>	<u>20.5 tons</u>	<u>34.1 tons</u>	<u>54.6 tons</u>

\*) The skimmed milk does not belong to Title II commodity.

The program sites of the LKD are located only in the province of East Java; the program sites of YSBS are in Central Java and two sites in West Java (Kuningan and Cimahi), one site at a plantation estate in East Java (Sarangan) and five sites in three regencies in the Province of Yogyakarta.

In spite of different systems utilized by YSBS and LKD, there are many recognizable similarities as shown by the following table:

Table 2: Characteristics of UPGK-Dinkes  
UPGK-BKKBN, YSBS-MCH and LKD-MCH Programs

I t e m s	UPGK		YSBS	LKD
	Dinkes	BKKBN		
1. <u>Staff Personnel:1/</u>				
-Medical Doctor	x	x	-	-
-Nutritionist	x	-	-	-
-Assistant Nutritionist	x	-	-	-
-Supervisor	x	x	x	x
-Central Field Worker	-	x	x	x
-Village Field Worker	-	x	-	x
2. <u>Organization:</u>				
-Provincial level	x	x	x	x
-Regency level/ Coordinator	x	x	-	x
-Subsistrict level	PUSKESMAS	PLKB	-	-
-Village level project holder	lurah	lurah	lurah	lurah
project executor	PKK	PKK	PKK	PKK
kadre	20/vil.	20/vil.	volunteers	6/vil
3. <u>Program implementation:</u>				
-Consultation meetings	x	x	-	-
-Workshops	x	x	-	x
-Village meeting	x	x	x	x
-Base-line data collection	x	x	x	x
-Monthly child weighing	x	x	x	x
-Food demonstration/ nutrition session	x	x	x	x
-Recording & reporting	x	x	x	x
-Supplementary Feeding programs	x	-	x	x
-Nutrition First Aid distribution	x	x	-	-
-Home-gardening/ animal husbandry	x	-	-	x
-Yearly self- evaluation study	-	-	-	x
4. <u>Incentives:2/</u>				
-Sub-kabupaten personnel	x	x	-	-
-PKK performers	-	-	x	x
-Village kadre	uniform	-	money	money

Table Cont'd.

5. Budget:	provided by the GOI	provided by the GOI	charge from the recipient	charge from the recipient
6. Facility:				
-Balance scale	provides	provides	provided by the desa	provides
-KMS	provides	provides	no more used	no more used
-Home Economic Set	provides	provides	-	-
-Program Guide Book	provides	provides	-	-
-Educational tools (flip-chart etc.)	provides	provides	-	some
-Recipe book	-	-	provides	provides
-Stationary	provides	provides	provides	provides
7. Program period:				
-The whole program	2 1/2 years	2 1/2 years	no definite time	no definite time
Food supplement	2-4 months	-	6 months with possi- bility for extension by request and evaluation	no definite time

1/ "x" indicates one or more individuals work out of the sector specified.

2/ Money incentives, honorarium, uniforms.

## 2. MCH Program: Selection Criteria and Administration

### a. Lembaga Karya Dharma (LKD) In East Java

LKD, the CRS counterpart in East Java Province, administers the distribution of 409.8 tons per month of Title II food aid to 68,284 MCH recipients through 185 centers (1981). LKD is headed by Father P. van Hees, Director, and is administered by Mr. Joseph Kastari.

One of the unique aspects of LKD's MCH program is its coordination with the local government agencies for screening and selecting MCH desa in the role of voluntary intermediary regional coordinator. When an increase of Title II food for East Java Province is anticipated, both the Kabupaten and Kecamatan officials are notified. An invitation is personally sent to each Lurah in the desa. The amount of allocation for each kabupaten, however, may be pre-determined by LKD. The BPPGD, which oversees all the nutrition oriented programs within the kabupaten, probably determines the levels to the various Kecamatan.

A request for Title II MCH program can be made either by Lurah or LKMD (Lembaga Ketahanan Masyarakat Desa), by filing a set of application forms and reporting the weight and other anthropometric measurements of all the Balita in the desa. The letter of application is filed with the kecamatan PKK office which screens applicant desas on the basis of 'need', and with the BP2GD, the nutrition intervention coordinating body which is administered by Dinas Kesehatan Kabupaten (Local office of the DOH). Two LKD-employed social workers and five interns from the Catholic School of Social Work (SPSR-Surabaya) are dispatched to make a survey of the applicant desa (presently 15 interns from SPSR are employed by LKD).

The principal criteria for the selection of MCH desa are the number and the percentage of 'B' Balita ('mildly and moderately malnourished children'). The number of 'C' (severely malnourished) children, however, is not reported since those children need medical attention rather than sheer nutritional aid. When the number of such 'B' category children comprises between 30 and 40 percent of all the Balita being weighed in each desa, an MCH program is considered for the desa. However, when the number of 'B' category Balita exceeds 45 percent of all Balita being weighed, the desa is determined beyond MCH capabilities and its request is turned down and handed over to GOI programs.

Once the desa is accepted into the MCH program, the total number of recipients for the desa is determined. All pregnant women, nursing mothers, all the children up to the age four, and Balita older than four years who belong to 'B' or 'C' groups are eligible to become MCH program participants for one year, and are eligible to receive 3 kg. each of WSB (Wheat-Soy-Blend) and Bulgur for Rp.55/kg and 0.5 kg of skimmed milk powder for Rp.60/kg (from the EEC). No recipient desa may make a preferential choice on the kind and the amount of commodities. They must accept the ration as a package.

When a certain desa is accepted, the LKD coordinator makes arrangements with the kecamatan officials to provide the desa PKK kadre with a one-week training course. The lectures and training included in the courses cover religion, home gardening, nutrition and health-care methods. The courses may take place in the desa or at the kecamatan health center-clinic (Puskesmas) or kecamatan-hall.

In most cases PKK nutrition kadre carry out the task of weighing all the MCH Balita, distributing Title II commodities, collecting Rp. 360 from each recipient, and recording and sending monthly reports to LKD. Currently, all the MCH desas retain Rp.108 from the ration charge of Rp.360 to cover local expenses.

According to LKD policy, all the Balita at MCH desa have to be weighed once a year to determine the number of recipients for the following year. Two LKD-employed social workers assigned to the kabupaten oversee this process. Balita children who have reached the age of four and belong to 'A' category are dropped out of the program, while children between the ages of one and four, pregnant women, and nursing mothers are added to the new list. Balita children between the ages of four and five are accepted only when their nutritional status is either 'B' or 'C'. Usually, children a few months below the age of five continue to receive the aid for another year. In this way, theoretically, the total number of desa recipients is adjusted annually.

Only less than one percent of all MCH desa have been dropped from the program. No desa has been dropped based upon improved nutritional standard. New recipients added to the list always restore the old standard. LKD, however, has cut off a number of desa when they customarily failed in their administrative duties or when desa administrators had abused the profits from the program. Other desas were dropped because of logistical problems with food deliveries (delivery trucks were unable to reach the desa during the rainy season). Another reason which sometimes forces LKD to drop a MCH program site is the lack of cooperation with the regional administrator/coordinator. For LKD Administrators, cooperation with local administrators is a critical factor for successful operation of the program.

Other LKD nutrition-oriented programs include mother-craft nutrition centers (taman gizi) and continued training of nutrition kadre. The taman-gizi is a type of food supplement program (PMT, program makanan tambahan) for Balita using locally produced foods.

b. Yayasan Sosial Bina Sejahtera (YSBS)

YSBS, the CRS counterpart based in Cilacap, Central Java is a Catholic humanitarian agency. YSBS is directed by Father C.P. Burrows, and assisted by Mr. Kun Mardijanto. During the FY 1980/1981 YSBS distributed 265.6 tons per month of Title II food commodities to 40,855 MCH recipients through 51 distribution sites.

The selection of YSBS MCH desa is determined on the basis of current nutritional status of Balita and the poverty level of the desa. A potential project holder first submits a project proposal directly to YSBS (with official approval, from the Camat) showing the current reading of the nutritional status according to weight for age of all the Balita in the desa, and their parents' income.

Title II food commodities are directly delivered to project holders, who then distribute the food and collect the administrative fees. Currently, each MCH beneficiary, (either Balita, pregnant woman, or nursing mother), receives 3 kg. of bulgur and 3.5 kg. of Corn-Soy-Blend (CSB) per month; 0.5 kg. of dried skimmed milk has been donated by the European Economic Common Market, New Zealand or Australia. Each recipient pays Rp.25 per kilogram for bulgur and CSB, and Rp.100 per kilogram for dry milk. Therefore, for a total of 6.5 kg of grain products and 0.5 kg of dried skimmed milk, each recipient should pay Rp.215.- For comparison the market cost of low quality rice is about Rp.180,- per kg.

The project holder sends Rp.138 of the charge to YSBS to cover domestic transportation and administrative expenses. The remainder (Rp. 37) is retained to cover local expenses, such as purchasing plastic bags for food, transportation, honorarium for the PKK cadres and nutrition-oriented programs. The project holder is responsible for sending monthly reports to YSBS on the distribution of the commodities, expenditures for all distribution and supporting activities, and the list of participating children according to their nutritional status. Every six months, the height and the arm circumference of participating Balita are also measured (pita\* measurements) and those children having reached the age limit are discharged from the program, though extremely malnourished five-year old children may stay on longer. Since the MCH program under YSBS administration is young, no desa has been dropped out of the program on the basis of nutritional achievement of the recipients. Only when the program is abused by the project holder, will a MCH desa be eliminated from the program.

---

\*) pita = tape

C. IDENTIFICATION OF EVALUATION SITES

1. Profile of Ponorogo Kabupaten

Ponorogo is located directly south of the town of Madiun which is in the middle of a narrow plain surrounded on three sides by mountains. (See Figure 2). Except the towns along the main highways, the communities are scattered in isolated hillsides. The district has been known for its political instability before the New Order of 1965. Severe draughts periodically cover the area along the southern hillside communities. A large part of the plain has been converted into profitable sugarcane fields. The majority of the residents subsist on cassava. The major form of adaptation to the dry climate has been the cultivation of soybean as a cash crop. Many local residents also raise cows which graze in the broad evergreen forest and the dry sawah fields after the cultivation of rice and soy. During the early part of each agricultural season, cows (oxen and bullocks) are also used as draft animals while their manure fertilizes the field. The cows, however, function as a form of savings and a status symbol, rather than as a source of food. Calves are given by the owners to farm-laborers as two to three-year wages. When they mature, they could be sold for a price ranging between a quarter to a half million rupiah. A chronic problem for the landless peasants in the area is a shortage of cash.

Since 1975, Ponorogo has become an area of a successful Family Planning campaign (BKKBN). Through trial-and-error, the IUD has become the accepted method of contraception. The success of the campaign, by using PKK pressures and free services from local clinics, has reduced the annual population growth. Today, the average household size in Ponorogo is 4.67.

Table 3: Profile of Ponorogo Kabupaten

Total number of Kecamatan .....	19
Total number of Desa .....	303
Total population .....	783,532
Total number of Household .....	167,716

Health Facilities:

Doctors .....	18
Bidans .....	45
Fuskesmas .....	24

Of the 19 kecamatan, the team visited Sukerejo, Slahung and Mlarak. In Sukorejo, there are two MCH desa, while in the dry southern subdistrict of Slahung, there are ten MCH desa. The team chose these subdistricts partly because they are easily accesible and partly because the MCH programs have been in these kecamatan for a relatively long time. The team also visited Mlarak for a comparative purposes where there is no single MCH program (to be used as a "control").

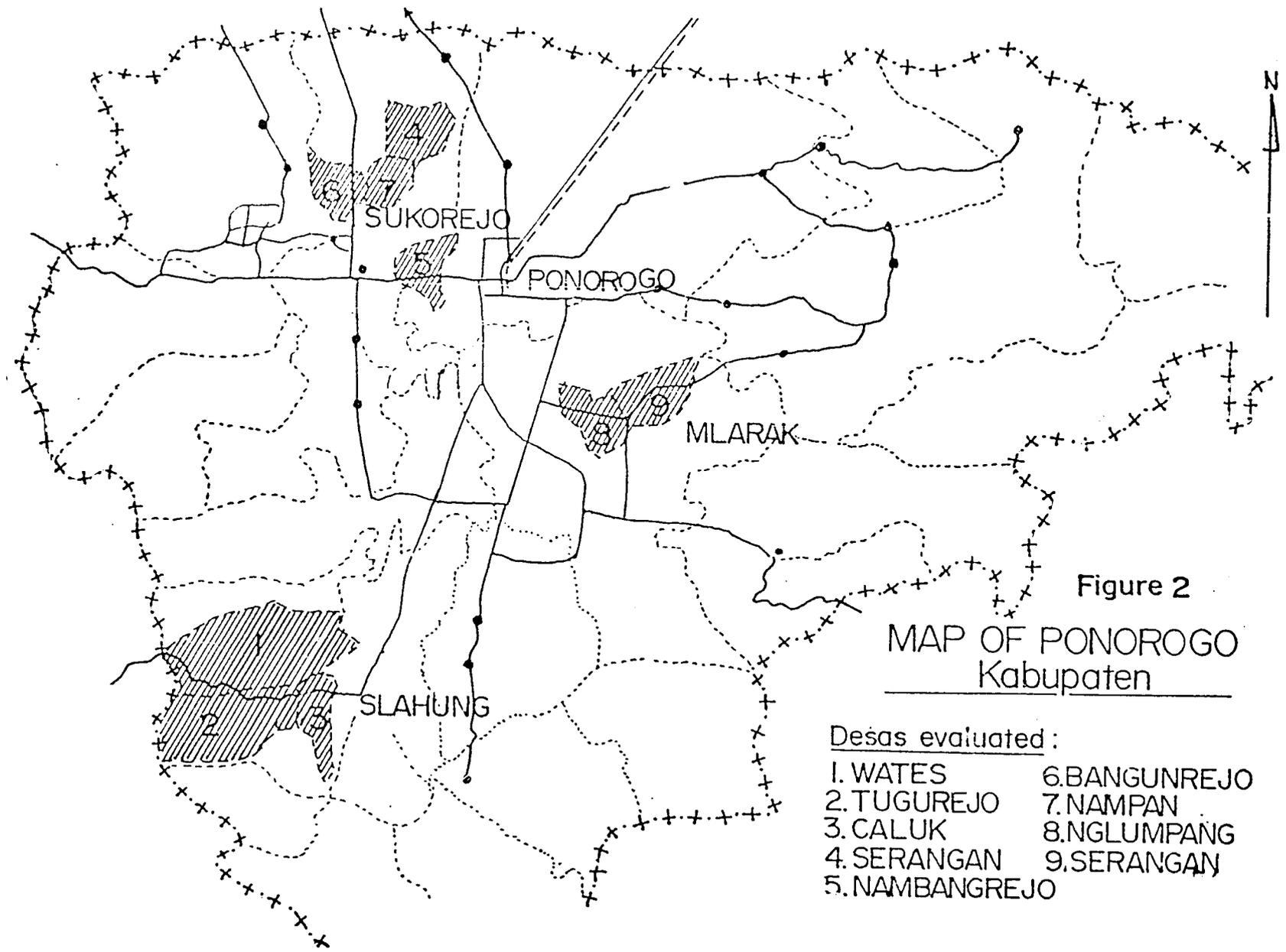


Figure 2  
MAP OF PONOROGO  
Kabupaten

- Desas evaluated :
- |                |               |
|----------------|---------------|
| 1. WATES       | 6. BANGUNREJO |
| 2. TUGUREJO    | 7. NAMPAN     |
| 3. CALUK       | 8. NGLUMPANG  |
| 4. SERANGAN    | 9. SERANGAN   |
| 5. NAMBANGREJO |               |

Table 4: Land Area and Land Use in Three Kecamatan

Kecamatan	Total Land Area	Wet Rice Fields	Horticultural Fields	Forest
Slahung	9127 ha.	2210 ha. (24%)	3794 ha. (42%)	3123 ha. (34%)
Sukorejo	6015 ha.	3550 ha. (59%)	1795 ha. (30%)	670 ha. (11%)
Mlarak	3095 ha.	1364 ha. (44%)	1428 ha. (56%)	0

Kecamatan Slahung is located in the southwestern part of Ponorogo Kabupaten, about 20 km away from the administrative center. Aside from the general isolation, Slahung suffers from lack of rainfall and arable land as well as from the hilly topography. Although, after the completion of a dam two years ago Slahung has the largest land area under irrigation, only 24% of the total land area is converted to sawah wet-rice field, of which 42% is irrigated (926 ha.). (See Table 4). Being cut off by Mt. Lawu to the north, the rainy season is short, and the mountain rain-fall is not sufficient for the new dam. The local residents raise the largest number of cows as a form of adaptation to the dry climate and the hilly topography. The average ratio between the number of cows and the population is one to seven.

Because of the inability of the land to support a large population, the population density of Slahung (5.2 people/ha) remains the lowest among the three kecamatan (Sukorejo, 7.7 people/ha and Mlarak, 9.8 people/ha). The desas are scattered over the hillside, and the communication between the isolated communities and the administration remains poor. The hillside communities grow cassava during the rainy season while the irrigated communities at the foot of the hills plant rice twice a year. This year some farmers attempted to grow soybeans in the dry rice fields after two rice harvests, but the soybeans failed to mature before the dry season was over.

While the total population in Sukorejo remains almost as large as that of Slahung, Sukorejo has 40% more wet-rice fields than Slahung. However, the land under irrigation (370 ha.) is only 10% of the entire sawah fields. During the rainy season, most farmers grow rice and after the harvest switch to soybeans in the dry season. Large landowners, on the other hand, prefer growing sugarcane to soy or rice because it takes relatively little labor input during the 18-month growing season. A large labor input, however, is necessary for the preparation of the field before the planting of sugarcane and also at the time of harvest. For that reason, some large landowners prefer leasing the land to sugarcane factories. Sukorejo also has a large number of cows, and raising chickens

is also very popular. Many chickens, however, died in the past two months when an epidemic hit the area. Coconut and mango trees are also grown mostly as cash crops. One local bidan at a clinic expressed her frustration that most of the food raised locally is not meant for domestic consumption.

Mlarak on the other hand is ideally located in the heart of the narrow plain. While the population density is the highest of three kecamatans, it also has the largest percentage of sawah field under irrigation (48%).

#### Nutrition-Oriented Programs in Ponorogo

In East Java, all the nutrition-oriented programs are coordinated through the office of BPPGD, under the kabupaten administration. In this network of coordination, the interest of the local kecamatan head, Camat, is crucial to promoting PKK activities locally, while drawing available programs from BPPGD. In the competition for getting more programs into the kecamatan, however, communities closer to the local administration office tend to be favored; remote communities, which perhaps have greater needs, remain neglected. The MCH program is one of the programs to be assigned to relatively poor kecamatans upon the recommendation from BPPGD.

#### MCH Program in Ponorogo

Ponorogo first received PL-480 aid between 1973 and 1974 when the kecamatan Slahung suffered a severe crop failure resulting from drought. However, it was not until 1975 that LKD began working in formal cooperation with the Kabupaten and Kecamatan on a regular basis.

Ponorogo has a total of 13,451 recipients, which is about twenty percent of all the LKD administered recipients in East Java. These recipients receive their monthly food aid through 36 distribution centers in 11 kecamatan. The remaining 8 kecamatan in Ponorogo have no MCH programs. Some of the non-MCH desa, however, might have had LKD-funded four-month intensive feeding programs (bi-weekly feeding of full meals for 30 malnourished Balita with Rp.96,000 from LKD and Padat Karya FFW programs.)

#### Dinkes and BKKBN Projects in Ponorogo

The Team was not able to find desa which had DINKES on-site intensive feeding programs, and BKKBN program desa which keep monthly weight records of Balita children. All the desa including Nampan (BKKBN) and Bangunrejo (DINKES) in Sukerejo kecamatan and Serangan (DINKES) in Mlarak kecamatan had organized their programs less than five months ago. The feeding programs were not being held during this period. Tugurejo (BKKBN) was visited in Slahung kecamatan, but the desa

had been on the MCH program for the past five years. The only data on the effectiveness of on-site feeding programs were obtained from Nglumpang in Mlarak kecamatan where a series of voluntary feeding programs took place between 1979 and 1980.

## 2. Profile of Kebumen Kabupaten

Located along the southern coast of Central Java, Kebumen is known as one of the economically depressed areas on the island of Java. (See Figures 1 and 3). Along the hillside communities in the north deforestation has caused serious soil erosion. During the rainy season, local farmers grow non-irrigated paddy along the hillside. In the dry season they grow corn and cassava, but water is extremely scarce. In some communities the distance to the nearest source of water is more than a few kilometers. Many hillside communities do not have bengkok communal land traditionally reserved for desa officials, and the scattered settlement pattern common to the area makes it difficult to organize community activities. The government extension services have provided some of these communities with experimental clove plants for cash cropping in an attempt to raise the income of the local population.

Table 5. Profile of Kebumen Kabupaten

Number of Kecamatans	22
Number of desas	255
Population	1,032,226
Population Density	786/km <sup>2</sup>

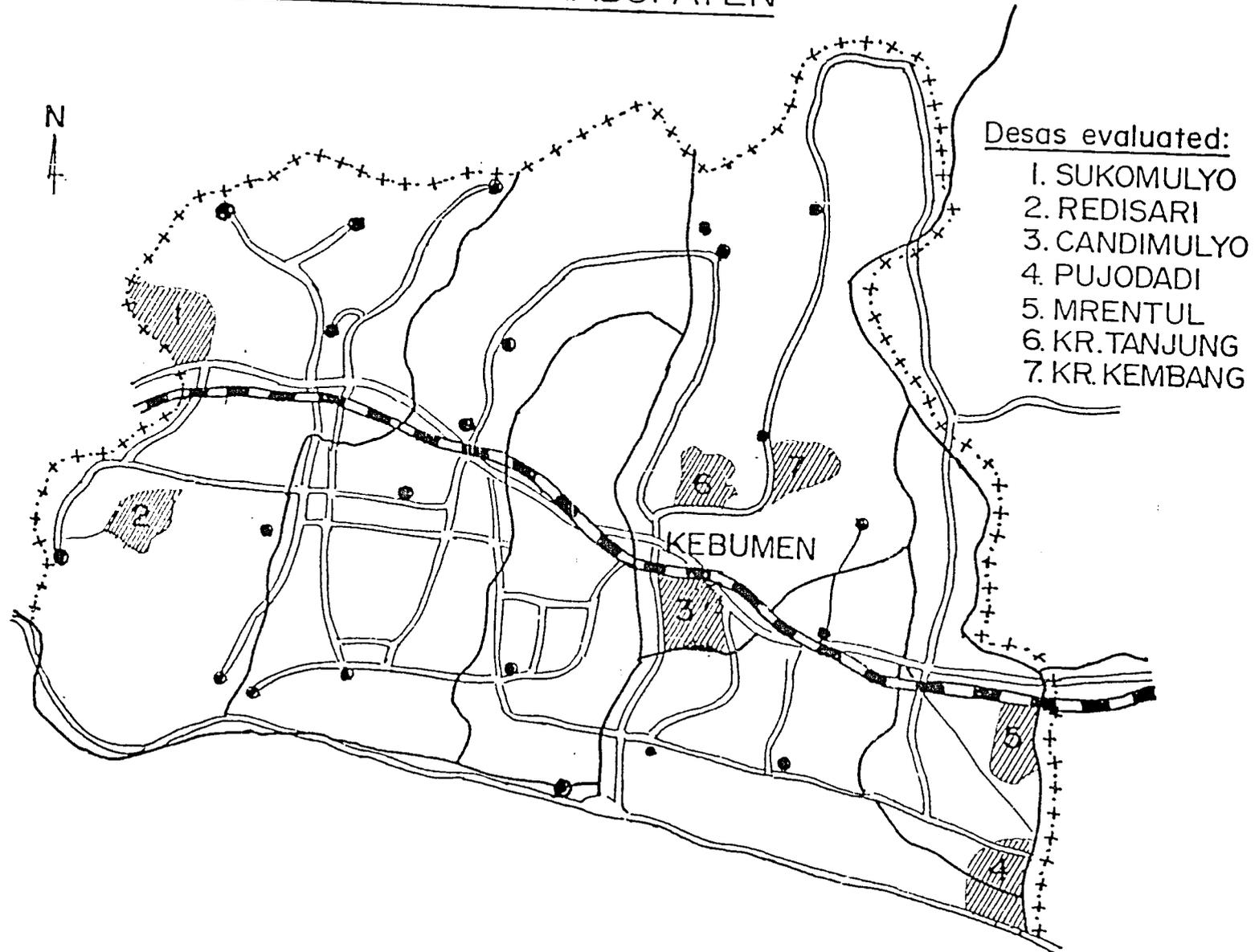
---

June 1980

Irrigation is functioning only in the eastern half of Kebumen, where four rivers channel most of the mountain rainfall from the north to a dam area. The Department of Agriculture has been very active, offering extension services and promoting multiple cropping to diversify locally available food and increase the income of local farmers. Preferred cash crops such as oranges and cloves are grown between paddy fields. Twice-a-year rice farming, however, remains popular providing the local population with relatively inexpensive rice, their main staple. The rivers which permit irrigation in the plain, however, eventually join the southeastern delta flooding the communities during the rainy season. The southern delta is an economically depressed area.

Rice is the staple food for the local residents in Kebumen. It is eaten twice a day, and the additional supply from the plain of Banjumas keeps the price relatively stable (Rp.200/kg for IR varieties). Secondary food crops such as root crops and legumes, however, are not abundant and the prices are higher than in East Java. During the dry season, green vegetables are also two or three times more expensive.

Figure 3 MAP OF KEBUMEN KABUPATEN



Many of the men and women seek work in Jakarta and Yogyakarta, where they engage in marginal employment such as drivers, petty traders and housemaids. The disruption of family life is evident from the sporadic use of the family planning services. While the men are away, the women regularly stop taking the pill (the more accepted form of contraception). In one desa, for example, ten out of fourteen women pill-contraceptors became pregnant during August when their husbands returned unexpectedly to the desa from the city.

MCH Programs in Kebumen

Currently there are ten MCH projects in Kebumen kabupaten. Four are located in Gombang kecamatan, two each in Alian and Kebumen kecamatan, and one each in Rowokele and Mirit kecamatan. The remaining seventeen kecamatan in Kebumen have no MCH programs. In total 5,988 recipients benefit from the program.

Table 6: MCH Recipients in Kebumen

<u>Kecamatan</u>	<u>Number of Projects</u>	<u>Number of Recipients</u>	<u>Pregnant Women</u>	<u>Nursing Mothers</u>	<u>Balita</u>
Gombang	4	2125	181	344	1600
Alian	2	1628	148	375	1105
Kebumen	2	1177	76	164	937
Rowokele	1	518	0	29	489
Mirit	1	550	74	22	454
	10	5998	479	934	4585

Four MCH centers were visited: Desa of Sukomulyo, which has the largest number of recipients among the four desas; Candimulyo, which is centrally located near the town of Kebumen; Karang Tanjung which is in the northeastern dry zone; and desa of Pujodadi in the southeast.

All these desa fall below the poverty level. The length of time each desa has received aid varies from 30 months in Karang Tanjung, 29 months in Candimulyo, to 17 months in Pujodadi and 11 months in Sukomulyo. The average household size in Kebumen is above the national average, but because the young people tend to leave the desas to find jobs elsewhere, Balita population tends to occupy a significantly large proportion in local communities - a high dependency ratio.

Table 7: Balita and Household Size in Four Desa in Kebumen

Desa	Total Population	Number of Households	Number of Balita	Average Household Size
Pujodadi	1558	?	83 (25%)	?
Kr. Tanjung	2098	398	485 (23%)	5.3
Candimulyo	1244	277	181 (15%)	4.5
Sukomulyo	4152	818	599 (14%)	5.1
	9052		1919 (19%)	

Dinkes and BKKBN Projects in Kebumen

Evaluating the impact of an MCH feeding program is conceptually simple; it is a determination of whether the nutritional purpose of the programs was reached. This involves the measurement of change in nutritional status, and the attribution of that change to the MCH program.

In order to control for variables which could confound this analysis, an effort was made to select comparable non-MCH desa where social, ecological and geographic conditions closely resembled those MCH desas visited. Among the problems encountered was the lack of documentation on Balita children in the desa chosen for study. Both BKKBN and Dinkes project desa had poor record systems.

Eventually, the BKKBN programs in desa Karang Kembang and desa Mrentul were studied. Documentation from the local PUSKESMAS supplemented the data. Redisari desa in Rowokele kecamatan and Karang Anyar desa in Karang Anyar kecamatan were selected to represent DPGK - Dinkes programs. Both desas carried intensive feeding programs between 1980 and 1981. None of the desa had good records on the weight-for-age of Balitas.

Karang Anyar, also had a number of voluntary community (swadaya) supported PMT programs. The desa is also located near Puskesmas headquarters where most of the stimuli for all these nutrition improvement programs originate. Whether these desa are good non-equivalent comparison groups is discussed in Part II, Observations and Analysis, Section 2, 'Quality of the Data'.

PART II

OBSERVATIONS AND ANALYSIS

A. NUTRITIONAL IMPACT OF MCH PROGRAMS COMPARED WITH  
OTHER NUTRITION IMPROVEMENT PROGRAMS

1. Coverage and Participation

MCH-UPGK Program

Ideally, all the Balita children of each MCH desa are weighed by LKD-employed social workers in order to review the weight-for-age increase of the recipients and to determine a new list of recipients (an evaluation) for the next year's program. For example, four-year old Balita who score 'A', are discharged from the program, while all new pregnant and nursing women, infants and new Balita are included. Theoretically, the system prevents the local PKK from interfering with the selection of recipients, which should be made on an objective basis. Evidently, however, this well-intended policy has been more counter-effective than beneficial due to the lack of direct control as well as supervision from LKD.

In Ponorogo there was a serious selection problem which systematically excludes certain age groups from participating in the program. This exclusion of the 0 to 36 month Batita group occurs as the result of an LKD administrative policy called "annual evaluation".

A considerable number of MCH desa under LKD's administration have not had an evaluation (either for new entrants or to discharge the "graduated" participants) for more than a year. The backlog list is longer in Ponorogo where a large number of MCH projects exist. The small staff of LKD-employed assistant supervisors/social workers assigned to the kabupaten is simply unable to meet the demand. Some desas have not had a single new evaluation for as long as three years. The following table shows the month in which the last evaluation took place in Ponorogo.

Table 8: Date of Last Evaluation for MCH Desa  
in Ponorogo  
(as of October 1981)

<u>Month of Last</u> <u>Evaluation</u>	<u>Number of MCH</u> <u>Desas</u>
September 1978	1
April 1979	2
May 1979	5
August 1979	1
November 1979	3
August 1980	1
September 1980	2
October 1980	3
March 1981	1
April 1981	3
May 1981	14
	<hr/> 36

The implications of this delay are serious, since children conceived after the last evaluation date could receive no aid during the most critical period of their growth. They must wait until another evaluation takes place and new recipients are able to enter the program.

The age of the youngest recipient in Serangan was 24 months (in September 1981 when the team visited the desa). Between the time of evaluation and activating the list there can be a delay of another five to ten months. Meanwhile children long past the age of five continue to stay in the program since they were less than five when the last evaluation took place. In Serangan 44 out of 170 recipients (26%) were older than five (as of September 1981).

Among the five MCH desa visited in Ponorogo, major problems were identified in Tugurejo and Nambangrejo where the distribution of Title II supplementary food for the month of September 1981 was based on an evaluation done three years ago (in September 1978).

Table 9: Evaluation Dates and Balita Recipients for the Current Program Year in Five MCH Desa in Ponorogo

Date of Evaluation	Starting Date of the Program Year	Balita Recipients	
		Caluk	Wates
Sept. '78	Oct. '78	?	293
Sept. '79	Apr. '80	180	379
May '81	Oct. '81	186	480
		<u>Tugurejo</u>	<u>Nambangrejo</u>
Sept. '78	Oct. '78	260	263
May '81	Oct. '81	402	387
		<u>Serangan</u>	
Sept. '78	Oct. '78	206	
Oct. '79	Aug. '80	169	

In Nambangrejo, for example, 263 remained as 'Balita' recipients for the three-year period even though some of them had undoubtedly passed the age of seven by September 1981. During the same period, nearly 254 eligible Balita were not on the program; some because they had missed the last evaluation and others because they were conceived and born after the last evaluation three years ago. Administrative failure on the part of LKD to carry out annual evaluations is a serious problem of the MCH Title II Programs.

In summary, the eligibility evaluation system is counter-productive to its intended purpose. Children older than five stay on the program sometimes two or three more years, while younger children are not able to get on the program simply because they were born between evaluation periods. It is also counter-effective because some desa, such as Serangan which has not had an evaluation since two years ago, are forced to substitute graduating Balita with newly eligible Balita without changing pertinent age or name information. (Appendix IX). At least 36 (21% of the eligible Balita) such cases were on the current list of recipients.

Table 10 details the current number of MCH recipients in five desa in Ponorogo (except Serangan which has not yet been evaluated). In terms of coverage and participation, Wates is the only desa which enjoys a near-100% participation. On paper, Tugurejo also has a near-100% participation, but the actual participation and attendance among the recipients is actually the poorest of the five desas. Poverty, scattered settlement patterns, and lack of awareness about nutrition problems might be reasons for poor participation and attendance.

Table 10: Current MCH Recipients in  
Five Desa in Ponorogo  
(October 1981)

<u>D e s a</u>	<u>Total Number of Balita</u>	<u>MCH Balita* Recipients</u>	<u>MCH Nursing Mothers</u>	<u>MCH Pregnant Women</u>
Tugurejo	420	402 (96%)	9	95
Wates	480(?)	480 (100%)	32	127
Caluk	266	186 (70%)	25	55
Serangan	385	169 (44%)	6	49
Nambangrejo	479	387 (80%)	11	92

\* As of September 1981

A high concentration of non-participation among the younger children of Tugurejo (see Table 11) suggests that perhaps there is difficulty with carrying both the child and the distributed Title II commodities to and from the MCH distribution site. The even ratio of non-participants among the three-year, four-year and five-year old Balita, on the other hand, suggests that perhaps the parents are unable to afford the expense for the Title II commodities.

In order to meet daily subsistence needs in Tugurejo, for example, everyone including small children have to work (looking after farm animals, collecting firewood, and working as farm hands). The average household size is also the largest among the five desas. All these factors help explain the poor attendance among the eligible recipients. Even in this flood area, the attendance rate goes up during the rainy season because the supply of food is acutely diminished. As soon as the dry season arrives in April, however, the attendance rate sharply decreases (sometimes to 26%) because the harvest begins.

Table 11: Nutritional Status of Non-participating  
Balita Recipients in Tugurejo  
(October 1978 - April 1981)

<u>Nutri-tional Status</u>	<u>Age Group (Month)</u>					<u>Total</u>
	<u>0 - 12</u>	<u>13 - 24</u>	<u>25 - 36</u>	<u>37 - 48</u>	<u>49 - 60</u>	
A	17 (77%)	11 (44%)	1 (13%)	3 (20%)	1(14%)	33(43%)
B	5 (23%)	14 (56%)	7 (87%)	12 (80%)	6(86%)	44(57%)
C	0	0	0	0	0	0
Total	22 (100%)	25(100%)	8(100%)	15(100%)	7 (100%)	77 (100%)

The poor participation among Caluk residents (see Table 10) may be explained as social-political-religious in nature. Even though the MCH program has been in the desa for more than five years, the coverage of existing Balita is only at 70%. The upheaval which disrupted the area during the Old Order era appears to remain even today. Many nominal Moslems who feared political repercussions in 1965 joined the Catholic church. In Caluk, for example, the Lurah was not elected by the community but is an active military mariner officer charged by the government with stabilizing the area.

Meanwhile according to YSBS policy for MCH programs in Kebumen, the total number of eligible recipients for each desa is determined by both per capita income level and the number of existing malnourished Balita. Most desa do not keep any record on nursing mothers and pregnant women. In three out of four MCH desa to be visited in Kebumen, the coverage of Balita children was claimed to be 100% or even more (because some recipients have passed the age five). Only Sukomulyo has less than 100% coverage. (See Table 12).

Table 12: MCH Recipients in Four Villages: Kebumen  
(November 1981)

Desa	Total Number of Balita	Balita Recipients	MCH Nursing Mothers	MCH Pregnant Women
Sukomulyo	599	489 82%	29	0
Kr. Tanjung	485	485 100%	212	27
Pujodadi	454	383 84%	22	74
Candimulyo	181	181 100%	77	40

In Candimulyo, more than half of the participating families receive two or more rations; in Candimulyo, Karang Tanjung and Pujodadi, many families receive three or four rations. Obviously, participating families seem to share Title II food among all the family members. However, in Sukomulyo, 18% of Balita children are not covered by the program. The level of non-participation may be due to the relative "newness" of the program, but more likely, it is due to the unavailability of KMS cards. YSBS limits the number of Balita recipients to no more than 500 in each MCH program desa. Only 500 KMS cards were sent from YSBS when the MCH program started in Sukamulyo, and those who did not get one were automatically excluded from the program.

It is doubtful whether one ration to a family of five (the average family size in Sukomulyo) will make any significant difference to the child's nutritional improvement when everyone in the family shares the food. Even if a Balita gets the same proportion of the food supplement as every other family member, only 8% of the recommended energy and 18% of protein allowances are supplemented.

In Pujodadi and Karang Tanjung, on the other hand (see Table 12) KMS cards are not used as a ticket for program enrollment. Each recipient is provided with an individual card by YSBS. Three hundred and eighty-three children are listed as Balita recipients in Pujodadi. Nearly 19% of the recipients (or 71 children) in fact have reached the age of five as of September 1981. Even though Pujodadi has a high rate of coverage, more than 10% of Balita recipients dropped out of the program between April 1980 and September 1981. Seventy percent were infants less than 12 months old. For the period, three out of 405 recipients missed the first weighing session and another four were already 5 years old.

In Karang Tanjung, which has an MCH program for the longest period of time among the four desa, 485 Balita are listed in the program. It is suspected that a significant number of them are in fact older than five years, since the total number of children under the age nine is only 509 according to the desa record. Though we were unable to obtain the entire weight record of those 'Balita' recipients, data from one of the dukuh (sub-village) shows that more than ten percent of its 126 recipients have passed the age limit. In addition, 212 nursing mothers also receive a ration. Karang Tanjung may have the highest participation among the four desas.

Table 13: Nutritional Status of Drop-outs before Leaving the Program in Tugurejo, Kebumen (April, 1980)

Nutrit. Status	Age Groups (months)					Total
	0 - 12	13 - 24	25 - 36	37 - 48	49 - 60	
A	23/43 (53%)	7/47 (15%)	1/85 (1%)	4/40 (10%)	1/17 (6%)	36/232 (16%)
B	15/23 (65%)	2/35 (6%)	0/35 (0%)	1/15 (7%)	0/6 (0%)	18/114 (16%)
C	1/23 (4%)	0/17 (0%)	0/10 (0%)	0/2 (0%)	0/0 (0%)	1/52 (2%)
Total	39/89 (44%)	9/99 (9%)	1/130 (1%)	5/57 (9%)	1/23 (4%)	55/398 (14%)

Table 13 shows that the large proportion of drop-outs in Tugurejo, Kebumen is concentrated among the younger age-groups. This suggests that the extremely difficult environmental conditions, rather than the price of the supplementary food, is the reason for their leaving the program. Many of them left the program during October, the beginning of the rainy season, when the mothers would have travel problems due to flooding. It appears that the Candimulyo administration is perhaps the most efficient of the four desa (because its project is the smallest). Among the recipients are 20 orang jompo, the poor decrepitudes. Though the coverage is recorded at 100%, there are problems of participation. Many families move back and forth between the desa and Lampung in South Sumatra where the fathers work as petty traders. Sometimes the children accompany the parents and may miss several months of supplement, particularly during the dry season.

Candimulyo weight-record books give some indication as to why children left the program and in what nutritional status they were prior to leaving the program. Over the 17-month period between March 1980 and August 1981, 36 Balita graduated, 6 died, 6 voluntarily dropped out and 2 moved out of the desa to Lampung. The six children who died of illness had been moderately or severely malnourished (five in 'B' and one in 'C'). None of them had improved their nutritional status during the period in the program. Two out of six voluntary drop-outs belonged to 'A,' (their parents evidently felt embarrassed to continue the program.). The other four drop-outs were all malnourished but belonged to the wealthiest families. They left the program when their grandmother, a haji, disapproved of the program for religious reasons.

#### Other UPGK Programs

Both the GOI BKKBN and Dinkes nutritional programs put greater emphasis on encouraging participation by offering a variety of financial and material incentives. As previously mentioned, one of these is an intensive on-site feeding program (PMT) for Balita.

The children included in the program are chosen by the desa kadre from the group of Balita who have received KMS cards. As a policy, moderately malnourished children or children who have constant/reduced weight at three respective weighings are given a priority; while severely malnourished (status 'C') children are referred to Puskesmas for intensive care. Since the size of Balita population in each desa varies along with the number of children with KMS cards, one must examine the rate of coverage limited by these two criteria. The following table shows the coverage in three desa where intensive feeding programs have taken place (Kebumen) or are about to take place (Ponorogo).

Table 14: Coverage of PMT Beneficiaries of  
UPGK-Dinkes in Five Desa in  
Kebumen and Ponorogo

Desa	Date	PMT Beneficiaries				
		Total	% from KMS Holders		% from Total Balita	
Sukomulyo (Kebumen)	Oct.'80	50	10%	(490)	8%	(599)
Redisari (Kebumen)	Aug.'80	50	14%	(370)	11%	(4)
Karang Anyar (Kebumen)	Oct.'79	50	28%	(176)	6%	(878)
Bangunrejo (Ponorogo)	Aug.'81	60	24%	(247)	24%	(247)
Serangan (Ponorogo)	Dec.'81	32	38%	(85)	38%	(85)

Note: Figures between parenthesis are the absolute numbers of KMS holders and total Balita children.

It is evident from Table 14 that the coverage is extremely limited by the size of the 'fixed CFD'<sup>1/</sup> for each project. There are a number of other factors which limit participation in the PMT programs. Proximity is a crucial factor since the program usually occurs every day. The local PKK group checks the rate of attendance in monthly weighing sessions during the four months prior to the program. The nutritional status of the children who participated in the program shows, however, that the ones chosen and actually participating are not necessarily the most needy. Nearly 25 to 60 percent of the participating Balita belong to the 'A' category.

If the local PKK group is active in preparing meals and encouraging the mothers to accompany the child every day, the participation during the period of intensive feeding is high. Such was the case with Sukomulyo and Karang Anyar and Serangan. The intensive feeding lasted only seven to twelve weeks (the greater number of participants, the shorter period based on Rp. 60,-/person/day for 36,000 CFD), and according to the GOI instruction should then be continued with a swadaya program of PMT. Usually, however, the local PKK group is not successful in organizing the swadaya program due to the difficulties in collecting funds and the lack of formal supervision from BPGD.

1/ CFD = Child Feeding Day.

BKKBN programs on the other hand usually begin with high attendance by mothers of KMS card holders. After three months or so, the attendance drops drastically, because there is no material incentive for the mothers to keep attending and there is no clear understanding about the purpose of weighing the children every month. When the number of KMS cards provided by BKKBN is less than the total number of Balita (which is usually the case) only one card is distributed to each family, no matter the total number of Balita in the family unit. In Mrentul, Kebumen, for example about half the 307 Balita have KMS cards. Even though the local PKK offered a monthly swadaya feeding program to these children only 61 children were still attending 3 months after the program began. In another BKKBN desa in East Java, Nampan, the program started in April 1981 with 113 KMS holders (out of 121 Balita residents). A month later only 25 attended the weighing session. Because the program does not provide material input to the participants and does not require much work from the PKK, it is usually offered more or less as a secondary task for the family planning field worker (PLKB) in the community.

As part of monthly administrative duties, each MCH distribution center is required to submit to YSBS and/or LKD a report outlining the total number of Balita recipients in each nutritional group. The numbers of Balita in each group can undergo drastic numerical changes each period. Reasons for this can include death of a Balita recipient, permanent move from the desa, temporary family migrations out of the desa, graduation from the program or a newly eligible Balita entering the program at a different nutritional status than the recipient replaced. In addition, Balita who miss the monthly weighing session are not included in the group report.

A number of factors can be involved in weight-for-age changes (either decrease or increase) in nutritional status for Balita. Illness was most frequently mentioned by the mothers as the main cause of weight loss. Certain illnesses such as diarrhea, worm diseases, skin diseases and flu are associated with specific seasonal change. The end of March (the beginning of the dry season) and the end of September (the beginning of the rainy season) show the greatest weight fluctuations among the children. The mid-rainy season between November and January appears to be a period of steady weight increase. Data show that in both Kebumen and Ponorogo, the beginning of the rainy season has a more pronounced negative affect on the general state of health among the Balita.

The program in Candimulyo began in April 1980. Between the third and sixth month after the program started, all age groups showed a slight decrease in weight. This period coincides with the rainy season which began in September.

In Ponorogo all the MCH projects reviewed started in October. All age groups, except infants, show a sharp weight loss between the ninth and twelfth month which coincides with the August - October period. The months prior to August is a harvest period when children are usually better fed. Another interesting factor should be considered for these same months in 1978 and 1979. The Moslem fasting month fell between September and October, which may explain the greater weight drop among the eldest age groups in Sukomulyo, Candimulyo and Ponorogo.

It is difficult to estimate the importance of the regularity and the frequency of Title II commodity deliveries on the participation and nutritional status reponse of the Balita. When the team visited East Java in September 1981, the MCH desa had been waiting 2 months for a delivery. According to the local coordinator, the deliveries usually do stop during these months because it is difficult to mobilize people for loading and unloading.

## 2. The Quality of the Data

Malnutrition manifests itself in individuals in varying degrees. Severity can be determined by comparing particular characteristics of a malnourished child with a normal child. The selection of standards is critical to this process.

In Balita, one characteristic which mirrors poor nutrition is growth. The physical measurement of malnutrition most often used in Indonesia is weight. Standards have been formulated with respect to age - a basis for comparison. (See Appendix IV). Deficiency with respect to this measure reflects either acute (short-term) or chronic (long-term) malnutrition, or both.

The basic assumption underlying the use of this ratio of the observed weight of a child to the normal weight of a child of the same age - weight/weight (age) adjusted for Indonesian standards is that a well-nourished child grows in a regular, predictable manner. A malnourished child does not follow this pattern - the degree of deviation is expressed as a classification scheme (status 'A', 'B' and 'C') and is associated with increasing risk levels. (See Appendix IV)

The determination of change in nutritional status requires that data exist for at least two points in time. The ages and weights of the children participating in the programs must change. In addition, malnutrition is not uniformly distributed over all ages. There can often be a critical period in each child's life when the combination of insufficient food and increased exposure to disease leads to periods of higher risk for malnutrition (weaning period).

The most common problem encountered in both MCH and non-MCH data is the unreliability of the ages of Balita. It is not customary for the local population to keep a record of the child's exact birthdate. The kadre are obliged to make a guess at the stage of the child's growth. In the process, they tend to make a very rough estimate usually by the number of years rather than months. There are large concentrations of Balita in 12, 24, 36, and 48 month age groups, as shown by in the following tables. (See Tables 15 and 16).

Table 15: Concentration Tendency of the Age Records

Age Records	MCH desa*/	Non-MCH
	Total (%)	desa Total (%)
1, 2, 3, 4, 5 yrs.	1897 ( 64%)	848 ( 51%)
1/2, 1 1/2, 2 1/2 yrs., etc.	460 ( 6%)	461 ( 27%)
3, 6, 9 months	394 ( 13%)	139 ( 8%)
Others	219 ( 7%)	237 ( 14%)
Total	2970 (100%)	1685 (100%)

\*/ The table does not include samples from Sukomulyo and Candimulyo but includes all other MCH desa both in Kebumen and Ponorogo.

Only in Sukomulyo and Candimulyo, are the numbers of Balita evenly distributed throughout all age groups because they recorded the actual birth dates of the Balita recipients. (See Table 16)

Table 16: Percentage of Children Whose Age is Recorded in Units of One-Year, Half-Year, and Month

Program : MCH

Desa	Sukomulyo	Karangtanjung	Candimulyo	Pujodadi	Serangan
One-year	2.35	86.83	7.30	57.61	39.52
half-year	5.70	6.52	6.57	15.71	12.37
month	9.20	0.66	8.61	2.67	4.81
x <sup>2</sup>	17.93**	6592**	0.82ns	1349**	497**

Desa	Nambangrejo	Caluk	Tugurejo	Wates
One-year	51.43	31.67	42.52	57.49
half-year	19.18	24.44	18.65	15.75
month	2.94	4.39	3.88	2.68
x <sup>2</sup>	667**	207**	175**	2191**

Program: UPGK

Desa	Redisari Karanganyar	Karangkembang Mrentul	Tugurejo Nampan	Bangunrejo	Nglumpang
one-year	44.09	36.61	53.58	61.05	43.19
half-year	18.90	18.58	21.02	38.95	38.03
month	3.70	4.48	2.54	0	1.87
x <sup>2</sup>	247**	237**	1326**	1818**	1285**

In both desa, the nutrition kadre are more enthusiastic, their programs are younger, and the kadre perhaps received better training than in other MCH desa. In some desa such as Pujodadi and Karang Tanjung, on the other hand, the local PKK kadre seem to have very little to do with the handling of the program. The men from the desa council instead take care of the weighing and keeping of the records.

The average rate of error in reporting ages can vary from a few months to half a year. MCH program desa, on the other hand, tend to under-estimate the ages of Balita recipients to enable the children to stay on the program as long as possible.

Weight is the other frequently collected anthropometric measurement. The advantages of using weight for nutritional status assessment are that the data are relatively easy to gather from the kader and that basic equipment and trained staff are available.

However, judging the nutritional status of these children only on the basis of weight-for-age could lead to misinterpretation. An infant weighing 6 kg., for example, could be classified into Group 'A' if his/her age is estimated to be 6 months but into Group 'C' if the age is estimated to be 12 months. Because the rate of growth slows down as the child passes the 18th month, and he/she will have to gain 2 kg. to enter into Group 'A' from Group 'C'.

Another observed disadvantage of this assessment method is that it is a composite indicator for both acute and chronic malnutrition. Weight-for-age can overstate the actual level of malnutrition in a population, because it includes all the children who are small for their age (which is common in the desa).

Another major problem observed at the weighing sessions was the difficulty in obtaining accurate weights. For instance, in small children the difference in weights from month to month can be less than one or two whole kilograms. This makes a significant difference in terms of classifying their nutritional status. These errors become amplified when comparing differences.

Logistical problems abound. Most desa use the traditional bar scale (dacin). The children are suspended from the scale in a sarong or a basket. Team work by the kader can facilitate the process. In addition, the concept of "zeroing" the scale is a hazily understood concept. Rarely is the weight of the cloth or basket subtracted from the final weight reading of the child.

The weight records from Kebumen clearly demonstrate the most serious problems associated with reporting and recording. Figures 4 and 5, for example, graphically show the changes in body weight for age after 0, 3 and 6 months in the MCH Programs in the desa of Karang Tanjung and Pujodadi. Referring again to Figure 4, an average 23-month old child in Karang Tanjung began the program at the very bottom of 'B' group, gained 2 kgs over a 3 month period and entered group 'A' after 6 months in the MCH program. A similar pattern is reported by all age groups less than 3 years old.

In Pujodadi, an average monthly weight gain is less than that of Karang Tanjung, but all age groups become 'overweight' after 6 to 9 months in the MCH programs (See Figure 5). There are at least three possible interpretations of this data: (1) In both Pujodadi and Karang Tanjung most children were not weighed most of the time; (2) if they were weighed, they routinely added weights of one-half to one kilogram each session; or (3) the ages of some members of the age groups were under-estimated to keep them in the program for a longer period.\*/ To substantiate this observation, carefully examine the growth pattern for recipient children in the MCH program in Karang Tanjung (See Figure 4) for the 1981 program year.

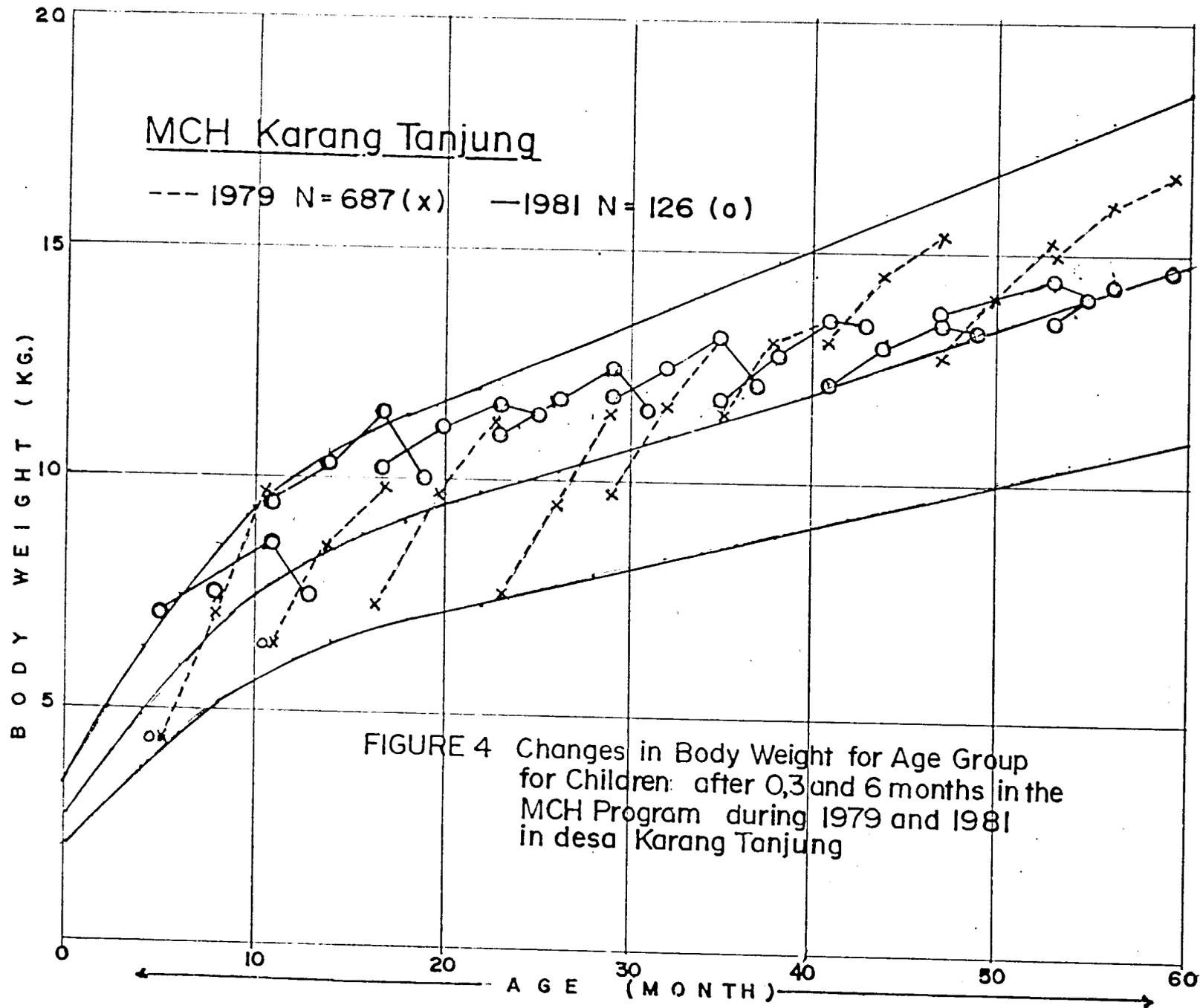
Note a sharp drop of the last point (final weight) with every age group. This weight was recorded when the team was observing the weighing session and checking the recording. Table 17 below demonstrates that weight drop was not caused by seasonal conditions. (See Appendix VIII for complete data).

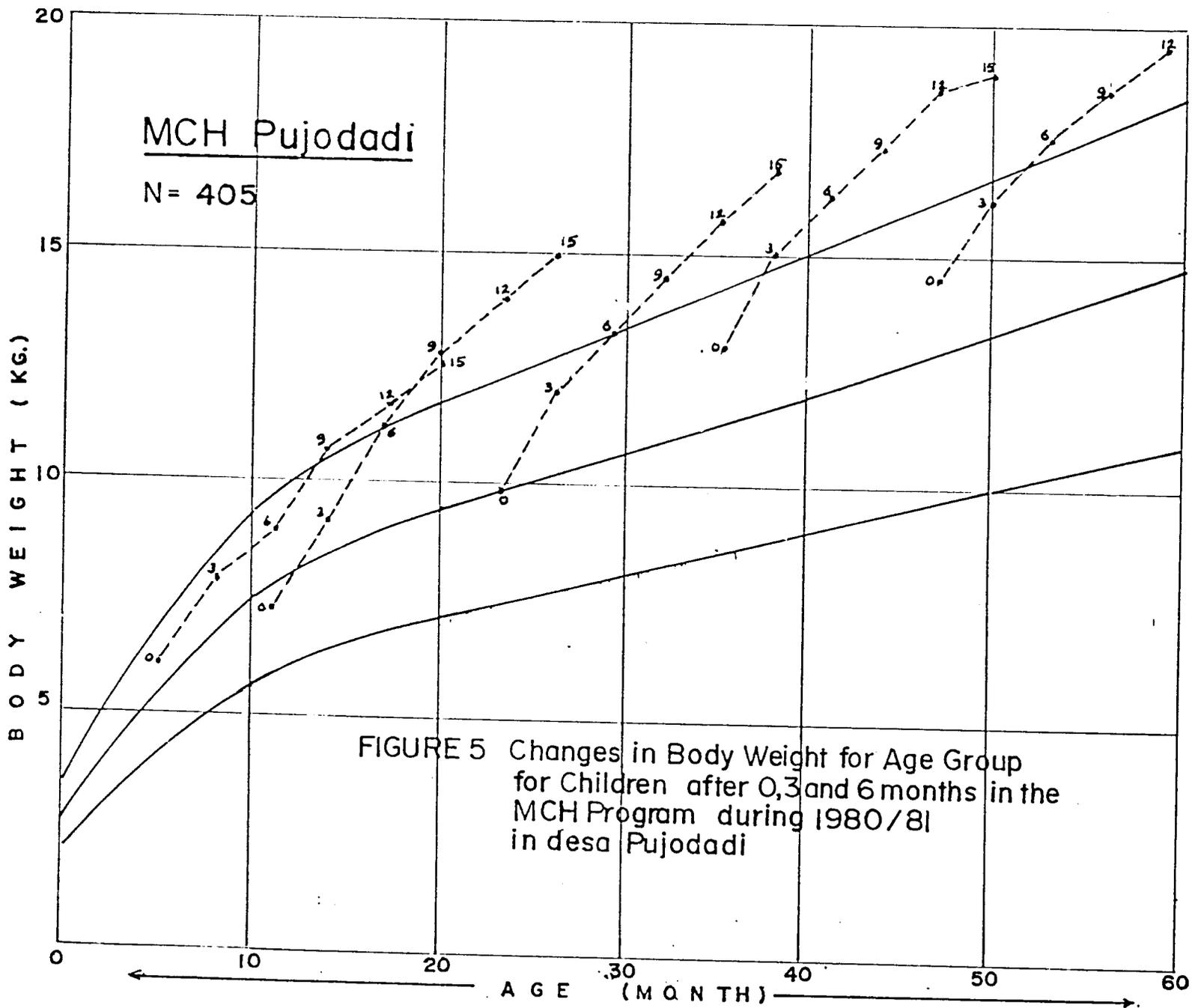
Table 17: The Average Monthly Weight Increase (kg.)  
Among the Balita Recipients in Karang Tanjung,  
Kebumen in 1979 and 1981

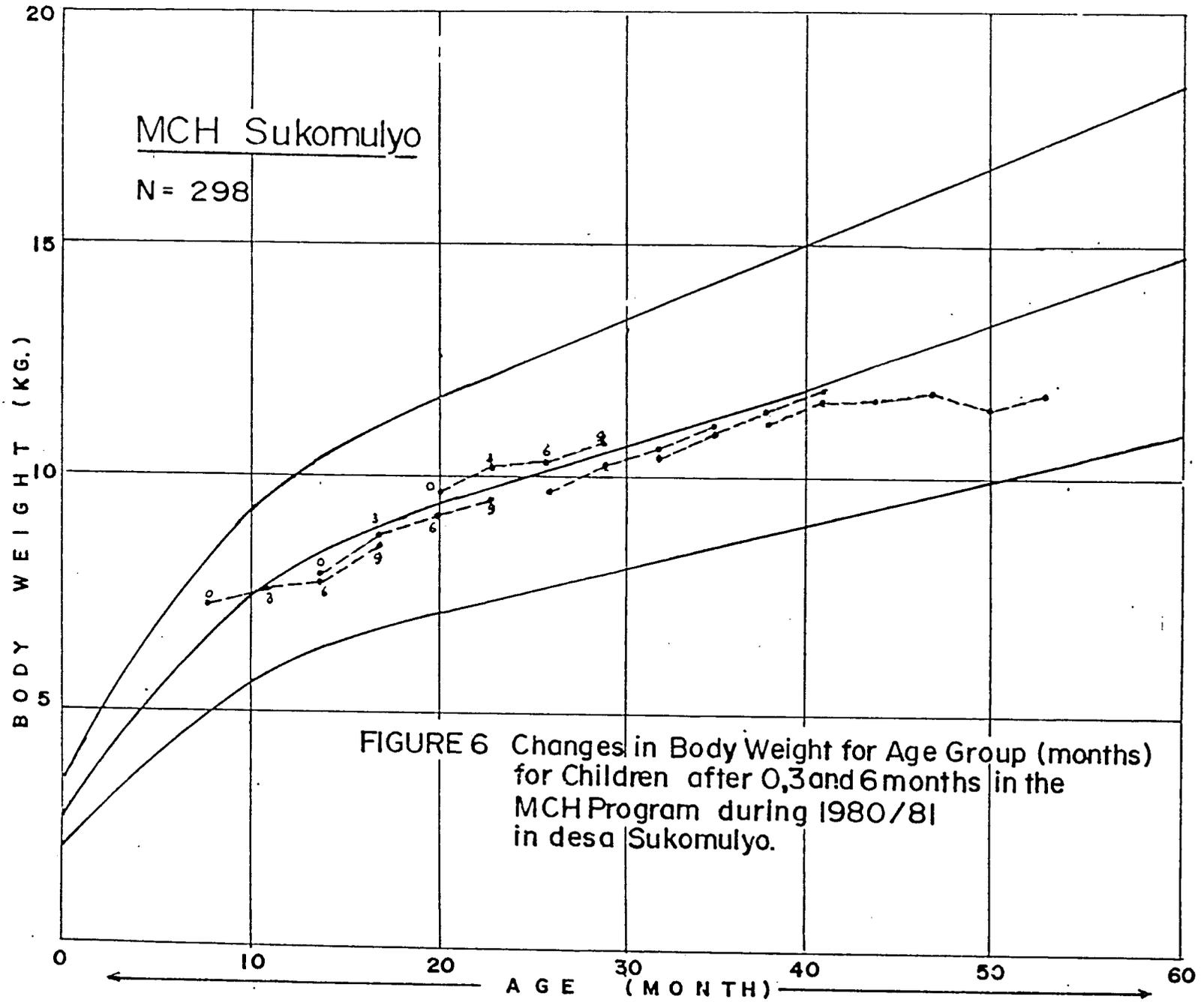
Month in 1979	June - July	July - Aug.	Aug. - Sept.
Sample size	493	493	493
Average weight gain (kg).	.54	.57	.61
Month in 1981			
Sample size	125	125	125
Average weight gain (Kg).	.14	.11	-.16

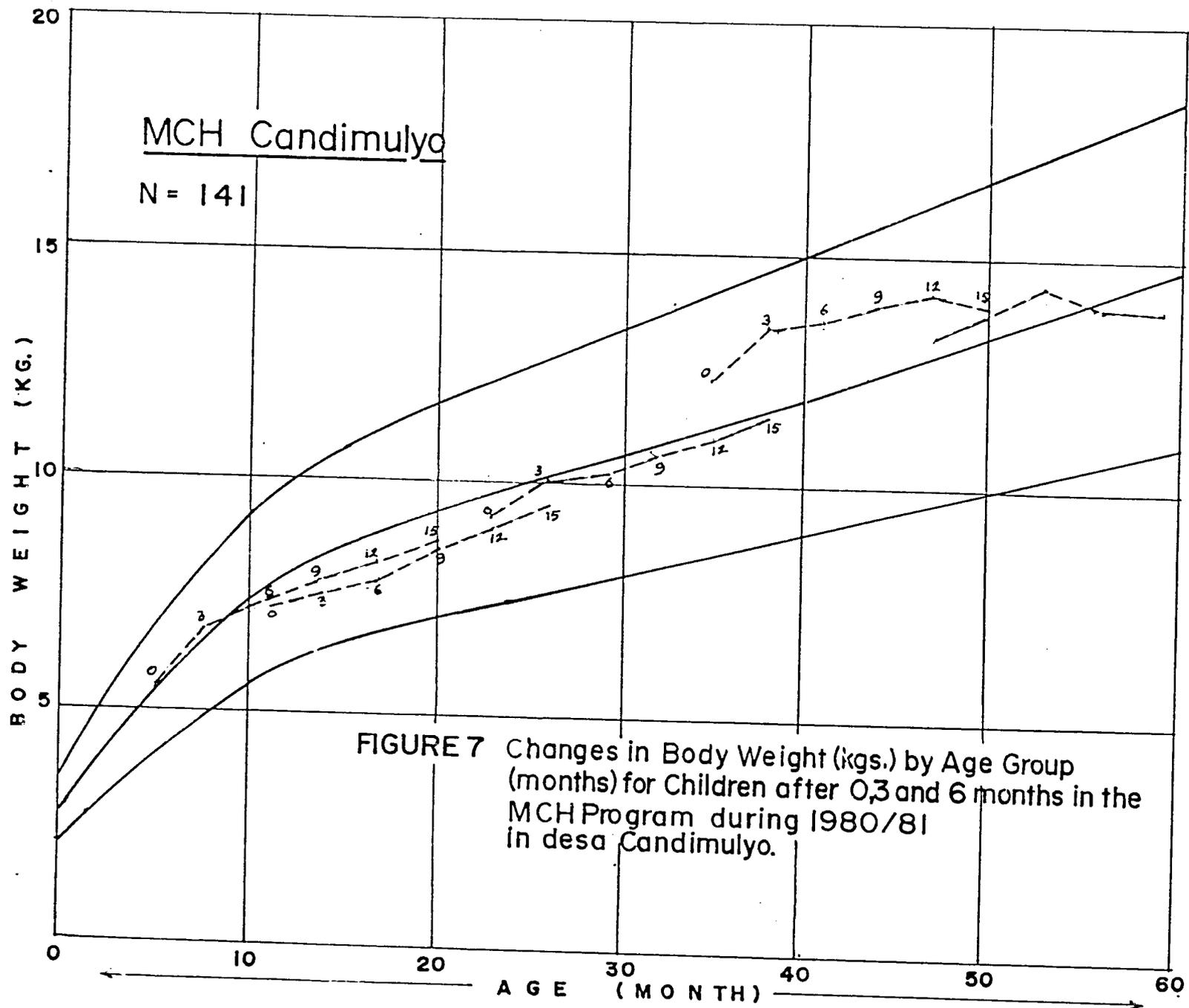
In Sukomulyo and Candimulyo, on the other hand, the pattern of average monthly weight increase appears to be credible (See Figures 6, 7, 8 and 9). The team believes this recorded data to be more reliable than the recorded data from Karang Tanjung and Pujodadi.

\*/ Both desa kept a large group of children past the age of five. According to the demographic record obtained from the desa, even the current total of recipients is a lot larger than the total number of Balita.









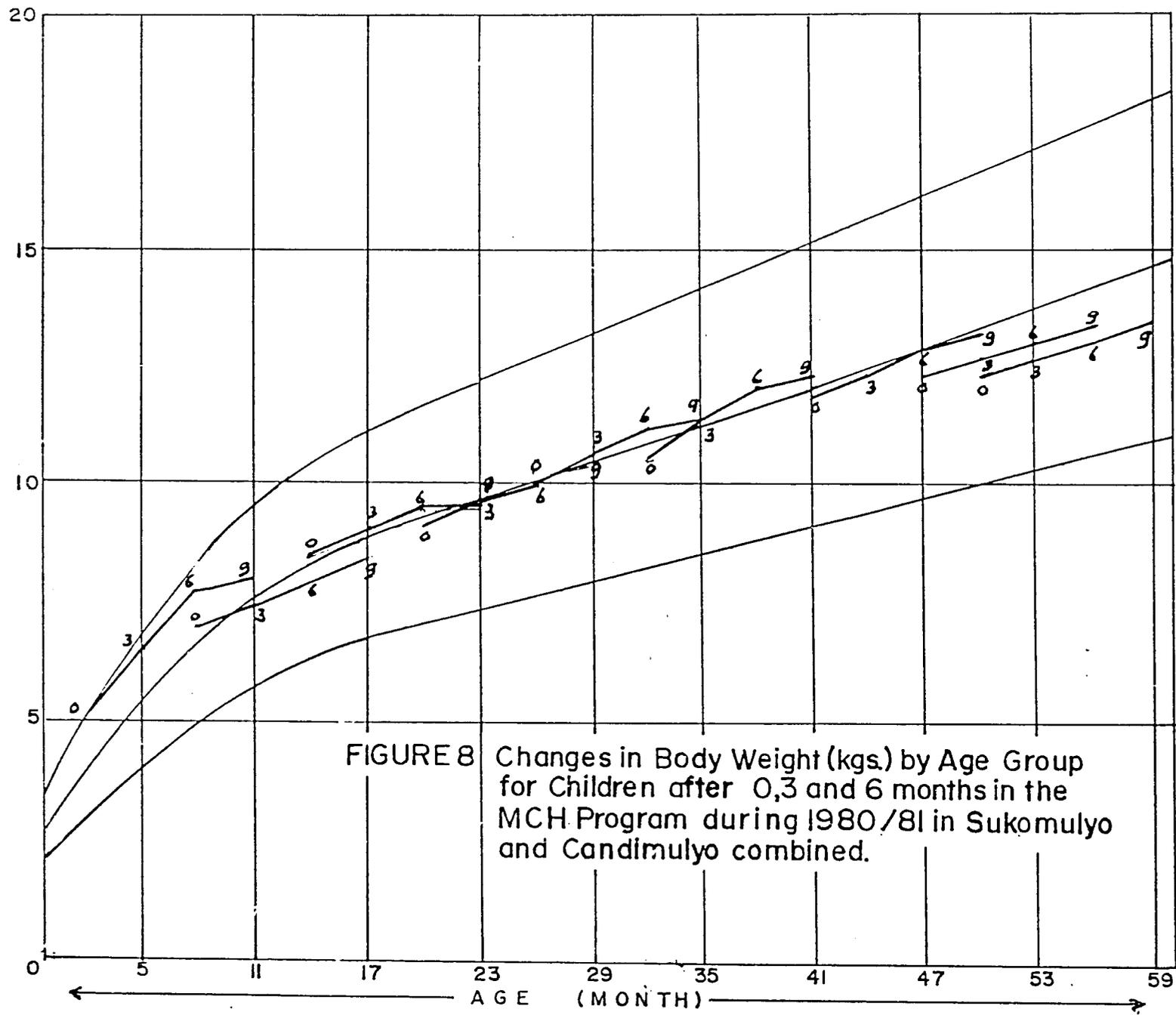


FIGURE 8 Changes in Body Weight (kgs.) by Age Group for Children after 0,3 and 6 months in the MCH Program during 1980/81 in Sukomulyo and Candimulyo combined.

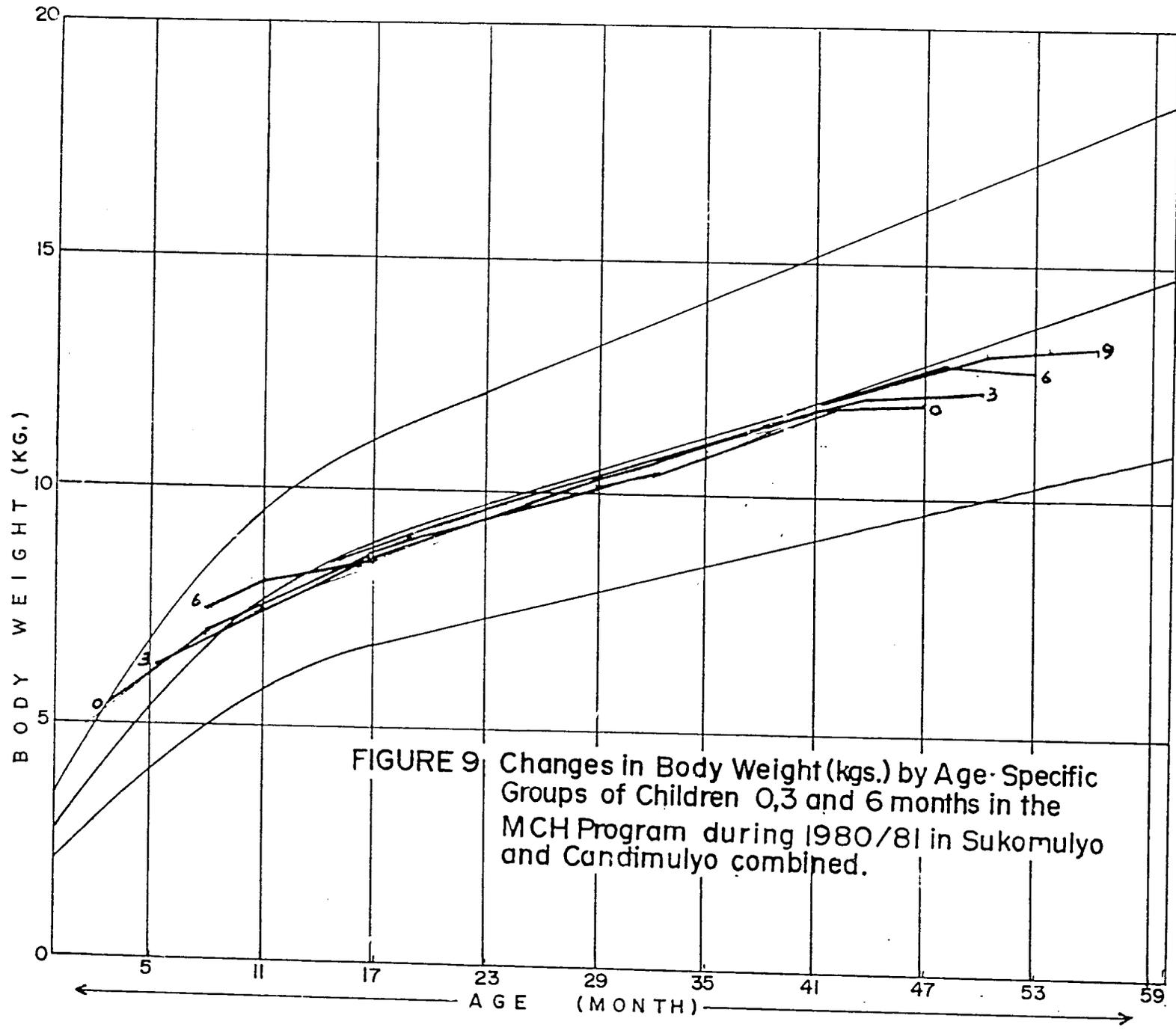


FIGURE 9: Changes in Body Weight (kgs.) by Age-Specific Groups of Children 0,3 and 6 months in the MCH Program during 1980/81 in Sukomulyo and Candimulyo combined.

Among MCH Program desa there were a number of mutable (substitution) cases whereby a recipient child is replaced by another without changing the child's name or the age. The problem, seems to be limited to desas where the coverage is less than 100%, such as Sukomulyo in Kebumen and Serangan in Ponorogo. In Sukomulyo, one Balita from every family is chosen as an official recipient; some parents switch the elder 'graduated' child with a younger sibling when they realize that the food ration will be terminated. In Serangan, mutable cases occur more systematically when children reached the age limit, usually at the end of each twelveth month. (See Appendix IX) However, it is extremely difficult to detect a case, when a child leaves the program before reaching the age limit and a new child at a similar stage of growth takes its place. Most of the time, if a gross weight gap between two consecutive weighing periods was encountered the case was excluded from the analysis. When the child's weight increases or decreases by less than or equal to one kilogram between two consecutive weighing periods, the reliability of the weight on the basis of age was accepted. (See Table 18)

Table 18. Percentage of the Data with Average Gain  $\geq 1.0$  kg/month for Children  $\leq 12$  month of Age and with Average Weight Gain  $\geq 0.3$  Kg/month for Children 1-6 Years of Age. (for MCH Programs only)

Desa:	Sukomulyo	Karangtanjung	Candimulyo	Pujodadi	
% :	11.36	43.08	21.39	47.71	
Desa:	Serangan	Nambangrejo	Caluk	Tugurejo	Wates
% :	10.19	12.50	6.62	20.96	13.27

Note: According to Standard Harvard - Stuart and Stevenson chart the normal average weight gain plus two standard deviation for children  $\leq 12$  month of age and less is 0.598 kg/month and for children 1-5 years of age is 0.201 kg/month (Appendix IV).

One additional problem with MCH data from East Java is that the list of recipients changes every time a new evaluation takes place. There are many children with the same name who often belong to the same age group. This substitution practice caused significant problems when trying to identify reliable data for the longitudinal study of recipients in the MCH programs.

The reliability of the data from UPGK-Dinkes projects (Bangunrejo) is also hard to determine. Where participation in the program is poor, gaps in the reports to Puskesmas are filled in with the weight records taken in previous months. If the weight record after the three month on-site feeding program (PMT) shows little improvement, the ages of the recipients are lowered by a few months to a year in the final report to make it look better. (UPGK-Dinkes programs are three month feeding programs)

Poor attendance is the major problem with the data from BKKBN projects. Since there is no material incentive for participating mothers, they seem to drop out of the weighing program after the first few months. Even with UPGK-Dinkes programs, there is no systematic follow-up data after three month feeding programs. Because the Balita selected for UPGK-Dinkes programs are malnourished when entered into the 3 month feeding program and the number of Balita on BKKBN programs are limited by the availability of KMS cards, this data does not give a general development picture for the rest of Balita population in the desa. Weight-for-age records were also collected from the local Puskesmas when data were available, but poor attendance also prevails, making a comparative analysis with MCH programs less than complete.

In summary, there are numerous problems with the quality of the data obtained from the MCH programs. These include:

1. Unreliability of the recorded ages of the Balita.
2. Instrumentation effects - inaccurate measurement due to poor maintenance of the equipment (logistical) coupled with inadequate quality control over the actual weighing, interviewing, recording, etc.
3. Attrition and addition effects - eligible Balita join or drop out of the program, thereby changing the composition of the target groups, and consequently, the nutritional status.
4. Substitution of Balita confuses longitudinal data.
5. Poor attendance limits number of Balita cases to be studied.

### 3. Short-term Impact Analysis

All the data for the analysis of UPGK-Dinkes feeding programs derive from Kebumen, because none of the UPGK-Dinkes desas visited in Ponorogo had completed the project. Included in the analysis of the Dinkes program are the data from Jatiluhur\*/ and Sukomulyo, where the project operated between February-April in 1981, and Karang Anyar, where the feeding program took place in early 1980. However, it should be noted that all the projects for UPGK-Dinkes program took place during the rainy season, when children steadily gain weight because they get more attention from the mothers, and crops from home-gardening are readily available. The last weighing session for all these programs took place at the time of the first harvest.

The combined data for the feeding programs in these UPGK-Dinkes desa shows that the size of well-nourished children in Group 'A' increased by 11%, but the size of Group 'C' children decreased only by 3%. The small decrease in the size of Group 'C' results from the relatively large percentage of improvement among the Group 'C' children (9 out of 15) being cancelled out by the decline of Group 'B' children (5 out of 112) moving down to Group 'C'. It is hard to tell, however, whether the decrease in the size of Group 'C' was due to the feeding programs, because 6 out of 9 children who moved up from Group 'C' to Group 'B' came from Sukomulyo where they had been in an MCH program for six months.

UPGK-Dinkes 1 and UPGK-Dinkes 2 data (which excludes Sukomulyo) shows more clearly that the feeding programs are effective for improving the nutritional status of mildly moderately malnourished Group 'B' children but not for severely malnourished Group 'C' children. (See Table 19). This situation can be understood because the UPGK-Dinkes on-site feeding program is targeted to the nutritional improvement of Group 'B' children. According to government policy, Group 'C' children are referred to the local Puskesmas for intensive care. It was recognized that this referral system is non-operational.

---

\*/ Jatiluhur replaced the data from Redisari because the latter data were shown to be unreliable.

Table 19: The Effect of UPGK-Dinkes PMT\*/ Program After 3 Months Operation Shown by the Shifts in Nutritional Status

a. DINKES 1					b. DINKES 2				
Nutritional Status	At program start		After 3 mo. program		Nutritional status	At program start		After 3 mo. program	
	Total	%	Total	%		Total	%	Total	%
A	14	9	29	20	A	8	8	24	24
B	112	76	101	68	B	81	82	64	65
C	22	15	18	12	C	10	10	11	11
Total	148	100	148	100	Total	99	100	99	100

\*/ PMT = Pemberian Makanan Tambahan (on-site feeding program)

Swadaya 1 in Karang Anyar, Kebumen, (see Table 20) provided 64 Balita children with weekly full meals between October and December 1980 from funds collected by PKK cadre. Only one child in Group 'C' among all the recipients failed to improve. Swadaya 2 in Nglumpang, Ponorogo, (also see Table 20) offered a number of feeding programs including one LKD-funded bi-weekly feeding program for a total of 87 children.

Table 20: The Effect of UPGK-Swadaya PMT Program After 3 months Operation Shown by the Shifts in Nutritional Status

a. Swadaya 1 (Karanganyar)					b. Swadaya 2 (Nglumpang)				
Nutritional status	At program start		After 3 mon. program		Nutritional status	At program start		After 3 mon. program	
	Total	%	Total	%		Total	%	Total	%
A	25	39	32	50	A	12	14	24	28
B	38	59	31	48	B	70	80	53	67
C	1	2	1	2	C	5	6	5	6
Total	64	100	64	100	Total	87	100	87	100

As Table 21 shows, UPGK-BKKBN projects demonstrate considerable increases in the nutritional status of children over a relatively short period.\*/ At the end of a three-month period, the percentage of Group 'A' children increased from 31% to 39%, while Group 'B' and Group 'C' decreased by 3% and 5% respectively. Ideally, the improvement

\*/ Data from Ponorogo are not included, because such data do not accurately show 'impact' of the project. The record in Nampan was kept with 6-month intervals, and the impact data from Tugurejo could not be considered in the study because the desa had been in an MCH program for five years before and during the project period.

may have resulted from increased awareness and attention of the mothers, but the last weighing for both cases took place shortly after the harvest. Both desa provided monthly meals as part of a food demonstration program\*/ (See Figure 10).

Table 21: The Proportional Changes of Nutritional Status of UPGK-BKKBN after 3 months Operation in two Desa in Kebumen (Mrentul and Karang Kembang)

Nutritional status	At program start		After 3 months program	
	Total	%	Total	%
A	36	31	45	39
B	70	60	66	57
C	10	9	5	4
Total	11	100	116	100

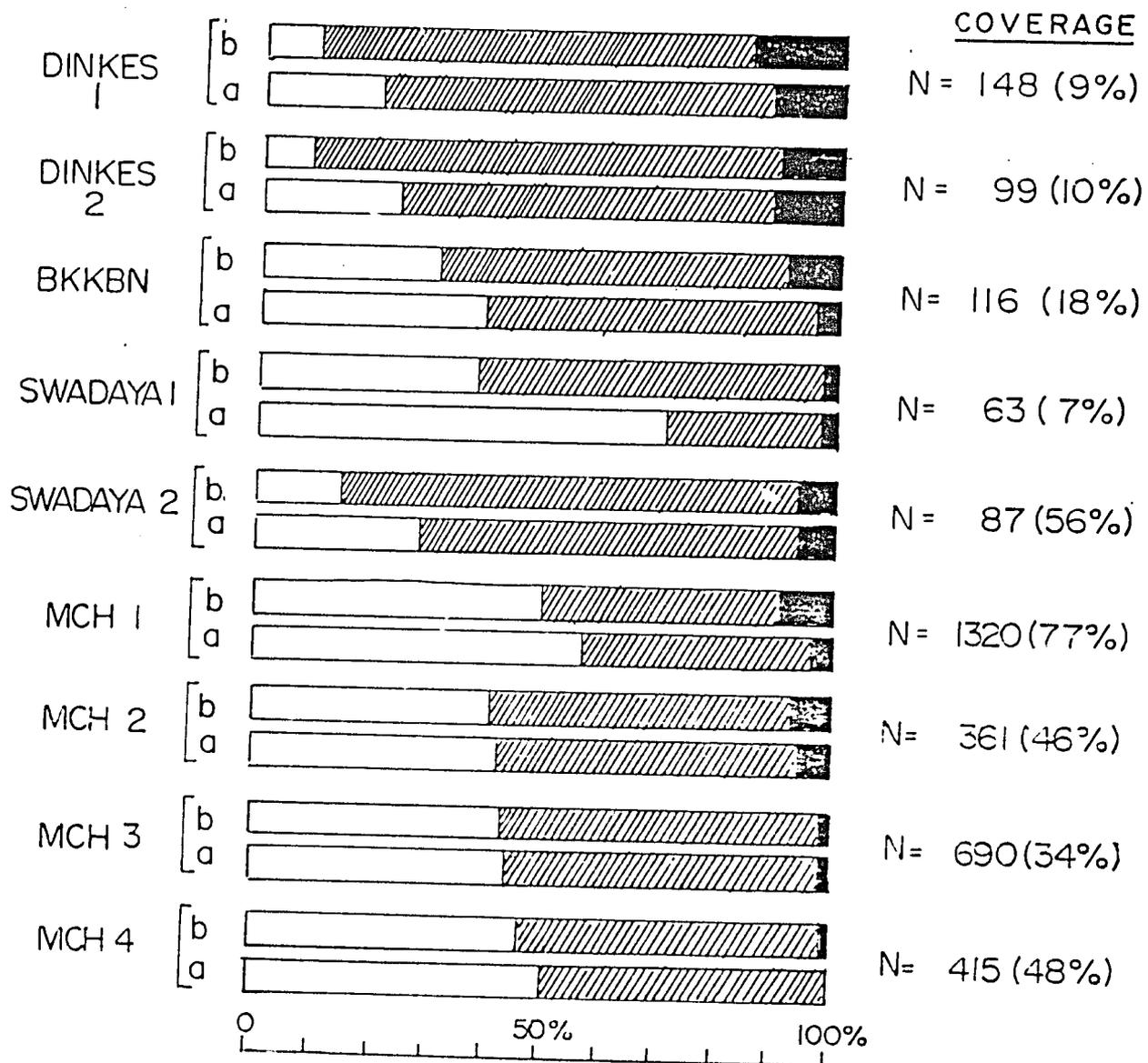
Over a three-month period, MCH projects (Table 22) show little change in the distribution of nutritional groups. MCH 1, which includes all four desas in Kebumen, appears to show an 8% increase in the size of Group 'A' children and a 6% decrease of Group 'C.' However, the team lacks confidence in the data, because the two desa (Kr. Tanjung and Pujodadi) whose project data are strongly questionable are included. MCH 2, (Table 22), covers only reliable data out of MCH 1. It shows an increase in Group 'A' and a decrease in Group 'C' of only 1% each. (See Figure 10)

In terms of percentages, all five MCH desa in Ponorogo, (combined in MCH 3 in Table 22) demonstrate the same rate of improvement as MCH 2 group. It is important to note that in three of five MCH desa the program began in 1975. It should be assumed that some of the subject population received food aid prior to the 1978 program year. In addition, the three month study period in four of seven MCH program desa included projects between the October through December period, which is the early part of the rainy season. The childrens' weights seem to decrease due to an increased frequency of illness associated with seasonal change, decreased attention from the mothers and decreased supply of food from the previous season.

\*/ The data for Mrentul cover December 1980 to February 1981 (the first harvest) and the data for Karang Kembang from May through July 1981 (the second harvest).

Figure 10

SHORT TERM IMPACT OF NUTRITION PROGRAMS  
(Three-month program period)



b = BEFORE THE PROGRAMS  
a = AFTER " " "

□ GROUP A  
▨ GROUP B  
■ GROUP C

Table 22: The Effects of MCH Programs after 3 Months Operation in Four Desa in Kebumen and Five Desa in Ponorogo Shown by the Shifts in Nutritional Status

<u>MCH 1 (Sukomulyo, Kr. Tanjung, Candimulyo, Pujodadi)</u>					<u>MCH 2 (Sukomulyo, Candimulyo)</u>				
Nutritional Status	At program start		After 3 mon. program		Nutritional Status	At program start		After 3 mon. program	
	Total	%	Total	%		Total	%	Total	%
A	657	50	769	58	A	182	42	185	43
B	539	41	506	39	B	224	52	225	52
C	124	9	45	3	C	24	6	20	5
Total	1320	100	1320	100	Total	430	100	430	100

<u>MCH 3 (Serangan, Nambangrejo, Caluk, Tugurejo, Wates)</u>					<u>MCH 4 (Nambangrejo, Wates)</u>				
Nutrit. Status	At program start		After 3 mo. program		Nutrit. Status	At program start		After 3 mo. program	
	Total	%	Total	%		Total	%	Total	%
A	299	43	305	44	A	197	47	212	51
B	378	55	378	55	B	215	52	203	49
C	13	2	7	1	C	3	1	0	0
Total	690	100	690	100	Total	415	100	415	100

One encouraging observation emerges from the data in Table 22, MCH 4 (which includes the two newest MCH projects from MCH 3 group). A small number of Group 'C' children (only 3 children of a total of 415 recipients) moved to 'B' status during the 3 month MCH project period. Consequently, these same three children remained in Group 'B' for the following 18 months. At the end of that period, one child shifted to Group 'A' status.

To conclude the short-term impact analysis, MCH projects appear to be more effective than on-site feeding programs for improving a significant number of severely malnourished Group 'C' children, but do not bring about a rapid improvement among the mildly/moderately malnourished Group 'B' children. Group 'B' children appear to derive more benefit from the UPGK on-site feeding programs. Table 23 describes this observation.

Table 23: The Shifts in Nutritional Status of 'B' and 'C' Groups Balita after 3 Months in the Programs

Nutritional Status	Dinkes 2		BKKBN		Swadaya (1+2)		MCH (2+3)	
	Total	%	Total	%	Total	%	Total	%
Constant B	61	75	54	77	89	82	531	88
Shift to A	16	20	13	19	19	18	67	11
Shift to C	5	5	3	4	0	0	4	1
Total B at the start	81	100	70	100	108	100	602	100
Constant C	7	70	2	20	6	100	23	62
Shift to A	0	0	0	0	0	0	0	0
Shift to B	3	30	8	80	0	0	14	38
Total C at the start	10	100	10	100	6	100	37	100

#### 4. Longitudinal Analysis

##### a. Nine-month Swadaya Feeding and MCH Programs.

Because of the short-term nature of UPGK-Dinkes on-site feeding programs and poor participation in the UPGK-BKKBN programs, we were unable to find comparable data from non-MCH nutrition programs for a longitudinal study. There is sparse information from one voluntary feeding program (Swadaya) which will be discussed in this section.

Swadaya 1, Karang Anyar, resumed its feeding program (once a week feeding) in October 1980 after the UPGK-Dinkes feeding project ended in February of 1980. The Swadaya project continued through the end of July 1981 (9 months).

Table 24: The Shifts in Nutritional Status of 'B' and 'C' Groups Balita after 9 Months in the Programs

Nutritional Status	Swadaya 1		MCH (2+3)	
	Total	%	Total	%
Constant B	14	37	449	78
Shift to A	24	63	117	20
Shift to C	0	0	8	2
<b>Total B at the Start</b>	<b>38</b>	<b>100</b>	<b>574</b>	<b>100</b>
Constant C	1	100	16	47
Shift to A	0	0	1	3
Shift to B	0	0	17	50
<b>Total C at the Start</b>	<b>1</b>	<b>100</b>	<b>34</b>	<b>100</b>

Unfortunately, the validity and reliability of the results of one group (Swadaya) are minimal. The attribution of the observed outcomes to the feeding program is tenuous, since numerous explanations (intervening variables) could explain the changes in nutritional status. In addition the number of participants is small.

Briefly, however, it appears from Table 24 that within the 9-month study period the relative effectiveness of the Swadaya feeding program is greater for Group 'B' children. Interestingly, more than one-half of the Group 'C' children in the two MCH desa programs entered Group 'B' and 'A' (53%). There was only 1 child in Group 'C' during the Swadaya feeding program, whose nutritional status remained unchanged.

b. The Nutritional Status of Graduating Balita

All data on MCH programs indicate that the length of time the recipients have been in the program does not always explain the rate of nutritional improvement. Furthermore, there is little evidence that suggests that MCH programs are effective for improving the nutritional status of children who entered the program after the age of three years.

Between March 1980 and August 1981, 167 recipients in four MCH desa in Kebumen reached the age of five years and graduated from the program. At this point, 57% (or 96 Balita) were in 'A', 41% (or 68 Balita) in 'B', and 2% (or 3 Balita) in 'C' groups. (See Table 25).

Table 25: Nutritional Status of Graduating (at the age of 60 months) Children in Four Desa in Kebumen

Desa	Nutritional Status of Graduating Children					
	A	B	C	Total		
Pujodadi	67 (94%)	4 (6%)	0	71	(100%)	
Candimulyo	11 (41%)	16 (59%)	0	27	(100%)	
Kr. Tanjung	5 (38%)	8 (62%)	0	13	(100%)	
Sukomulyo	13 (23%)	68 (71%)	3 (6%)	56	(100%)	
Total	96 (57%)	68 (41%)	3 (2%)	167	(100%)	

The impact of the MCH program among graduating children however, could be best seen in the rate of improvement among Group 'B' or 'C' children. According to the data, 79% of Balita graduates in Pujodadi improved their nutritional status from 'B' and 'C' to 'A' by the time of graduation (See Table 26).

Table 26: Change of Nutritional Status among Balita Graduates in Four Desas in Kebumen

Desa	Shift from A to B			Shift from B&C to A		
	Start A	Graduated B	%	Start B&C	Graduated A	%
Pujodadi	52	0	0	19	15	79
Kr. Tanjung	5	2	40	8	2	25
Candimulyo	13	3	23	14	1	7
Sukomulyo	15	5	33	41	3	7
Total	85	10	12	82	21	26

Perhaps Balita who graduated the program in Sukomulyo and Candimulyo experienced complicating circumstances. In Sukomulyo, the program is still too operationally new, and, unlike other MCH desa, not all Balita children are enrolled in the program. Candimulyo, on the other hand, has had the program for the past 29 months. Twentythree percent of the graduating class scored 'A' at the time of graduation; only one out of 14 moved from 'B' to 'A.' The poor performance among the graduating Balita is probably due to the seasonal migration pattern unique to the desa - a large number of Candimulyo families move between the desa and Lampung where the fathers work as seasonal laborers. Even though the desa has a swadaya on-site feeding program, funded by the desa head and supplemented in part by administrative fees collected from the recipients, once-a-month feeding may not be enough to improve the conditions of these malnourished children.

In Pujodadi 454 Balita comprise 29% of the total population. Even after subtracting 71 "graduates" (Table 26) the current Balita population is still 25% of the local population. There appears to be a definite skewing of the numbers of entering Balita towards Group 'A' (58%) and Group 'C' (13%). It is suspected that the ages of the Balita could be inaccurately recorded. Another possible explanation for the wide disparity in nutritional status may relate to extreme drought/flooding conditions experienced by the Southern delta area of Pujodadi.

Data on five MCH desa (Table 27) in Ponorogo show that 475 Balita recipients "graduated" from the program over the three-year period between October 1978 and September 1981. Among them, 42% (or 198 Balita) left the program in 'A' Group while the other 58% (or 277 Balita) graduated still being malnourished. The annual percentage of Balita graduating in 'B' status decreased from 77% in the first year to 59% in the second year, and 44% in the third year. This observation may be due to maturation effects on participants such that the rate of malnutrition within a community can change as the age distribution of the Balita changes.

Table 27: Nutritional Status of Graduating Balita in the Five Desa in Ponorogo according to Program Period

Program Period	Number of Balita graduated by Nutritional Status			
	A	B	C	Total
First Year (1978-79)	28 (22%)	98 (77%)	1 (1%)	127 (100%)
Second Year (1979-80)	70 (41%)	101 (59%)	0	171 (100%)
Third Year (1980-81)	100 (56%)	77 (44%)	0	177 (100%)
Total (1978-1981)	198 (42%)	276 (58%)	1	475 (100%)

The decrease in the number of Balita scoring 'A' from the time of program initiation to graduation declined from 53% during the first year to 34% during the second year and 30% during the third year.

Table 28: Change of Nutritional Status Between the Evaluation Study and Graduation in Five MCH Desa in Ponorogo (1978 - 1981)

Program Period	<u>Shift from A to B</u>			<u>Shift from B to A</u>		
	Evaluated A	Graduated B	%	Evaluated B	Graduated A	%
First Year	30	16	53	97	14	14
Second Year	54	21	39	117	37	32
Third Year	119	36	30	58	17	29
Total	203	73	36	272	68	25

Nevertheless, as the general picture develops, the percentage of Balita graduates with decreasing status becomes higher over the percentage with improving nutritional status within the three-year program period (36% versus 25%). (See Table 28)

One finding from the analysis of the nutritional status of graduating Balita (compared to their initial weight at the start of the 1978 program-year) is that the children in 5-year MCH program desas did not necessarily score better than those which had the MCH program for fewer years. Examining data from Ponorogo may help to provide an explanation for this observation.

Table 29: Land and Population in Five Ponorogo MCH Desa

Desa	Total Land Area	Wet-rice Field (sawah)	Dry Field (Tegalan)	Total Population	Total Household
Wates	1,119 ha	200 ha	342 ha	4,125	810
Tugurejo	1,034 ha	206 ha	385 ha	3,866	730
Caluk	375 ha	72 ha	130 ha	1,753	392
Serangan	262 ha	137 ha	110 ha	2,082	442
Nambangrejo	203 ha	140 ha	63 ha	2,347	2,844
Total	3,043 ha	755 ha	1,030 ha	14,173	2,844

Table 30: Household Size, Land Holding and Balita Children in Five Desa in Ponorogo (1981)

Average Household Size	% Land Holding to Total Farmers	% Balita Children To Total Population
Tugurejo	5.3 28% (191/697)	10.9% (420/3866)
Wates	5.1 (data unobtained)	11.6% (480/4125)
Caluk	4.5 40% (281/711)	15.2% (266/1753)
Serangan	4.7 45% (870/1920)	18.5% (385/2082)
Nambangrejo	4.5 63% (750/1177)	20.4% (479/2347)
Average	4.9 46% (2092/4591)	14.3% (2030/14,713)

Reviewing Figure 2, the map of Ponorogo Kabupaten, important geographic factors emerge. Combined with the data (from Tables 29 and 30) a general pattern emerges: the closer the desa to administrative and commercial centers, the lower the altitude of the community, the more evenly distributed is agricultural land and the smaller the average household size. Consequently, there are fewer Balita in the population. It is suspected that the amount of food available for each family is determined by income level, while the size of the share for each Balita in the family is influenced by the number of family members.

In Table 31, there is a strong correlation between the distance of each of these desas from administrative and commercial centers, land tenure, and the ratio of Balita to local population, on the one hand, and the scores of graduating Balita, on the other. The one exception, Caluk, needs to be explained.

Table 31: Change of Nutritional Status of Graduating Balita in Five Desa in Ponorogo (1980)

Desa	Number of Balita Graduated by Nutritional Status			
	B to A	Constant B	B to C	Total
Tugurejo	7 (14%)	43 (86%)	0 (0%)	50 (100%)
Wates	45 (35%)	86 (65%)	1 (neglected)	132 (100%)
Serangan	33 (33%)	68 (67%)	0 (0%)	101 (100%)
Nambangrejo	74 (56%)	57 (44%)	0 (0%)	131 (100%)
Caluk	39 (64%)	22 (36%)	0 (0%)	61 (100%)
	198 (42%)	276 (58%)	1(neglected)	475 (100%)

The most important factor explaining the success of the MCH Program in Caluk is the activeness of the local PKK combined with the small number of households in the desa. Between January and May 1980, for example, the PKK in Caluk organized a Swadaya on-site feeding program with the help of the LKD (Rp. 153,000) and the local community (Rp. 36,000). It provided full-meals to selected Balita in 'B' and 'C' categories (35 Balita) three times a week.

The ultimate success or failure of a feeding project may inevitably rest with the commitment and capability of the local project personnel, and the involvement of the community. The key responsibility for identifying the Balita, encouraging participation, organizing the feeding schedule - implementing the delivery of services rests with the village Kader and the community.

The length of time a MCH program has been in the desa, however, seems to contribute little to the improvement of nutritional status of graduating Balita in Tugurejo. The desa is handicapped by isolation from the central town and by a hilly topography. As a consequence, 77 of the 260 eligible Balita recipients never participated in the program, and those who did attended only about 60% of the time.

Nambangrejo, on the other hand, has had an MCH program since January 1978. The graduating Balita scored the best among the five desa. A complex set of factors are involved with their achievement. Perhaps the most important factor is that the villagers participating in the program are relatively better off than those in other desa (due to the flatness of farm land and the availability of irrigation). The percentage of Balita in the local population is also the largest among the five desa. Since most families share the food among all the members, the amount of distributed Title II food actually consumed by the Balita recipients is assumed greater than other desa.

The analysis of weight records of all the graduating Balita indicates that socioeconomic and environmental factors have influence upon the performance of the program recipients. Desa Caluk and Desa Nambangrejo appear ready to graduate from the MCH feeding program to self-sufficient, swadaya feeding programs. Remoter, more isolated desa probably require more assistance, in terms of food commodities and technical support for their MCH programs, than the more well-situated and economically well-off desa.

## 5. Nutrition Improvement

The Team was not able to compare quantitatively the changes in nutritional status of Balita in terms of their growth curves between the Title II MCH programs and other UPGK nutrition programs because of the lack of reliable data (as previously described in Section 2. "Quality of Data"). In addition, the MCH data, especially concerning program durations, are not statistically comparable to the data of these other programs. The Team, therefore, tried to evaluate the changes in nutritional status of Balita in the Title II MCH program by using cross-sectional analysis. The methodology was as follows:

### a. Selection of the sample

The selection of the two desa (Sukomulyo and Candimulyo) to be included in the statistical analysis is based on the results of the "Quality of the Data" study, Section 2 of this report. No control group was used. The group of MCH program recipients were compared against themselves at the start of the program and then after 3, 6 and 9 months in the feeding program. The difference in nutritional status would then supposedly be attributable to the MCH program.

#### Description of the sample desa:

	Desa	Kecamatan	Kabupaten	Start of program
1.	Sukmulyo	Rowokele	Kebumen	October 1980
2.	Candimulyo	Kebumen	Kebumen	March 1980

The number of Balita weight records obtained from these two desas totaled 439. From this total, the allocation of the sample within each age category (0-12 months and 13-45 months) was randomly selected and proportional to the number of children in each age category. Children over 45 months of age were excluded from this analysis due to insufficient data.

### b. Purposes of the statistical analysis

The main purposes of the statistical analysis are to test whether there is any significant increase of the weight of the Balita after 3, 6, and 9 months on the program, and to see if there is any significant change in nutritional status after 3, 6, and 9 months on the program.

c. Analysis

.Three Months' Impact

1. For children 0-12 months of age:

Samples: Two samples of 16 children from age-group 4-6, and 10-12 months combined; one sample for children being 0 months in the program and the other sample being 3 months in the program. The two samples are independent.

Results: There is no significant increase of body weight after 3 months in the program (average increase is 0.375 kg)

2. For children 13-45 months of age:

Samples: a. Two samples of 50 children from age-group 16-18, 28-30, 34-36, and 40-42 months combined together; one sample being 0 month in the program and the other one being 3 months in the program.

b. Two samples of 50 children from age-group 19-21, 25-27, 31-33, 37-39, and 43-45 months combined together; one sample being 0 month in the program and the other one being 3 months in the program.

Results: For the first set of sample "a", there is no significant increase of body weight after 3 months in the program (average increase is 0.146 kg). For the second sample "b", the increase is significant (average increase is 0.614 kg).

. Six Months' Impact

1. For children 0-12 months of age:

Samples : Two samples of 16 children from age-group 7-12 months; one sample for 0 month in the program and the other for 6 months in the program. The two samples are independent.

Result: Average increase is 0.788 kg which is highly significant.

2. For children 13-45 months of age:

Samples: a. Two samples of 50 children from age-group 19-24, 31-36, and 43-45 months combined; one sample for children being 0 month in the program, and the other for children being 6 months in the program.

- b. Two samples of 40 children from age-group 25-30 and 37-42 months combined; one sample for 0 months in the program, and the other for 6 months in the program.

**Result:** There are significant increases in body weight of Balita after 6 months on the program. The average increase for the samples "a" and "b" are 0.518 kg, and 0.503 kg respectively.

. Nine Months' Impact

- 1. For children 0-12 months of age:

No statistical test due to lack of data.

- 2. For children 13-45 months of age:

Samples: a. Two samples of 50 children from age-group 22-30 and 40-45 months combined; one sample for children being 0 month in the program, and the other for children being 9 months in the program.

- b. Two samples of 30 children from age-group 31-39 months; one sample for children being 0 months in the program and the other for children 9 months in the program.

**Results:** Average increase in body weight for sample "a" is 0.654 kg which is significant at 5% level; and for sample "b" the increase is 0.596 kg which is significant at 10% level.

d. Summary of the test results

- 1. There is a significant improvement in the body weight of children enrolled in the MCH program, especially after 6 months in the program.
- 2. The average difference between body weight of 0-12 month children after 3 months in the program with those children not in the program (based on the weighing at the start of the program) is 0.375 kg. The difference in body weight for 13-45 months children in these two groups is 0.380 kg. This is not significant.

3. The average difference between body weight of 0-12 months children after 6 months in the program compared to those not in the program is 0.788 kg, For 13-45 month children in these two groups in the difference is 0.510 kg. This is significant at the 5% and 10% levels, respectively.
4. The difference between body weight of 13-45 month children after 9 months in the program compared to those not in the program is 0.625 kg. This is significant at the 10% level.

e. Interpretation of test results

1. The validity and reliability of the results of one group compared against itself over time are minimal. Attributing observed outcomes (changes in body weight) to program services (feeding programs) is tenuous, because there can be numerous intervening variables which could explain the observed changes in nutritional status of the recipients. These could include:

Internal validity problems -

- a. Maturation effects on the program and the recipients - malnutrition in the community changes as the age distribution of target groups changes whether there was an intervention or not.
- b. Historical changes - effects resulting from physical, social, economic or political factors.
- c. Regression artifacts - even without the feeding intervention, over time some of Group 'C' will naturally recover or at least move to Group 'B.'

External validity problems -

- a. Hawthorne effects - changes in nutritional status is not due to the feeding, but due to other interventions which changed behavior patterns.
  - b. There are no control groups.
2. However, according to the test results, for optimal program outcomes a recipient should remain in the MCH program for 6 months. After 9 months, the results of program effectiveness (feeding) begins to decrease (See Figure 11, for example).

B. IMPROVEMENT IN THE HOUSEHOLD DIET

1. Preference for Title II Commodities - Acceptability.

If the food distributed is not consumed by the target recipient then the nutritional impact of the program is diminished. It is therefore very important that the foods be acceptable to both the young child and the mother (and grandparents).

The overwhelming majority of the mothers interviewed said that their children liked food prepared with Title II commodities. The only exception found was a desa in Kebumen. After three months of experience with CSB the project holder requested YSBS to drop the commodity and replace the ration with additional amount of bulgur.\*/ According to the project holder, many mothers had complained that their children got diarrhea after eating food made with CSB. Four families were interviewed in the desa but only one family strongly condemned the CSB flour. During the discussion, however, it was revealed that the two grandmothers who lived with the family produced home-made tempe (fermented soy product, which makes up an important protein source in the Indonesian diet) and sold it in a local market. It is strongly suspected that the complaint was not based on the ill-adaptation of the children to the new type of food commodity, as they claim, but on the importance of the tempe as a continued source of income. It is known in the area that bulgur is often used as a tempe thickener during the season when the supply of soy decreases and the price goes up.

Most of these food commodities were initially unknown to program participants. However, now that these foods have gained acceptance mothers may develop a dependence on these new foods.

2. Preparation of Meals and the Use of Title II Commodities

The Title II food supplement adds a variety to meals as well as contributing a richer protein intake to the diet of the recipient. In Central Java, the monthly allotment of Title II commodities consists of three kilos of soy-fortified bulgur wheat (SFBW) and three and a half kilos of corn-soy blend (CSB) per recipient. (Appendix V contains recipes which use these Title II commodities). The SFBW is a cracked-wheat product that has a high protein content, with vitamins added. It takes about twenty minutes to cook at boiling point, less if the grain is soaked over-night. It can also be prepared by bringing the grain to the boiling point and allowing it to steam until done. In many areas it is prepared in the same manner as rice, that

---

\*/ The request has been granted as of Oct. 1981.

is, the bulgur is washed, drained, covered with water and set to boil. After it has boiled a few minutes it is allowed to steam until ready. Its most common usage is as a rice-extender dish.

The CSB, a coarse flour or meal product, is also a good source of grain protein. It takes less time to prepare than does bulgur, and can be prepared in a wider variety of ways, that is, as a coconut and sugar sweetened gruel or thick soup with vegetables, as a cereal, as a "sweet" soup or fruit soup dish made with coconut milk and red sugar (a sugar prepared from coconut or palm), or with bananas. It is also often prepared as kueh, a form of pudding-like cake that is made by boiling several ingredients together in a pot, pouring the thick mixture into a flat dish, allowing it to set and then cutting it into serving pieces. This is eaten as a dessert. The preparation often calls for milk (or water), sugar, coconut, bananas, and is given a variety of names, i.e. kueh lapis, kueh manisan. It is very popular and regularly consumed by all family members.

Besides the bulgur grain and the corn-soy blend meal, the recipient also receives one-half kilo of dry skimmed milk (DSM) provided by the EEC or other donor countries. The DSM has a higher proportion of protein per 100 g. than SFWB or CSB, and contains no vitamins A or D unless it is stated on the bag.

The recipient is charged a token fee for the port to desa transportation costs of these products. In Central Java the charge is Rp. 215. In East Java, where the allotments provide three kilos of wheat-soy blend (WSB) instead of the three and one-half kilos of CSB, the charge is Rp. 360 per recipient.

In some desa the distribution includes a package of iodized salt, an addition initiated by the Indonesian Government to avert goiter if the area is known to be deficient in iodine. In these areas the recipient pays Rp. 410.

To aid in understanding, it was noted that a woman working as a field-hand in these areas will earn approximately Rp. 200-300 per day. In short, the payment for the Title II food supplement per month costs the recipient a day's salary.

In the MCH desa of Karang Tanjung a swadaya program (intensive on-site feeding) feeds 485 children once a month at a demonstration feeding which consists of rice, a soy-bean preparation - which is often fried in oil, thus adding necessary fat to the diet - or an egg, and fruit and milk. The cost involved in this demonstration feeding comes to about Rp. 7,000-10,000 for 485 children or an average of approximately Rp. 17.5/per child. The meal is nutritious and inexpensive. This demonstration feeding coincides with the weighing of the children each month.

The major benefit of using locally available foods (aside from a foreign-exchange savings) comes from the educational aspects of teaching the mother remedies for preventing malnutrition that she can prepare in her own home. If this type of education is to be effective, the foods provided in the feeding program must be inexpensive and locally available. Sample recipes using locally available foods can be found in Appendices VI and VII.

In the course of the field trip, forty-three dwellings were visited. Women who were either mothers of an eligible recipient Balita, or who are themselves recipients were surveyed concerning their utilization of the Title II commodities. All were acquainted with the products, and, although the names given to the products might vary, e.g. the corn-soy-blend might be referred to as either maizena (corn-meal), or tepung (flour), it was evident the mother had been using the products.

In the desa of Tugurego of East Java, a housewife was asked to prepare bulgur in exactly the same manner that she prepared it for her family. Since the Title II commodities had not been delivered to this desa for three months, she was very happy to receive the bulgur, and demonstrated the preparation with alacrity. She prepared the bulgur in much the same manner as rice, although not with the rice. They were combined when served. The demonstration also revealed how common and easy it is to use the bulgur for a dish that is acceptable for consumption by the entire family.

The fact that Title II commodities are usually shared by members of a family has been documented. This was acknowledged in a Food for Peace, USAID-Indonesia Field Report of March, 1981 by Arthur Wong, and has been mentioned in other evaluation reports from Sri Lanka and India Food for Peace Programs. Familial sharing is a common practice and a well established one. The low cost of the Title II commodities helps the family by providing high-quality foods that they might not be able to afford otherwise. Familial sharing does, however, diminish the impact of the full benefit of high protein intake intended for the target designate. It also contaminates the results anticipated in statistical data that rely on anthropometric measurements.

Some reports have suggested remedial measures such as total on-site feedings to counteract familial sharing. There is at least one argument against such a measure - the families that live in remote sections would not be able to bring the child into the center on a daily basis.

It should be recognized that sharing can go beyond intra-familiar distribution, as was discovered in the desa of Mirah. During the interview of a young mother and her one and a half year old daughter, the young mother joined in the conversation with enthusiastic responses concerning the preparation of some of the foods. Information of the dietary habits of grandmother, mother, and child were recorded as were other pertinent data for some time before it was discovered that none of them were actually recipients of Title II, neither grandmother, mother nor child. When asked how it was they had access to the commodities if they were not actually recipients, unabashedly, they, and several others in attendance at the time, explained that the foodstuffs were given by neighbors and friends. After all, it was reasoned, Mi'in had an eighteen month-old child and should have some, too. This was an LKD area that had not admitted new participants to the MCH program for over 2 years because of lack of an evaluation. The community was effectively coping with this problem by identifying their own target recipients.

What has been observed in the desa is the extensive "family" bonds which extend far beyond the immediate household unit. Sharing food is an important factor of daily life. One social scientist has described this phenomenon as "shared poverty." It is as traditional in desas as it is a national principle incorporated into the ideal of Pancasila, gotong royong, or the mutual sharing of heavy burdens.

Data based on the surveyed desa indicated that the average family size is five. If every member received the same portion of the supplement, based on nutritional calculation, they would receive about 8% of the recommended daily dietary allowance of calories and 18% of protein. Obviously when the foodstuffs are shared the nutritional benefits for the target recipients are considerably diminished.

The impact of the supplementary food is also decreased through the substitution of the ration for the normal home diet. Substitution is more likely to occur in on-site than in take-home programs. In addition, substitution of the ration for the home diet usually limits the increase of calories more than protein, because the substituted ration food is often higher in protein.

Investigation of dietary practices revealed that desa that had insufficient quantities of foods available seasonally or that endured marginal hunger habitually supplement their intake with a wide variety of ecologically available foods.

Both bulgur and the soy blend products are served to children as supplementary foods to breastfeeding. The very young child will traditionally be fed a soft rice called nasi tim which is frequently combined with mashed bananas. The CSB and WSB are sometimes prepared in the same manner as nasi tim

resulting in a higher protein intake for the infant. Mothers who are not recipients of Title II foods will serve the child nasi tim and a soft cassava preparation. If the foods grow in the area, they will serve coconut milk to the children, or use it in preparation of the foods. A great deal of very sweet tea is drunk by all, adults and Balita.

Surprisingly enough, the coarse-grained bulgur wheat is also served to young children. In the desa of Sukomulyo, bulgur combined with coconut is consumed frequently as a breakfast food. One mother devised her own preparation of bulgur by cooking it with coconut milk and green beans. The whole family eats it for breakfast.

The recipients prefer rice, a not unexpected finding, but appear to enjoy the variety that the bulgur, the CSB and WSB offer. All of the mothers interviewed indicated that they liked the products. Apparently when the CSB and the WSB were first introduced they were not well-received, however, as the programs expanded and the foods became familiar, a greater variety in preparation of these products developed. Now their acceptance has become widespread.

None of the Title II commodities are intended to replace the traditional foods, and they have not. What they seem to have done, is present a new addition to the usual diet. This variety and added food value is especially helpful in the poorer areas where food shortages are common, such as Tugurejo or Pujodadi.

### 3. Title II Commodities in Markets

No wheat is grown in Indonesia, and all the bulgur one finds in Indonesia comes through UNICEF, World Food programs or Title II projects. (In past years a small amount has been imported and sold by BULOG).

However, in the main marketplaces of Gombong and Kebumen in Central Java bulgur can be found for sale. In Gombong two of ten stalls offered bulgur; one stall carrying an inventory of about twenty kilograms, the other about twenty-five kilograms. The bulgur sold for Rp. 110-150 a kilo. All of the bulgur at this stall was of the yellow variety usually distributed to MCH recipients.

In Kebumen three of twenty grain stalls carry bulgur. The other stall tenders knew where the grain could be purchased, but did not carry it themselves. One of the stalls carried the brown variety, distributed to Food for Work recipients, which sells for Rp. 125/kilo. The other two stores carried the yellow variety and had a supply of about thirty kilos each

selling for about Rp. 110-115/kilo. No where was the quantity found on a large scale, and no where was it cheap enough to be sold as feed. The stallkeeper explained that poor people who must eat oyek\*/ (which sells for Rp. 75/kilo as compared to rice which sells for about Rp. 220/kilo), usually buy the bulgur to mix with their oyek.

The market of Ponorogo in East Java, offers a greater variety of vegetables, but such staples as rice, cassava, potatoes tend to be expensive. In this market there were some stalls selling bulgur (two stalls). Both varieties, brown and yellow were available - about twenty kilos of the brown bulgur and perhaps two-hundred kilos of the yellow.

According to one woman, those shopkeepers who sold bulgur were of two kind: some women from the southern mountainous kabupatens, who bring with them a few kilograms (they look very poor, she added), and some young men who bring a large sack. The brown bulgur sells for about Rp. 80-90; the yellow sells for Rp. 110. During the soy-bean harvest season bulgur is very popular because tempe-makers often mix bulgur with the soy to extend the product and cut their costs. It appears that unauthorized sale of these foods is not a major problem perhaps because the foods are not yet that familiar or popular and therefore, do not possess a ready retail value in the local markets.

---

\*/ Oyek = dried cassava presscake, waste product of cassava-starch making

## C. TARGETING NUTRITION INTERVENTIONS

### 1. The Concept of Targeting

Resources available for MCH feeding programs are limited. Therefore, priorities must be set as to whom shall receive them. This concept of targeting feeding interventions is critical to achieve maximum effectiveness of the program, i.e. achievement of nutritional impact.

For targeting feeding programs, a key criterion is nutritional vulnerability. The concept of "at risk" is related to age, nutritional status and pregnancy or lactation status. Therefore, the MCH program is beneficial as a nutrition intervention because it specifies as the primary target groups the Balita, and pregnant and lactating women. A measure of success of the Title II MCH program is the degree to which it is able to identify and provide services for these target groups.

However, with both the MCH-UPGK and UPGK programs, reaching the most isolated households has proven to be a problem. The neediest persons are not necessarily the primary beneficiaries of the targeted feeding program. An example of this is the non-MCH desa of Karang Anyar which has a monthly PKK-Swadaya weighing program and taman gizi for about 175 children. Investigation reveals that there are over 890 Balita in the desa. The children who live near to the town center are the participants. Unfortunately, among the seven hundred children who have not participated in the program are probably those who are most needy. Therefore, the major reason suggested for the low participation of children under three (and pregnant and lactating women) has been that implementors have set their action criteria for participation: reaching the accessible and convenient groups.

In instances where a choice is necessary between a child or an adult (pregnant women or nursing mother), the child is usually selected in preference to the adult. The statistics concerning the mortality rate of Indonesian children under the age of five years are so startling that every effort is made to alleviate the trend. Thus the decision of selecting the child over the adult is understandable. But the effects of such a decision, which denies the needed extra nourishment to the women, reach beyond them to the needs of the unborn infant or the nursing infant. Maternal supplementation during pregnancy and lactation is a preventive intervention.

The 6 to 36 month Batita, (under 3 yr.) period is particularly critical for Indonesian children because of increased nutritional requirements, increased exposure to disease and lack of frequent feedings. Nonetheless, those

under three years (Batita) are the critical, hard to reach group. Again, because of their inaccessibility their participation usually is lower.

There are many problems to be overcome when targeting desa women as recipients of MCH services. Those who are known to be pregnant or nursing do not usually receive services. There are many more cases in which the woman does not disclose that she is pregnant, and therefore even the possibility of becoming a recipient does not exist. Altogether too many women fail to disclose their state of pregnancy and go to term without ever receiving supplementary diet, vitamins, or pre-natal examinations. The baby is usually delivered by the village Dukun. The infant is not checked at birth nor weighed.

The doctors do not go to the desa to deliver babies, nor does the bidan from the PUSKESMAS unless the house is situated in the desa area. The Dukun has a traditional role in the desa as midwife and healer using massage technique as well as traditional herbal medicine and ethnomedical practices. Every mother interviewed except the Lurah's wife had her baby at home delivered by the Dukun; in several instances the Dukun did not arrive in time, and the mother delivered her own child with some help from her husband. The Dukun continues to participate after the birth by providing various forms of family support.

The mother has access to the Bidan for advice. There had been a plan initiated at one health center to disseminate nutrition and hygiene information for mothers. However, the bidan became extremely busy with a new program, and it was discontinued. The desa kader now does this. If the mother is able to attend the meetings, she will benefit. But if she is not convinced of the pertinence of the instruction or the distance is too great she will not attend. If she has easier access to the Dukun, the mother will traditionally seek her advice and service.

The ideal situation would be to have an active program that examines women of child-bearing age routinely every 6 months in an attempt to identify early pregnancies, provide appropriate health care and fortify the mother's diet with calcium. Many young pregnant mothers under 30 years have lost their teeth which effects the quality of food she can consume.

It is particularly important that malnourished pregnant women receive caloric supplements during their last trimester. The data show that this leads to higher birth weights which increases the infants' chances of survival and nutritional well being. Priority for MCH food rations should be given to pregnant mothers with "at risk" characteristics, such as first pregnancy, young or old age, low height or weight, etc.

Lactation can be affected by malnutrition in two ways; the quantity of the milk supply can suffer with less severe dietary inadequacy and the quality of the milk seems to be affected only when the diet is acutely inadequate. Poor maternal nutrition can affect the duration of breastfeeding. In most of these feeding programs, insufficient efforts have been made to include pregnant and lactating women.

## 2. Special Care for Severely Malnourished Children - Group 'C'

According to Government of Indonesia policy, severely malnourished children who have been identified as Group 'C' members from weighing sessions are to be referred to the Puskesmas (at the Kecamatan center) for clinical care. The Balita who are to be referred include those whose weight does not increase for more than three consecutive months.

Theoretically, this severely malnourished group is able to get free treatment at the government health centers. Some centers have hospitalization facilities for longer-term live-in recovery. However, parents of malnourished children seldom take advantage of the program even when such a facility is available. Reasons cited include the inability of mothers to leave the home and stay with the child for an extended period at the center. Generally, the staff at the Puskesmas is extremely limited and the services are minimal. Serious cases are referred to general hospitals in the kabupaten capital. For remoter desa, mobile-clinics make routine visits once or twice a month but are unable to offer the longer-term rehabilitative care necessary for these severely malnourished children.

Many PKK groups offer money and sometimes food to the mothers of severely malnourished children if they believe poverty is the cause of the problem. However, many children are not necessarily from economically depressed families. In areas where tobacco, oranges, and cloves are grown, children get little attention from the parents. Their surrogate parents, usually elder siblings, look after the children. Unfortunately, PKK groups can do little to help in such cases. It is strongly recommended that the social workers employed by YSBS or LKD monitor these "at risk" children to ensure participation in the MCH feeding programs and/or provide additional types of assistance for the families.

D. NUTRITION EDUCATION AND INVOLVEMENT OF THE COMMUNITY

1. Analysis of Social Data: Comparative Study of Two Desas

Non-MCH: The Desa of Redisari in Kebumen Kabupaten

The desa of Redisari receives no Title II aid, but there is an UPGK-Dinkes program which was initiated over one year ago. Redisari, which has a population of about 3,000 people, has a demonstration feeding program for children. Fifty children selected by the Lurah participated in an on-site feeding program once a week for three months. In January, 1981, the Government provided Rp. 17,000 per week for another on-site feeding program for fifty additional children (in U.S. monetary terms, about 50 cents per child). The desa has also received Rp. 1,000,000 of which Rp.80,000 has been designated toward desa improvements, and Rp.200,000 for the furthering of P.K.K. principles.

Recently, the PUSKESMAS held a demonstration meal preparation for the mothers of the desa. The desa is now attempting to continue with its own supplementary feeding program in the spirit of swadaya, self-reliance.

The Lurah and his wife are a young couple with two children. The Bu Lurah is in charge of the twenty kadre who instruct and guide the mothers in nutrition, weigh and record the weights of the children, and assist in preparation of meals for the feeding sessions. At one time desa kadre were taught by the doctor and the bidan at the PUSKESMAS (a few hours of lecture for a few days). But now, the Bu Lurah, who herself is instructed by someone at the health center, instructs the kadre.

The kadre explain to the mothers the importance of giving nutritious foods to their families. They are told to serve such foods as spinach, carrots, eggplant, eggs, chicken, pineapple, and papaya. The mothers are encouraged to grow vegetable gardens to supply some of the foods; seeds are provided by the agricultural office of the kabupaten. Not unexpectedly, the program efforts have meet with varying success.

The attendance at the PKK meetings in Redisari is not very high. As an example, Soeparti\*/ does not attend very often. Soeparti lives several kilometers from the central desa, where there are meetings. Her house is surrounded by other dwellings and she, therefore, is not isolated.

---

\*/ Soeparti is not her correct name.

Soeparti is about thirty years old and the mother of four children all under the age of five. She nurses the youngest, an infant of a little over a month. Soeparti does not know the present weight of her infant; she does not know his birth weight, either, since the Dukun (the ethnomedic mid-wife) who delivered him does not have a scale. The baby has not been taken to this public health center for a check-up for there is a fee charged at the Puskesmas. The baby, she feels, is healthy and nurses well. There is no supplementary feeding, yet.

Her other children, four of which are under five years, are fed the same food she and her husband eat: rice, cassava, salted fish (used mainly for flavor), tempe (soybean preparation), spinach and other available vegetables, coconuts and bananas when they have them. She boils the water for her family's drinking. The entire family drinks tea sweetened with sugar.

When she went to a PKK meeting she was told to serve vegetables like carrots and spinach. She does this. She was also instructed to sew and to make bread. She does not do this since she is too busy. The cost of flour is very expensive.

#### The Title II MCH Desa of Sukomulyo in Kebumen Kabupaten

By contrast, the desa of Sukomulyo receives Title II commodities. In the past the desa had participated in an UPGK-Dinkes program, but at present receives aid from the Title II program for 500 Balita (600 Balita have been identified in the village), and for 29 nursing mothers. None of the pregnant women of the desa receive Title II commodities. The population of Sukomulyo is about 4,100.

Monitoring the distribution of these foods and giving instruction concerning their preparation is the responsibility of four CRS-YSBS social workers whose headquarters are in Cilacap, about a two hour's drive away. The social workers are also responsible for approximately 35,000 other recipients in Central Java desa.

The social workers instruct desa kadre in the preparation of Title II foods. The kadre in turn instruct the villagers. The social workers, who are professionally trained, also try to contact the desa recipients directly, but it is difficult when they are so few and the recipients are so many.

The desa kadre also receive instruction from other agencies working in nutrition programs, such as the bidan at the PUSKESMAS. The kadre instruct the mothers to prepare

nutritious foods such as vegetables, to boil the family drinking water, and to prepare the dry milk with boiled water. They also give information on preparation methods of Title II commodities for the bulgur and CSB.

The geographical location of the desa of Sukomulyo is advantageously close to the public health center (PUSKESMAS). Two of the desa kadre work at the center and there are good linkages with the PUSKESMAS.

Kasmina, aged thirty and mother of four children, is aware of the availability of health services. When her 8 month child was ill, she carried him to the health center five kilometers away. The child has since recovered. She nursed him and began supplementing his diet with rice cooked with mashed bananas when the baby was four months old, as the nurse instructed her. She has a white health card for the baby, but doesn't know her child's weight since she cannot read.

The rest of the family eats rice, cassava, and vegetables. When she has Title II commodities she prepares the bulgur with the rice and it is eaten for breakfast. She likes to prepare a form of pudding cake that she calls utri from the CSB using coconut milk and bananas.

It was observed that the foods consumed by the people of both Redisari and Sukomulyo are very similar. Ten homes were visited and several desa feeding demonstrations attended in both the desa. The people eat primarily what is seasonal and available, e.g. squash, eggplant, spinach, etc.. The staples are rice, cassava, and usually tea sweetened with sugar (but not as sweet as in East Java). Coconut milk is included in much of the food preparation, as are condiments such as hot pepper called cabe. Soy is also frequently consumed.

High protein foods such as meat and eggs are scarce. If a food is valuable as a cash crop, eggs for example, the housewife is frugal in its use. One egg may be dropped into the one-dish meal of bubur (a form of gruel that may be prepared from rice or CSB) which is shared by the entire family.

Because many of the mothers work in the fields during the day and because there is no lighting (very few lamps were observed), meal preparation occurs in the early daylight hours. Hence, meals are often only prepared once a day, and stored in a basket usually on an overhead rack under the eaves of the kitchen roof. The early morning preparation procedure effectively eliminates any idea of special preparations of meals for small children. The mother usually either mashes or cooks a portion longer to make it softer -- this becomes baby-food.

The major observable difference in food habits between these two desa is the availability of a constant source of protein consumed by Sukomulyo residents which comes from the MCH Title II commodities. Usually, protein sources for both Sukomulyo and Redisari (PKK) must come from sources that are seasonal and affordable, if they are not grown by the individual families. The cultivated product must not be too good a cash crop (soy beans are a good cash crop, and sold), for the family will refrain from consuming it.

Again, it was observed that the location of a family's dwelling has a great influence on the mother's attendance at any of the desa educational programs. Also affecting her attendance are other factors such as immediate family needs-- does she have many children? A new infant? Does the mother work in the fields? There are endless demands upon a woman's time.

However, another persuasive factor concerning the attendance of the mother at any of the educational meetings, either MCH or PKK, is that of relevancy; for if the educational programs fail to convince the mother that they are truly relevant to her needs, she will not respond to the program and will not implement new cooking or hygiene methods in her household. Organizing programs that are relevant to the needs of such group is difficult.

Theoretically, desa receiving MCH-Title II commodities are usually among the poorest which is why they have been selected for the program. Complicating the situation are poor farm lands, inclement weather conditions, marginal education and an endless list of hardship conditions. Needs for these areas are basic.

The nutrition education must be simple and appropriate. There is no running water, no plumbing, or sewers. The programs in these desa need to focus on basic demonstrations in food preparation of locally available crops. Instructions on the use of Title II commodities must focus on the importance of these commodities for supplementing the diets of the young children and women. Lastly, the mother must be convinced that her participation in the weighing and feeding programs are important to the welfare of her family.

Changing knowledge, attitudes and behavior of the MCH program participants represents the essential component for assuring that lasting benefits of these feeding programs do affect project participants. This is particularly important in the context of a program targeted toward children, and pregnant and lactating women, because the unique etiology of malnutrition can be directly attributable to or intensified by bad feeding and child care practices.

This need to change infant and child feeding practices has long been recognized as a critical component of these MCH feeding programs. However, changing attitudes and behavior merely through increased knowledge gained from educational efforts has not been easily achieved.

## 2. Nutrition Education and Training

The basic nutrition education from the government is provided through a local Puskesmas. The messages (oriented towards specific job tasks) such as growing nutritive vegetables in home-gardening, health-care methods, or nutritionally effective cooking methods are all delivered to kader groups from desa initiating taman gizi programs. The training course is held about a week before the start of the UP GK program (usually there is a 3 day training course). Members from the kader groups are sent to the meeting to learn to use the dacin scales and methods of keeping the weight record of Balita KMS holders.

In East Java, a number of long-term nutrition and economic improvement programs are offered to desa with active PKK groups. These programs include such projects as starting and managing desa women's credit cooperatives, setting up small cooperative industries, and getting agricultural training courses (all from various ministries represented on the direct level). Some extension service agencies send trainers to local communities to be directly involved in these courses of practical training. The level of government involvement in extension services has increased over the past few years particularly with relation to rural improvement projects through Subsidi Desa (one million rupiah funding to each desa). Part of the fund is reserved for PKK projects. Access to these programs and services, however, is limited to communities near headquarters.

## 3. Social Participation in Nutrition Programs

Dinkes and other voluntary feeding programs (PMT) which demand cooperative efforts from the women's groups appear to be effective as a means of community social participation in nutrition activities. BKKBN programs appear poorest in this area because they lack clear nutrition objectives and material incentives for the community activities.

Since the BKKBN projects do not include funds for intensive feeding programs, the local PKK groups try to make a serious effort to raise money from the community and meet government recommendations for having taman gizi programs. In Mrentul in Kebumen and Nampan in Ponorogo, for example, the PKK groups collect jimpitan rice (better-off families save a

handful of rice every day), half of which is sold to raise money for purchasing vegetables and other necessary food items for the program. Desa lurah, other voluntary desa organizations, or the parents of the children in the feeding program also contribute rice, vegetables and cash.

In towns such as Karang Anyar, donations from shops and government offices are collected for voluntary feeding programs. As expected, the lack of funds limits the frequency of feeding. Rarely do these non MCH on-site feeding programs reach the residents living too far from the feeding headquarters. Once-a-month feeding and weighing sessions are not attractive enough for the mothers to overcome travel problems in order to bring their children. The target population is also limited by the availability of KMS cards. As a consequence even the well-intended swadaya and Dinkes programs give us an impression of being a political and social demonstration by the local PKK to satisfy duties recommended by the government, rather than seriously treating the malnourished children. Except for a few intensive efforts, most feeding programs that we observed served as perfunctory instruments of nutrition education. Some desa such as Nglumpang recruit the mothers of malnourished children for nutrition meetings to increase the educative effectiveness of the program. This is the ideal rather than the norm.

MCH feeding programs, however, tend to weaken the nutrition activities of local PKK groups, mainly because the presence of the programs is thought to satisfy their taman gizi program. In Candimulyo, for example, the PKK offers a monthly feeding program to malnourished children (19 in all), but the average size of attendance is five times greater, sometimes half of the children exceeding the Balita age limit. Unfortunately, financing the program has become a major problem for the desa.

In some desas near major towns, local women's elite groups tend to dominate and occupy the leadership positions inhibiting others from participation. In Sukomulyo, for example, a small five-member Dharma Wanita group\* carries out every nutrition-oriented program in the desa. The desa PKK has accumulated Rp. 91,045 (as of September 1981) enough to carry out intensive daily or weekly feeding programs. But the money has not been utilized for such programs because of the limited size of the staff.

---

\*/ Dharma Wanita is a welfare-oriented social group consisting of women working in the government and the wives of government employees.

The personal quality of the Lurah, also influences the activity of the PKK group in both MCH and non-MCH desas. If the Lurah's wife is young and inexperienced, she may be unable to provide effective leadership. In remote desa, on the other hand, Lurah tend to be old and inactive. Nobody wants to take their place because the poor productivity of the bengkok land available for desa officials is not productive. The PKK groups are likely to be just as inactive, mostly composed of the disinterested wives of desa officials.

Smaller desa with a relatively stable leadership tend to be better in organizing voluntary feeding programs. In Ponorogo, those desas were usually excluded from MCH programs, because of their more "advanced" development status. In some cases such as Nglumpang, the PKK has made a series of efforts to eliminate malnutrition among Balita children through community participation. It has best benefited from these nutrition activities by raising the level of participation in other programs as well. In other cases, such as Redisari or Mrentul in Kebumen, the medium sized farming communities have not had active programs because the local need is not thought to be critical enough. These desa tend to be slow to organize a voluntary program without some immediate incentives, while the government is not likely to select the desa for nutrition programs at least until the local PKK is sufficiently prepared and organized.

### Part III

#### CONCLUSIONS AND RECOMMENDATIONS

##### A. Nutritional Impact of the MCH Program

CRS/Indonesia has never carried out a systematic evaluation or "needs assessment" of its Title II, MCH program. The type of data collected from the individual MCH desa programs shows the need for more concern by CRS headquarters in Jakarta and their counterpart agencies in the provinces for monitoring the effectiveness of their feeding program upon the nutritional status of recipients.

YSBS and LKD employ social workers for monitoring and administrative tasks. Interviews with them revealed that in both instances the social workers served as administrative assistants overseeing the basic food distribution at the desa level at the expense of time devoted to the quantitative aspects of each desa program. There seems to be an "overburdening" of field workers which compounds many of the programmatic problems.

##### Recommendation:

Continued training and retraining is needed for CRS field staff and social workers, especially in administration, growth monitoring and nutrition education. A re-definition of their job duties may be necessary.

##### 1. Coverage, Participation and Targeting

The rate of participation is determined by the regularity of a recipient's attendance at feeding sessions, and how often the commodities are available. Attendance rates in each MCH desa program have been variable, tending towards seasonal fluctuation of rates.

Various ecological factors affect the regularity with which recipients participate. These factors include:

- . distance from administrative and health centers
- . landownership
- . working status of mother
- . village size and location
- . number of siblings in family
- . income
- . seasonal conditions

In the desa covered by YSBS administration (in Kabupaten Kebumen) there were no complaints about the delay of delivery (in fact the delivery is so regular that each desa has a fixed date for child weighing and distribution of Title II commodities). However, a number of such complaints from desa administered by LKD (in Kabupaten Ponorogo) were noted. As a policy, LKD schedules commodities to be delivered 11 times a year, but the delinquency of shipments happens more frequently than can be justified. These missing months usually fall during the rainy season (for one or two months). In places with poor attendance records, it may be three months before they get a new shipment. As long as the project holder keeps an honest report, CRS/Jakarta, LKD and YSBS admit that they find it difficult to drop these desa from the program. No influence has been used to raise the rate of participation.

The indirect shipment of the commodities, utilizing the regional coordinator as a mediating agent between the government program and the MCH program, and also as a shipping agent between the kabupaten and individual MCH desa, is inefficient and very costly. A portion of the high price paid by the recipients in East Java (Rp. 210 instead of Rp. 60 in Central Java for administrative costs) is caused by the extra expenses involved in local transportation between the coordinator's warehouse and the desa. When the coordinator is too busy to distribute the commodities and his warehouse is full, he has little choice but to stop the flow of the commodities. When the shipments stop, some desa also stop the weighing program, hence interrupting the program's purpose and the growth monitoring.

There is also some evidence to suggest that the "excess" money left after paying the expensive fees for local transportation and storage (the commodities are transferred from the regional coordinator to sub-coordinators before being delivered to individual desa) is not utilized for intended purposes in the program desa. Part of the money is automatically channeled by the regional coordinator into other desa to support their nutritional programs. In Ponorogo, some of the money is automatically put into a saving account every month to gain interest and to be used for other desa projects of economic self-sufficiency. Such a "savings" seems unnecessary because every desa receives a one million rupiah subsidy from the government for such rural development projects. What these MCH project desa need instead is to rechannel the funds into training (and re-training) and supervision, for field workers and cadre. This, in one sense, recycles the profit from the MCH program back into the program to improve and expand the delivery of services in program desa.

Selecting participants of an MCH feeding program is initially a function of specifying primary target groups based on nutritional criteria. A measure of success of an MCH

program is the degree to which the program is able to identify and provide services for these groups (children under 5 yrs, pregnant women, and nursing mothers).

To implement selection criteria, continuous screening of the desa population is necessary. This helps to maximize use of limited resources. Unfortunately, this study indicates that there are major problems with the enrollment system - from the initial eligibility entrance into the program to "graduation" from the program.

The fact that the CRS MCH program does not carry out annual evaluations is a serious problem of the Title II program. It is counter-productive to the intended purpose because desa are forced to substitute "graduated" Balita with newly eligible Balita without changing pertinent name/age/participation information. This confuses the educational message objectives of the weighing - feeding activities for the mother, and also renders the weight-for-age, weight change and nutritional status data useless for further monitoring and referrals at the desa and provincial levels.

Recommendation:

A periodical systematic review of all CRS MCH program desa and program services and recipients needs to be established.

In both Pujodadi and Karang Tanjung desa many children continue to remain in the feeding program beyond the "graduation" age of 5 years. Due to quota restrictions, there was a substantial waiting list of qualified new recipients unable to gain admittance to the program. Some desa in Ponorogo had not had evaluations for 3 years, thereby excluding children born after the last evaluation date - a critical "at risk" target group in Indonesia of 0 to 36 month Batita.

Another limiting factor for program enrollment criterion was introduced by YSBS. A fixed number of KMS cards were distributed to desa mothers. If a mother possessed such a "ticket", her child was eligible for the MCH program. Nutritional status was not considered.

Recommendation:

In order to enhance the nutritional impact of Title II commodities on program recipients and to improve cost-effectiveness, CRS/Jakarta and its local counterparts must strengthen targeting elements of the MCH program - both in terms of identifying specific program desa, and also, in identifying and delivering services to "at risk" individuals in the desa (especially among 6-36 month Batita (children 3 years and under), pregnant women in their last trimester, and nursing mothers). It is recommended that CRS review the monitoring and management information systems and establish a simple, practical system.

When there is more demand than available supply of Title II commodities, some of the needy are always left out of the program. It is not certain if the present project desa represent the most needy groups that could best benefit from the program. There is particular concern about the Central Java desa under YSBS administration. Because YSBS does not advertise the program nor rely on GOI administrative personnel for the selection of project desa, there is no defined process for searching for potential project holders. In the case of Skomulyo, the desa head (Lurah) heard about the program from his wife who happened to meet a Catholic sister in the Blue-Cross clinic where she was treated. In another case, the project holder heard about the program from the kabupaten chief at a conference, but nobody knew how to apply for the program. The project holder who was also a member of the kabupaten council, eventually made further inquiries in Cilacap. Later, other desa lurah also present at the conference which was actually hard to be proved that they were swindled by a (genuine?) local YSBS agent in Kebumen who allegedly charged fees for his services and ran away with the money. Again, this points to management and administrative problems at all levels. Further investigation is needed to clarify the problems.

Even those desa which present the correct documentation may not be eligible for Title II MCH program participation. If there are already two projects in the kabupaten, YSBS is not likely to accept a third desa unless additional supplies are available and the potential MCH program desa will benefit from the program more than other desa. One local health and nutrition officer in Alian kecamatan, for example, reported that according to her estimate the poorest desa have not been successful in applying for the program because two other desa in the kecamatan had already been selected.

Even in a kecamatan which does not yet have a single project, the initiation of the MCH program usually depends on the interest of the desa lurah (unless someone else is better informed and more conscientious). Desa along the relatively poorer northern hillside and within the town of Kebumen have no bengkok (farmland traditionally reserved as a communal property for use by desa officials in lieu of salaries), and to be chosen as desa head is a burden rather than a privilege. Desa heads in these communities cannot be expected to make trips to Cilacap only to increase their administrative load. Even though every desa has poor families with malnourished children, there is doubt whether the current project desa are among the most needy in terms of poverty and depressed nutritional status of Balita. Usually they have been pre-selected by chance, timeliness, and other circumstantial factors. YSBS hopes that malnourished children, pregnant women, and nursing mothers, not covered by the desa MCH program, seek direct assistance from a local Catholic clinic through which the MCH program is carried out.

Recommendation:

The primary weakness of Title II MCH Programs is the lack of qualified manpower in the field of nutrition. Only one CRS junior nutritionist coordinates the entire MCH program for Indonesia. There are no personnel with nutrition qualifications at local administrative levels. There are few social workers and the field staff who have any basic nutrition training and are not proportional to the big programs with thousands of recipients covering large areas. The result of such a situation is the lack of program control as well as supervision of the local administrative level thru to the desa. This entire system, particularly concerning manpower constraints, needs to be reviewed and re-evaluated. It may be necessary to employ at least one nutritionist or assistant nutritionist at each provincial center and two social workers at each kabupaten sub-center.

2. Impact Analysis

The MCH feeding program appears to be more effective than the on-site program for improving the severely malnourished group 'C' children but the MCH program does not bring about rapid improvement in group 'B' children. Group 'B' appears to benefit more from on-site feeding program (such as UPGK-Dinkes) because in these programs, group 'C' children are to be referred to PUSKESMAS for intensive care.

Recommendation:

A CRS protocol (in conjunction with GOI UPGK policy) needs to be established regarding follow-up treatment for group 'C' children (severely malnourished).

Recipients in longer term programs (5 years or more) did not necessarily improve more than those in newer programs. Furthermore, there is little evidence which suggests that the MCH program is effective for improving the status of children who entered the program after the age of 3 years. However, there does appear to be significant improvement in body weight of children enrolled in the MCH desa programs especially after 6 months in the program.

The unreliability of the desa level weight-for-age measurements and records did not inspire confidence in the outcomes of the data analyses which respect to testing the hypotheses. If the social workers are unable to handle the task of "spot checking" (supervising) the quality of the data kept by each kader, it may be helpful if the CRS headquarters periodically sends its nutritionist to the field for such purposes. Obviously there is an immediate need for new monitoring methodology for examining data at the field level.

Recommendation:

The absence of careful monitoring of childrens' growth status is a weakness of the MCH program. The data show that 6 months of carefully monitored participation in the MCH program can result in positive weight gain and the improvement remains to occur up to 9 months in the program. However, age-weight data are being sporadically collected and are not used to optimal effectiveness to monitor these nutritional status changes. It is recommended that CRS review and improve training procedures for their field workers in the use of age-weight data for better recording and reporting.

Interviews with local mothers also revealed that the fundamental concept of growth monitoring and the interpretation of their childrens' progress on the KMS cards is not well understood. If small scale evaluations of the program could be conducted once a year or two years, they may raise the awareness of the PKK groups to the fundamental importance of recording accurate birth dates and weight of the Balita recipients. It might be also necessary to redefine the duties of social workers and upgrade their nutritional knowledge.

Recommendation:

The effectiveness of the Title II ration can be enhanced by integrating the feeding component with specific health services and, particularly, with nutrition education focussing on the mother. Therefore, the educational component (see pages 8 and 9, point 3) must be considerably provided at the weighing and feeding sessions and tied to service delivery.

B. Improvements in Household Diets

After extensive interviews with mothers participating in the desa MCH feeding programs, the majority said their children liked foods prepared with Title II commodities (both SFBW and CSB). The take-home program lends itself to providing raw commodities which require home preparation - a test of acceptability, utilization and consumption.

It was noted that the SFBW and CSB food supplements add variety to the meals as well as contribute to richer protein intake. SFBW is used as a rice-extender; CSB is added to gruels, to thick soups with vegetables or fruit, and are baked into a kueh. Both SFBW and CSB are served to children as supplementary foods to breast-feeding (similar to nasi tim).

It is essential that foods programmed for the MCH project be effective in meeting the nutritional needs of the target groups. Special attention must be given to young children who have the greatest nutrient need per kg of body

weight. Therefore, because sharing does occur in the MCH take-home program, strong educational efforts to reinforce this message are critical.

Besides emphasizing the nutritional adequacy of the supplement in terms of filling a calorie gap, emphasis should be placed on protein. It is generally recommended that 10-15% of the supplement be in the form of protein. Theoretically, the Title II ration is nutritionally adequate for Balita recipients. However, the evaluation found that family members share the food supplement so that each member gets only 8-10% at the calorie and 18-25% of the daily protein requirement. Obviously, when foodstuffs are shared, the nutritional benefits to target recipients diminishes. In the MCH program, sharing does occur. According to the household observations and interviews, Title II commodities have not yet replaced traditional foods. They present a new addition to the usual diet and add variety and food value. Unauthorized sale of these commodities is not a problem, perhaps because these foods are not yet familiar. Therefore, they possess little retail value in local markets, and are not present in significant quantities.

In terms of comparable value, Title II foods are cheaper than local foods. They are in high demand particularly in poorer desa and during periods when the availability of food is diminished. On average, the payment for the Title II food supplement per month costs the recipient a day's salary, that is from Rps. 215 in Central Java to Rps. 360 in East Java.

Recommendation:

It is recommended that the Food for Peace Office review the calorie and protein balance of the Title II commodities being provided to determine nutritional adequacy for maximum nutritional impact for the target groups (especially the Balita) and the family's economic benefit by taking the intra-familial distribution of the food into account.

C. Nutrition Education and Community Participation

The success or failure of the MCH feeding program inevitably rests in the capability and commitment of project personnel - both CRS field workers and the desa PKK Kader. The success of the program is the result of numerous factors, perhaps the most important being the quality of training of the workers. The kaders are trained for 5 days in basic health and nutrition knowledge, growth monitoring techniques, and basic nutrition education. Maternal education is a critical component of these feeding programs. Unfortunately, the session is only given at the beginning of the program, or mixed in with other PKK activities. Most of the kadre activities

focus on the logistics of food distribution, balita weighing, and preparing reports. Obviously, the key responsibility for delivery of the services rests with the PKK kader who implement the program.

Consequently, MCH program efforts have met with varying success. The lack of skilled project management in the field is one of the obvious differences between those projects which "succeed" and those which remain static, unintegrated elements in the desa. There is a need to assure that project inputs result in measureable project outputs.

Efforts which demand cooperative efforts from the PKK appear to be more effective as a means of generating community cohesion and participation. The realization of basic community needs is also an important factor.

The program holder at the desa level is the lurah. The dedication of the lurah and his wife and their interest in nutrition influences the success of the activities. The involvement of the PKK kadre in the various logistical and programmatic aspects of the feeding program is also essential.

There are overlaps with GOI UPGK nutritional programs among the current MCH Title II desa. Because of this overlap perhaps needy individuals and families in other desa are being excluded from any nutrition program. This is not entirely the fault of CRS counterparts, because desa with more enthusiastic leadership, better organizations, and more active PKK groups tend to be favored by GOI administration. MCH program desa tend to fall in this category. The programs in Kebumen are still too relatively new for YSBS to already have imposed rigid administrative and eligibility constraints.

Recommendation:

CRS/Jakarta and its local counterparts need to establish closer coordination and cooperation with the GOI UPGK program at all operational levels (especially at the kabupaten and kecamatan).

Table 32. Overlap Between MCH and Other Nutrition Oriented Programs in Kebumen

Desa	MCH	Dinkes	BKKBN	Swadaya
1. Sukamulyo	x	x		x
2. Redisari		x		Irregular
3. Candimulyo	x		x	x
4. Pujodadi	x			
5. Mrentul			x	x
6. Karang Tanjung	x			
7. Karang Kembang		x		
8. Karang Anyar		x		x

Due to this lack of coordination/communication between YSBS and other nutrition oriented programs there have been some overlapping programs. This means that simultaneously there were several programs in some desa, as seen in Table 32, while other desa were still waiting for a nutrition program intervention.

The current opinion of the YSBS director about the issue of coordination with GOI nutrition programs is negative because of his small staff and budget. In order for YSBS to increase its staff, the amount of administrative fees charged to recipients will have to be raised. Such an action will increase the financial burden on the recipients and probably decrease their participation in the program.

While we trust his judgement, it may be necessary to establish some line of communication with local (Provincial or Kabupaten level) GOI agencies at least on the kabupaten level mainly because GOI has accelerated its emphasis upon nutrition improvement for Balita children within the past few years. A long-term nutrition improvement cannot be achieved by YSBS alone with its limited budget and small staff.

It is important to mention that according to GOI policy, foreign food assistance using imported commodities must be categorized as "short term" assistance directed particularly towards overcoming emergency situations. Otherwise, the economic growth and development of recipient countries will be used as one indicator for continuation/discontinuation of the food assistance.

Recommendation:

The MCH program, using Title II food commodities, is likely to be "short term" assistance rather than permanent support. In order to begin planning for the eventual absence of outside assistance, CRS/Jakarta needs to start developing a strategy for the gradual phase-out of imported commodities.

July 7, 1981  
Final Draft

Research Protocol  
Indonesia

Evaluation of the PL-480 Title II Maternal Child Health Program

- I Introduction
- II Research Contract
- III The Three Evaluation Hypotheses
- IV Control Methodology
- V Hypothesis A:
  - Analysis of Child Age-Weight Data
- VI Hypothesis B:
  - Use of MCH-PKK Food in the Household
- VII Hypothesis C:
  - Nutrition Education
- VIII Recommendations
- IX Scopes for MCH Evaluation Team

## Research Protocol

### Indonesia

#### Evaluation of the PL-480 Title II Maternal Child Health Program

##### I. Introduction

This research protocol, designed as the main component of the "PL-480 Title II Scope of Work for Evaluation" dated May 12, 1981, focuses exclusively on an evaluation of the Catholic Relief Service's MCH program on Java during 1981. This document will be referred to as the "Protocol" while the overall evaluation document will be referred to as the "Scope."

Because the Catholic Relief Service distributes 95% of the Title II commodities for Indonesia, this evaluation will focus on CRS. And because the MCH program is designed to alleviate malnutrition, and because data are available to enable quantitative assessment of impact, this protocol focuses on a sample of CRS' MCH village programs. In FY81, CRS distributed 3,641 MT of wheat, 2,016 MT of corn-soy blend, and 1,764 MT of wheat-soy blend through its MCH programs, 80-90% of which are on Java.

It is proposed that the field work for this evaluation will be conducted in selected villages in East and Central Java, and will focus on MCH-UPGK village-based programs (Title II supported), and on UPGK programs (which do not receive Title II support). (UPGK means Usaha Perbaikan Gizi Keluarga or Family Nutrition Improvement Program).

##### II. Research Contract

This protocol will be conducted by a team whose services will be obtained under AID Personal Services Contracts for which Project Implementation Orders/Technical Services (PIO/T) will be issued. It is expected that one PIO will be signed on behalf of three or four consultants with the Lembaga Penelitian IPB, and one or two PIOs for individual resident American consultants. While the mission will negotiate separate contracts, each scope will be coordinated with the others as to duties and schedule (see section IX).

It is proposed that the team will conduct its field work starting in September and will write its report during October. The team leader will be responsible for team coordination and for the report. The MCH report is designed to serve as part of an internal AID evaluation.

### III. The Three Evaluation Hypotheses

The MCH evaluation has three sections which are guided by the following hypotheses, one for each of the three sections.

First, the team will test the following hypothesis (A) by utilizing each UP GK program's child age-weight data.

(A) The Title II supplied foods explain a significant positive weight difference in MCH-UP GK over UP GK program children.

Second, to analyze the at-home use of Title II supplied foods, the team will study these foods as they are prepared and utilized in the household. The hypothesis is:

(B) Title II supplied foods explain an improvement in the household diet for children, pregnant, and nursing mothers.

Third, to analyze the total nutrition impact of the MCH-UP GK and UP GK programs, the team will identify and assess the several nutrition components of each program at the desa level. The hypothesis is:

(C) MCH-UP GK programs are more effective than UP GK programs in improving child, pregnant, and nursing mothers' nutritional status.

### IV. Control Methodology

The statistical portion of this protocol (for hypothesis A) assumes: that the multi-focused nutrition-oriented UP GK program is functioning in most villages on Java; that age-weight and other data are collected monthly by the UP GK (and other governmental nutrition-related programs); and that there is near-100% participation in the monthly weighing program in all UP GK program villages. Here we assume both 100% coverage and attendance. While the team will use the data as is, they will also rely on interviews and spot checks of the data lists (buku catatan) to verify these assumptions.

Because it is not known whether the only significant difference between MCH-UP GK and UP GK programs is the supply of Title II food commodities, a longitudinal survey is probably preferable to a cross-sectional one. In other words, we assume that the MCH-UP GK villages have not been selected randomly.

The team statistician(s) will help decide the number of village programs to be sampled, what sample size of each age-weight grouping needs to be drawn from each UPGK village program age-weight list, how it is to be drawn, and will determine the significant difference in the mean weight differences for the selected age cohorts (possibly 12, 24 and 36 months) for MCH-UPGK and UPGK program villages. Hypothesis A will be verified if the age-weight data show a significantly larger gain in MCH-UPGK village children in comparison with UPGK village children.

The second and third hypotheses of the evaluation will be tested by selected interviews. Here again the statistician(s) will help advise the team on sample size in MCH-UPGK and UPGK program villages, and will otherwise help the team ensure representativeness and objectivity, and determine the degree of confidence one may attribute to observations and recommendations.

For all three hypotheses and their associated questions (listed below), the team will need to identify the several manuals of operation used by cadre to guide the implementation of the MCH-UPGK and UPGK programs. This is necessary so that the impact evaluation can be assessed in light of stated program objectives.

The constraints of time and logistics prevent the drawing of a random sample of programs in Indonesia, or even on Java. Kabupaten Kebumen in Central Java and Kabupaten Ponorogo in East Java have been selected because: a large number of MCH-UPGK programs are located there, and because these areas are relatively easy to drive to without being near major urban centers. We also have the impression, to be checked in the course of the evaluation, that these kabupaten are among the relatively poorer ones on Java.

At the beginning of each field trip, the team will meet with Kabupaten officials, and may wish to obtain data on poverty indicators, demographics, and on rural programs, time permitting, which may be helpful in testing the hypotheses and otherwise in making comparisons among programs. In conversations in these offices, unlike village level workers, it will be possible to obtain information on the MCH-UPGK program village selection criteria, and the responsiveness of MCH-UPGK program operations to changes in village/Kecamatan selection indicators. (CRS counterpart agencies will inform relevant province level officials of this evaluation, its members, and their schedule.)

V. Analysis of Child Age-Weight Data

Hypothesis (A): The Title II supplied foods explain a significant positive weight difference in MCH-UPGK over UPGK program children.

To test this hypothesis, the team will rely on UPGK records (buku catatan) for an equal number of MCH-UPGK and UPGK programs in each of the two Kabupaten. Each UPGK program maintains records for every child (0-5 years) in the village. One book contains monthly weighing data in kilos, and an A, B, or C group determination is made every six months. Another book contains height and arm circumference measurements made once a year for each child. These data are available, ideally, since the start of the KMS (Health Improvement Card) program in April, 1979.

The test of significance of the first hypothesis will not require an analysis of all these data. A sample of children by weight-age groupings for several age groups is needed to identify the hypothesized weight by age increase. (The sample size, groupings and selection method remain to be determined. The impact of Title II during the 12th through the 36th month weaning period is of primary concern here.)

The team will need to determine the numbers and proportions of children who move up from C, to B, to A, during the course of their MCH-UPGK and UPGK participation (and visa-versa).

The team will also determine for both MCH-UPGK and UPGK programs on the basis of data review and interviews:

1. The quality of the data.
2. If weight or other data exist on child births, pregnant and nursing mothers, and if so, of what type and usefulness for this and future evaluations.
3. Whether there are non-participant children under 5 and non-participant pregnant women, and why. Whether coverage and attendance rates differ between the two programs.
4. The reasons why the numbers of children in each nutritional grouping (A, B, C) change.
5. The nutritional status of children who graduate or are "discharged" from the program.
6. Whether and in what way special care is given to group "C" children.

VI. Use of MCH/Title II Food in the Household

Hypothesis (B): Title II supplied foods explain an improvement in the household diet for children, pregnant, and nursing mothers:

The team will select MCH-UPGK and UPGK program participants and dukuns (traditional healers) for interviews concerning food consumption including use of Title II foods by MCH-UPGK families at home, and will visit homes, and village markets.

The team will determine:

1. How these foods are prepared in the programs and at home.
2. If, and to what degree, the Title II foods are fed exclusively to participant children, or to the family, or are used as feed and are sold.
3. If, and how, Title II foods are delivered as specific supplements to breastfeeding.
4. Whether participants have a preference for the different types of Title II foods.
5. Whether the caloric content of the Title II ration is adequate to satisfy the specific weight deficits (A, B, C) of the beneficiaries.
6. Is there any evidence that frequency of feeding, seasonal effects, and the annual number of days of feeding are factors which contribute to the explanation of program impact?

VII. Nutrition Education

Hypothesis (C): MCH-UPGK programs are more effective than UPGK programs in improving child, pregnant and nursing mothers' nutritional status.

The team will interview MCH social workers, UPGK cadre, and participants to evaluate the nutritional messages of MCH-UPGK and UPGK programs, and those of other GOI nutrition-related activities. (Because clinical evaluative measures for pregnant and nursing mothers are as yet poorly developed, the assessments will be based on interviews.)

The team will determine:

1. The basic nutrition curriculum, including supplemental food lessons during the weaning period, for each program.
2. Whether the nutrition messages are well designed and delivered, understood, acted on, and result in improved maternal-child feeding practices.
3. What incentives and pressures there are on mothers for MCH-UPGK and UPGK participation. What evidence is there that Title II foods motivate attendance.
4. The types (including coconut oil), quantities, and prices of foods locally purchased and prepared in the programs.
5. How village-level nutrition programs are directed and coordinated.
6. What are the MCH-UPGK program selection criteria, and how responsive are MCH-UPGK operations to changes in village/Kecamatan selection indicators.

#### VIII. Recommendations

1. The team will consider possible MCH-UPGK program recommendations to enhance the nutritional impact of Title II on program beneficiaries and to improve program cost-effectiveness. Where possible, the team will identify specific steps which might be taken, and their administrative and other program costs.
2. If data are found to be insufficient in quality or availability, the team should make recommendations concerning future data collection requirements.

#### IX. Scopes for MCH Evaluation Team

The team will be composed of Drs. M. Khumaidi (a nutritionist), Dr. A.A. Mattjik and Dr. A. Rambe (statisticians) with the Lembaga Penelitian IPB, and Dr. Hiroko Horikoshi (an anthropologist), and Dr. Helen Johnson (a communications expert), both resident Americans. This Team will under take the field work and will write the report. The team leader will be Drs. Khumaidi. Dr. Darwin Karyadi, Director of the Center for Research and Development for Nutrition, will act as a part time advisor to the team, and his services will be included in the IPB contract.

The team's scope of work is defined in this protocol by sections V, VI and VII. The specific scopes for each consultant are referenced by hypothesis and question number on the following table.

The two field trips are tentatively scheduled for the periods September 5-13 (Kebumen) and September 19-27 (Ponorogo). It is expected that the field work will be completed during September, and that October will be used for discussion, analysis and report writing. The final report will be given to AID by October 30, 1981.

The following letters (A, B, C) and numbers are keys to Sections V, VI, and VII of this Protocol.

Hypotheses:

	<u>A</u>	<u>B</u>	<u>C</u>
Nutritionist and Team Leader: Drs. Khumaidi		Prime Respon- sibility 1, 2, 4, 5, 6	
Statistician: Dr. Mattjik Mr. Rambe	Prime Respon- sibility 1, 2, 3	Advise	Advise
Anthropologist: Dr. Horikoshi	3, 4, 5, 6		3, 4
Education/Communi- cations Advisor: Dr. Johnson		3	Prime Respon- sibility 1, 2, 5, 6
Nutrition Advisor: Dr. Karyadi	Advisor	Advisor	Advisor

Description of Sample Desa Used in Study

Type of nutrition program	Regency	Sub-regency	Desa	Number of cases	Record length
M C H	1. Kebumen	1. Rowokele	Sukomulyo	298	10/80-08/81 (11 month)
		2. Alian	Karang-tanjung	687	03/79-09/79 ( 7 month)
				126	01/81-09/81 ( 9 month)
		3. Kebumen	Candimulyo	141	03/80-08/81 (18 month)
	4. Mirit	Pujodadi	405	04/80-08/81 (17 month)	
	2. Ponorogo	1. Sukorejo	Serangan	206	10/78-07/80 (22 month)
				169	08/80-07/81 (12 month)
		2. Slahung	Nambangrejo	263	01/79-08/81 (32 month)
			Caluk	180	04/80-08/81 (17 month)
			Tugurejo	223	09/78-12/79 (16 month)
				189	01/80-04/81 (16 month)
			Wates	293	10/78-03/80 (18 month)
				366	04/80-03/81 (12 month)
	UPGK-DINKES	1. Kebumen	1. Rowokele	Redisari	54
2. Karang-anyar			Karanganyar	74	10/80-06/81 ( 9 month)
2. Ponorogo		1. Sukorejo	Bangunrejo	293	08/79(6)08/81
				101	09/80-11/80 ( 3 month)
		2. Mlarak	Nglumpang	435	3 - 6 month
UPGK-BKKBN	1. Kebumen	1. Alian	Krg. Kembang	122	05/81-07/81 ( 3 month)
		2. Mirit	Mrentul	61	12/80-07/81 ( 8 month)
	2. Ponorogo	1. Sukorejo	Nampan	141	11/78(6)05/81
		2. Slahung	Tugurejo	300	04/81-09/81 ( 6 month)

GLOSSARY, ABBREVIATIONS AND ACRONYMS

Arisan kelompok	group of raffling with winning in turns. One <u>pos penimbangan</u> which is usually in one- <u>desa</u> ( <u>pedukuhan</u> ) is forming a group of women to raffle in turns.
Balita	<u>bawah lima tahun</u> , children under 5 years of age, pre-school children.
Balai desa	desa hall, a place/building where all administrative and official activities of desa formal leaders to be done.
BAPPEDA	<u>Badan Perencanaan Pembangunan Daerah</u> <u>Provincial Development Planning Board</u>
BAPPENAS	<u>Badan Perencanaan Pembangunan Nasional</u> <u>National Development Planning Board</u>
Batita	<u>bawah tiga tahun</u> , children under 3 years of age or toddler.
Bengkok	a piece of land, generally the first class of paddy field ( <u>sawah</u> ) belongs to <u>desa</u> ( <u>desa</u> ). The land is owned by the <u>formal</u> desa leader as long as he is holding position of formal desa leadership.
Bidan	midwife, who obtained knowledge from 3 years formal school after junior high school.
B.K.I.A.	<u>Balai Kesejahteraan Ibu dan Anak</u> , <u>Maternal-Child Health Center</u> (Simple Outpatient clinic usually staffed by an auxiliary nurse or midwife), subsection of the Puskesmas
B.K.K.B.N.	<u>Badan Koordinasi Keluarga Berencana Nasional</u> , <u>National Family Planning Coordinating Board</u>
BPGD	<u>Badan Perbaikan Gizi Daerah</u> Regional body of <u>Nutrition Intervention Program</u> , provincial level.

BP <sup>2</sup> GD	<u>Badan Pelaksana Perbaikan Gizi Daerah,</u> <u>Regional Working Body of Nutrition</u> Intervention Program, kabupaten and kecamatan level.
BULOG	<u>Badan Urusan Logistik,</u> <u>National organization</u> responsible for procurement, storage, distribution, and pricing of basic food commodities.
BUPATI	Head of the Kabupaten (Regency) Government
CAMAT	Head of the Sub-District Government
Ciwitan	<u>jimpitan = perelek</u> (in West Java). A social activity, mother of a household should set aside a handful rice before cooking. This work is carried out day by day to be collected weekly for social purposes or charity.
COME	Community Oriented Medical Education
CRS-USCC	Catholic Relief Services-United States Catholic Conference. CRS-USCC is the official overseas relief and development agency of the United States Catholic bishops. It has continually served the neediest people of all races and religious. CRS opened its branch in Indonesia (CRS/I) in 1958.
Dep. Kes	<u>Departemen Kesehatan,</u> (Department of Health, Central office for Indonesia, Jakarta).
Desa	Village
Dharma-wanita	organization of the Indonesian officials' wives from national level down to desa level. Members of the desa Dharma-wanita are all formal-leader's wives chaired by lurah's wife. The most important program of Dharma-wanita is Pembinaan Kesejahteraan Keluarga ( <u>PKK</u> , family welfare improvement). The adult as well as adolescence women in the desa could be considered as the PKK performers. There are ten aspects of PKK as the goal of activities viz. (1) The insight of and adherence to the five inseparable principles PANCASILA. (2) Mutual/aid or solidarity (gotong-royong)

- (3) Food and nutrition
- (4) Clothing
- (5) Housing and household management
- (6) Education and skill
- (7) H e a l t h
- (8) Developing cooperative lifestyle
- (9) Maintaining the ecological  
(environmental) balance.
- (10) Sound planning

In sustaining such aspects the PKK accomplishes several activities such as: mass immunization, sports, home-crafts (e.g. making soap, embroidering), traditional dancing, arisan (raffling in turns), family planning program, mother-craft nutrition center (Taman Gizi), lecturing in religion, infant feeding, baby contests, etc..

Dinkes

Dinas Kesehatan Kabupaten/Kotamadya (Public Health Service, kecamatan health service/kecamatan).

DINAS KESEHATAN (DINKES)  
PROPINSI

Office of Provincial Health Service

DOKABU

Dokter Kabupaten  
Head of the Kabupaten Government Health Service.

Dukun bayi

traditional midwife, knowledge of parturition assistance, obstetrics, child delivery and baby care learned from inheritance or by intuition. Since the late 1950s there is a program from the Department of Health to train dukun bayi concerning hygiene and sanitation and to provide them with basic midwife kits.

F.F.W.	Food for Work Programs - PL 480, Title II
FK	<u>Fakultas Kedokteran</u> : Medical School
G.B.H.N.	<u>Garis-Garis Besar Haluan Negara</u> - General Guidelines of State Policy
Gotong Royong	Cooperative mutual aid as traditionally practiced in Indonesia desa
Hamil	pregnant woman
Hectare	unit area size. 1 hectare (1 ha) = 10,000 m <sup>2</sup> 1 are = 0.01 ha 1 ha = 700 ubin, 1 bau (Javanese unit) = 500 ubin
Ibu	mother
I.F.Y	Indonesian Fiscal Year (April 1 through March 30)
INPRES	<u>Instruksi Presiden</u> - Special Development Fund from Central Executive level directly to Kabupaten and Provinces
Kabupaten	Regency, Kewedanaan = District, Kecamatan = Sub-district, Desa = village, pedesaan = rural.
Kadre	voluntary field-performer in nutrition program. Mostly female, recruited from local village. Usually able to read and write. Trained in very basic knowledge of nutrition, food preparation for vulnerable groups, methods of communication as well as simple recording and reporting. Period of training: desa level 5-7 days and Kecamatan level 1-2 weeks.
Kakak	Elder sibling, status which bears responsibility and importance
KAKANWIL	<u>Kepala Kantor Wilayah</u> , Head of Provincial Government Services
KANWIL KESEHATAN	<u>Kantor Wilayah Kesehatan</u> Office of Representative of Ministry of Health in each province

Kanwilkes	Kantor Wilayah Kesehatan (Department of Health, provincial office).
KECAMATAN	Sub-district
KMS	<u>Kartu Menuju Sehat</u> (Growth Chart = Road to Health). Vertical line means child's weight and the horizontal line means child's age from 0 to 60 months. There are two curves on the middle of the chart as border lines of weight for age for categorizing the child as A (well nourished, healthy), B (mildly/moderately malnourished) and C (severely malnourished).
KOTAMADYA	Municipality, an urban equivalent of the kabupaten headed by a Walikota, or mayor
LKD	<u>Lembaga Karya Darma</u> (Social Support Institute). A private social institution under the auspices of Surabaya Diocese (East Java). The Chairman of LKD: Frater P. van Hees. LKD is a local counterpart of the CRS in carrying out the program of Title II PL-480 in East Java. The title II PL-480 for MCH has been established since 1974. Mr. Josef Kastari is the Executive supervisor of MCH (nutrition) program conducted by LKD.
L.K.M.D.	<u>Lembaga Ketahanan Masyarakat Desa:</u> Village Committee for Community Defense
Lural.	kepala desa = desa head = desa leader
On-site feeding Program	meals and snacks prepared for Balita as a demonstration for mothers. (See PMT)
Makanan	meal or dish, makanan ringan = side meal/snacks, pangan = food, pakan = animal feed, makanan pokok = staple-food, gizi = nutrition.
Menyusui/meneteki	lactating
Orang jompo	poor decrepit people
Outer Islands	Indonesian islands other than Java, Bali and Madura
PK	<u>Perawat Kesehatan:</u> Primary Health Nurse

P.K.K	<u>Pendidikan Kesejahteraan Keluarga:</u> The Family Welfare Movement through desa women
P.K.M.D	<u>Pembangunan Kesehatan Masyarakat Desa:</u> Primary Health Care Model for Indonesia
PLKB	<u>Petugas Lapang Keluarga Berencana (Field Workers for Family Planning Program).</u> Government official, about 3 to 4 desas per PLKB. In one Kecamatan all PLKB are coordinated by one coordinator and in one regency supervised by one supervisor.
P.M.T.	<u>Pemberian Makanan Tambahan:</u> GOI intensive nutrition intervention feeding program for desa children
Policlinic	Small, simple, outpatient clinic
Pos penimbangan	dwelling-place for weighing. A special place where Balita are brought for anthropometric measurement, especially weighing.
P2WPK	<u>Peningkatan Peranan Wanita Dalam Pembangunan Kesehatan:</u> The Role of Women in Health Development
P2WKSS	<u>Peningkatan Peranan Wanita Keluarga Sehat Sejahtera:</u> The Healthy & Prospering Family Program
PROKESA	<u>Promotor Kesehatan desa:</u> Health Promotor at desa level
PUSKESMAS	<u>Pusat Kesehatan Masyarakat:</u> Community Health Center, generally at kecamatan level
PUSAT PEMERINTAH	Central Government Level
(RE) PELITA III	<u>(Rencana) Pembangunan Lima Tahun III</u> Third 5 year Development, 1979-1984
SPK	<u>Sekolah Perawat Kesehatan:</u> Nursing School
SPPH	<u>Sekolah Pembantu Penilik Higiene,</u> Rural Sanitarian School

Swadaya	self-reliance, self-help (financing development activities solely through community resources).
Swasembada	self-support, especially in terms of agricultural products
Taman Gizi	mother-craft nutrition center. A place and program of activities where mothers gather periodically (1, 2 or 3 times a week) to attend UPGK (which may include some meals). Alternately mothers cook and prepare food supplements for children instructed by cadres. Basic UPGK: the activity of child weighing, nutrition education including food demonstration and nutrition first-aids (oralit salt, iron tablet and sometimes also high-dose vitamin A capsule). Complete UPGK (UPGK lengkap) is the basic UPGK (UPGK dasar) plus food supplement.
U.P.G.K.	<u>Usaha Perbaikan Gizi Keluarga:</u> The Family Nutrition Improvement Program
Wilayah	region, in terms of physical boundaries. Daerah = region, in terms of administrative governing boundaries. (Daerah Tingkat I = Province, Daerah Tingkat II = Regency).
YSBS	<u>Yayasan Social Bina Sejahtera</u> (Social Welfare Foundation). A private social institution under the auspices of Cilacap Diocese (Central Java). The Chairman of YSBS: Father C.P. Burrows. YSBS is a CRS' counterpart in carrying out program of Title II PL-480 in Central Java. The Title II for MCH has been established since 1979. No structural and functional relationships exist between CRS and YSBS other than just local counterpart. Mr. Kun Muryanto is the field supervisor of Title II PL-480 programs conducted by YSBS.

APPENDIX IV.

Nutrition Standards for Children Under 5 Years by Age and Weight (Harvard Standard-Stuart and Stevenson)

Age in months	90% Standard	80% Standard	70% Standard	60% Standard	Age in months	90% Standard	80% Standard	70% Standard	60% Standard		
0	2.4	3.0	2.7	2.4	2.0	31	13.7	12.4	11.0	9.7	8.2
1	4.3	3.7	3.4	2.9	2.5	32	13.8	12.5	11.1	9.8	8.3
2	5.0	4.4	4.0	3.4	2.9	33	14.0	12.65	11.2	9.9	8.4
3	5.7	5.1	4.5	4.0	3.4	34	14.2	12.8	11.3	10.0	8.5
4	6.3	5.7	5.0	4.5	3.8	35	14.4	12.9	11.5	10.1	8.6
5	6.9	6.2	5.5	4.9	4.2	36	14.5	13.1	11.6	10.2	8.7
6	7.4	6.7	5.9	5.2	4.5	37	14.7	13.2	11.8	10.3	8.8
7	8.0	7.1	6.3	5.5	4.9	38	14.85	13.4	11.9	10.4	8.9
8	7.6	6.7	5.9	5.1	5.1	39	15.0	13.5	12.05	10.5	9.0
9	8.9	8.0	7.1	6.2	5.3	40	15.2	13.6	12.2	10.6	9.1
0	9.3	8.4	7.4	6.5	5.5	41	15.35	13.75	12.3	10.7	9.2
1	9.6	8.7	7.7	6.7	5.3	42	15.5	13.9	12.4	10.8	9.3
2	9.9	8.9	7.9	6.9	6.0	43	15.7	14.0	12.6	10.9	9.4
3	10.2	9.1	8.1	7.1	6.2	44	15.85	14.2	12.7	11.05	9.5
4	10.4	9.35	8.3	7.3	6.3	45	16.0	14.5	12.9	11.2	9.6
5	10.6	9.5	8.5	7.4	6.4	46	16.2	14.6	12.95	11.3	9.7
6	10.8	9.7	8.7	7.6	6.6	47	16.35	14.7	13.1	11.4	9.8
7	11.0	9.9	8.9	7.8	6.7	48	16.5	14.8	13.2	11.5	9.9
8	11.3	10.1	9.0	7.9	6.8	49	16.65	15.0	13.35	11.6	10.0
9	11.5	10.3	9.2	8.1	7.0	50	16.8	15.2	13.5	11.75	10.1
0	11.7	10.5	9.4	8.2	7.1	51	16.95	15.3	13.65	11.9	10.2
1	11.9	10.7	9.6	8.3	7.2	52	17.1	15.45	13.8	12.0	10.3
2	12.05	10.9	9.7	8.4	7.3	53	17.25	15.6	13.9	12.1	10.4
3	12.2	11.1	9.8	8.6	7.4	54	17.4	15.7	14.0	12.2	10.5
4	12.4	11.2	9.9	8.7	7.5	55	17.6	15.85	14.2	12.3	10.6
5	12.6	11.4	10.1	8.9	7.6	56	17.7	16.0	14.3	12.4	10.7
6	12.7	11.6	10.3	9.0	7.7	57	17.9	16.15	14.4	12.6	10.75
7	12.9	11.8	10.5	9.2	7.8	58	18.05	16.3	14.5	12.7	10.8
8	13.1	12.0	10.6	9.3	7.9	59	18.25	16.4	14.6	12.8	10.9
9	13.3	12.1	10.7	9.4	8.0	60	18.4	16.5	14.7	12.9	11.0
0	13.5	12.2	10.8	9.5	8.1						

Group A                      B                      C                      A                      B                      C

Group A = 81% - 100% Standard = healthy child  
 Group B = 61% - 80% Standard = mild malnutrition  
 Group C = 60% and below Standard = severe malnutrition

Nutrition Standards for children under 5 Years by Height and Weight  
(Harvard Standard-Stuart and Stevenson)

Height (cm)	W e i g h t					Height (cm)	W e i g h t				
	Stan- dard	90% Stan- dard	80% Stan- dard	70% Stan- dard	60% Stan- dard		Stan- dard	90% Stan- dard	80% Stan- dard	70% Stan- dard	60% Stan- dard
52	3.8	3.4	3.0	2.7	2.3	81	11.2	10.1	9.0	7.8	6.7
53	4.0	3.6	3.2	2.8	2.4	82	11.4	10.3	9.1	8.0	6.8
54	4.3	3.9	3.4	3.0	2.6	83	11.6	10.4	9.2	8.1	6.9
55	4.6	4.1	3.6	3.2	2.7	84	11.8	10.6	9.4	8.3	7.1
56	4.8	4.3	3.8	3.4	2.9	85	12.0	10.7	9.6	8.4	7.2
57	5.0	4.5	3.9	3.5	3.0	86	12.2	11.0	9.8	8.5	7.3
58	5.2	4.7	4.2	3.6	3.1	87	12.4	11.1	9.9	8.6	7.4
59	5.5	4.9	4.4	3.8	3.3	88	12.6	11.3	10.1	8.8	7.6
60	5.7	5.1	4.6	4.0	3.4	89	12.8	11.5	10.2	9.0	7.7
61	6.0	5.4	4.8	4.2	3.6	90	13.1	11.8	10.5	9.2	7.9
62	6.3	5.7	5.0	4.4	3.8	91	13.4	11.9	10.7	9.3	8.0
63	6.6	5.9	5.3	4.6	3.9	92	13.6	12.2	10.9	9.5	8.2
64	6.9	6.2	5.5	4.8	4.1	93	13.8	12.4	11.0	9.6	8.3
65	7.2	6.5	5.8	5.0	4.3	94	14.0	12.6	11.2	9.8	8.4
66	7.5	6.8	6.0	5.3	4.5	95	14.3	12.8	11.4	10.0	8.5
67	7.8	7.0	6.2	5.5	4.7	96	14.5	13.1	11.6	10.2	8.2
68	8.1	7.3	6.5	5.7	4.9	97	14.7	13.3	11.8	10.3	8.8
69	8.4	7.6	6.7	5.9	5.0	98	15.0	13.5	12.0	10.5	9.0
70	8.7	7.8	7.0	6.1	5.2	99	15.3	13.7	12.3	10.7	9.2
71	9.0	8.1	7.2	6.2	5.3	100	15.6	14.0	12.5	10.9	9.4
72	9.2	8.3	7.4	6.4	5.5	101	15.8	14.2	12.6	11.1	9.5
73	9.5	8.5	7.6	6.6	5.6	102	16.1	14.5	12.9	11.3	9.7
74	9.7	8.7	7.8	6.8	5.8	103	16.4	14.7	13.2	11.5	9.8
75	9.9	9.0	8.0	6.9	5.9	104	16.7	15.0	13.4	11.7	10.0
76	10.2	9.2	8.3	7.1	6.1	105	17.0	15.3	13.6	11.9	10.1
77	10.4	9.4	8.3	7.2	6.2	106	17.3	15.6	13.8	12.1	10.4
78	10.6	9.5	8.5	7.4	6.4	107	17.6	15.9	14.0	12.3	10.5
79	10.8	9.7	8.6	7.5	6.5	108	18.0	16.2	14.4	12.6	10.8
80	11.0	9.9	8.8	7.7	6.6						

Note:

body weight  
or height

90% or above - good nutrition  
below 90% - mild nutrition  
below 70% - severe nutrition

APPENDIX V

Recipes and Costs of Title II Food  
Prepared by MCH Kadres

I. Bulgur

<u>Name of Dish</u>	<u>Ingredients</u>	<u>Cost</u>
Wajik Cake: Steamed	1 Kg bulgur	Rp. 25
	2 Kg coconut	120
	1/2 Kg brown sugar	200
	1 pkg vanilla	25
<hr/>		
	30 servings	Rp. 370

Bubur Bulgur: Boiled Porridge	6 oz dried green beans	Rp. 300
	1/2 Kg brown sugar	120
	1/4 Kg dried milk	25
	1/2 Kg bulgur	13
	1/2 Kg coconut	30
	2 pgk vanilla	50
<hr/>		
	20 servings	Rp. 538

II. CSB - Central Java

Donut: Fried	1/2 Kg CSB	Rp. 13
	5 crushed banana	125
	1/4 Kg white sugar	150
	1/4 Kg coconut oil	150
<hr/>		
	20 servings	Rp. 438

Lemet Cake: Steamed	1/2 Kg	CSB	Rp. 13
	1/4 Kg	brown sugar	100
	1/2	coconut	30
<hr/>			
	30 servings		Rp. 143
<hr/>			
Lapis Cake: Steamed	3/4 Kg	CSB	Rp. 20
	1/4 Kg	white sugar	150
	1/2	coconut	30
	4 pkg	vanila	40
	1/4 Kg	tapioka	60
<hr/>			
	10 servings		Rp. 300
<hr/>			
Lauk: Fried sidedish	1/4 Kg		Rp. 150
	1/2	coconut	30
	1/4 Kg	CSB	7
	5	tempe	50
	seasoning	garlick	20
<hr/>			
	10 servings		Rp. 257
<hr/>			
III. <u>WSB - East Java</u>			
Lintingan Cake: Fried or Stamed	1/2 Kg	WSB	Rp. 28
	1	egg	50
	1/2	coconut	40
	1/4 Kg	brown sugar	70
<hr/>			
	20 servings		Rp. 188
<hr/>			
Jangas Cake: Steamed	1/2 Kg	WSB	Rp. 28
	1/4 Kg	brown sugar	70
	1/2	coconut	40
<hr/>			
	20 servings		Rp. 138
<hr/>			

CSE

Sagon cookies (baked on a frying pan)	1 Kg	CSB	Rp.	25
	1	coconut		60
	1/4 Kg	white sugar		150

---

40 servings	Rp.	235
-------------	-----	-----

---

Bubur = porridge	1/2 Kg	CSB	Rp.	13
	1/2	coconut		30
	1 oz.	brown sugar		50

---

10 servings	Rp.	93
-------------	-----	----

---

APPENDIX VI

Additional Recipes and Costs of Indigenous  
Foods Prepared by PKK

Name of Dish	Ingredients	Cost
Mie Bakso (noodle dish)	5 pkg noodle	Rp. 375
	1/4 Kg beef	600
	1/2 Kg tapioka	100
	seasoning white pepper	100
	garlic shallots	
	10 servings	Rp. 1,175
Bau Pau (steamed and stuffed Chinese bread)	1/2 Kg flour	Rp. 140
	1/2 coconut	40
	2 eggs	120
	1 oz. dried green beans	50
	1 oz. brown sugar	50
	1 pkg vanilla	10
15 servings	Rp. 410	
Lumpia (Philipino "Spring Roll"): Fried	5 tempe	Rp. 50
	1 oz. bean sprouts	25
	1 oz. carrots	50
	1/4 Kg potatos	75
	1/2 Kg flour	125
	1 egg	60
	1/2 coconut	50
	1/4 Kg salt coconut oil	150
25 servings	Rp. 585	
Chocolate Cake: Baked	1 1/2 oz. flour	Rp. 45
	3 eggs	165
	2 oz. butter	400
	1 oz. white sugar	60
	1 pkg vanilla	25
	2 oz. chocolate	300
12 servings	Rp. 1,095	

Bule Singkong (Cassava cake): Baked	1 Kg	cassava	Rp.	25	
	1 Oz.	butter		200	
	3	eggs		180	
	1/4 Kg	white sugar		150	
	2 pkg	vanila		20	
	1 pkg	chocolate		25	
<hr/>					
	10 servings		Rp.	600	
<hr/>					
Mendut Cake: Steamed	1 Kg	sticky rice flour	Rp.	300	
	1	coconut		75	
	1/4 Kg	dried green beans		100	
	1/4 Kg	brown sugar		60	
	2 pkg	vanila		20	
	<hr/>				
	30 servings		Rp.	555	
<hr/>					
Mento Cake: Steamed	1 Kg	red rice	Rp.	200	
	1/4 Kg	tapioca		50	
	1/4 Kg	carrots		50	
	1/2 Kg	potatos		150	
	1/4 Kg	beef		500	
		seasoning			
		kemiri, selederi			
<hr/>					
	20 servings		Rp.	1,000	
<hr/>					
Apem Cake: Steamed	1/4 Kg	rice flour	Rp.	90	
	1	coconut		100	
	1/2 Kg	white sugar		250	
	1/2	teaspoon baking powder		10	
	<hr/>				
	25 servings		Rp.	450	
<hr/>					
Balon Pangan Cake: Steamed or Baked	1/2 Kg	wheat flour	Rp.	200	
	4	eggs		240	
	1/2	coconut		50	
	1/4 Kg	white sugar		125	
	1 tsp	baking soda		10	
	4 pkg	vanila		40	
	<hr/>				
	15 servings		Rp.	450	

APPENDIX VII

Sample Menus (2 weeks) from UPGK-Dinkes  
On-Site Feeding Program

The Government of Indonesia funds UPGK-Dinkes on-site feeding program for desa Balita. The following is an example of menus served at the feeding site over a two week period. The costs quoted are for feeding fifty children. The following comes from the desa of Redisari in Kebumen District.

First Week

Monday:	rice vegetables bacam curd banana milk <hr/> Rp. 5,390
Tuesday:	bean porridge milk <hr/> Rp. 2,330
Wednesday:	bapau with beans bugis ( a sweet wrapped in banana leaves stuffed with brown sugar) milk <hr/> Rp. 1,935
Thursday:	bubur bule (made with soy flour, brown sugar and coconut milk) milk <hr/> Rp. 2,000

Friday: miebakso (noodles with vegetables)  
kanji (prepared from cassava starch)  
milk  

---

Rp. 3,455

Saturday: bubur bule (a gruel made from soy flour)  
kueh (fried cake-like cookie)  
milk  

---

Rp. 2,625

Second Week

Monday: rice  
vegetable  
bean curd  
milk  

---

Rp. 5,255

Tuesday: mungbean porridge  
kanji (cassava preparation)  
milk  

---

Rp. 1, 870

Wednesday: fish or chicken mixed with cassava and steamed  
banana fried with coconut milk, flour and  
sugar  
milk  

---

Rp. 2,675

Thursday: kueh ( a form of cake with sticky-rice flour,  
sugar, beans or peanuts, fried in oil)  
bapau ( a form of cake with wheat flour,  
sugar, beans)  
milk  

---

Rp. 2,430

Friday: kueh ( a form of cake made with sticky-rice  
flour, sugar, beans or peanuts, fried in oil)  
bapau (a form of cake made with wheat flour,  
sugar. beans)  
milk  

---

Rp. 3, 135

Saturday: BMC\*/ ( a preparation made from soy flour,  
sugar, coconut milk  
milk  

---

Rp. 2,625

(Note that the same preparations served on Thursday were served on Friday.)



Average Weight Change("Δ") by Month for Children  
in Karang Tanjung, during 1979 and 1981

Month		2/81	3/81	4/81	5/81	6/81	7/81	8/81	9/81
<u>1981</u>									
1 year	N	33	33	33	33	33	33	33	30
	Δ X̄	.17	.29	.42	.61	.50	.21	.09	-.28 (kgs)
2 years	N	31	31	31	31	31	31	31	31
	Δ X̄	.03	.48	.32	.42	.05	.23	.24	-.87 (kgs)
3 years	N	24	24	24	24	24	24	24	24
	Δ X̄	.50	.38	.08	.56	.06	.15	.08	-.59 (kgs)
4 years	N	23	23	23	23	23	23	23	22
	Δ X̄	.28	.17	.09	.35	.04	.13	.04	-.30 (kgs)
5 years	N	14	14	14	14	14	14	14	14
	Δ X̄	.18	.14	.39	.57	-.18	-.18	.07	-.43 (kgs)
Average	N	125	125	125	125	125	125	125	121
	Δ X̄	.22	.32	.27	.50	.14	.14	.11	-.76 (kgs)
Month		7/79	8/79	9/79	10/79	11/79	12/79		
<u>1979</u>									
1 year	N	16	16	16	16	16	16		
	Δ X̄	1.06	.69	.75	.44	.81	.50	(kgs)	
2 years	N	134	134	134	134	134	132		
	Δ X̄	.71	.46	.89	.57	.43	.51	(kgs)	
3 years	N	113	113	113	113	113	108		
	Δ X̄	.54	.67	.63	.50	.62	.29	(kgs)	
4 years	N	137	137	137	136	136	134		
	Δ X̄	.44	.68	.43	.24	.43	.12	(kgs)	
5 years	N	93	93	93	93	93	90		
	Δ X̄	.35	.44	.41	.13	.35	.19	(kgs)	
Average	N	493	493	493	492	492	480		
	Δ X̄	.54	.57	.61	.38	.47	.29	(kgs)	

Weight for Age Data - Serangen, Ponorogo - CRS MCH Program

Name	Age	Weight by Months																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Sayuti	61	143	143	145	145	146	146	145	147	147	147	147	149	147	149	152	155	155	155	162	165	171	170	000
*Subartun	55	145	145	145	146	150	152	158	160	160	160	160	162											
Winarni	37	110	113	115	115	115	117	119	121	125	127	130	133	134	130	130	130	130	130	130	129	131	000	
Muklisno	25	105	100	105	110	110	115	120	115	120	118	115	111	110	110	110	110	110	115	115	122	125	125	000
*Tutik	55	143	145	145	150	150	154	155	157	160	160	160	162											
Murtini	33	108	109	110	110	115	115	117	120	120	123	124	125	131	131	131	131	134	132	134	135	135	132	000
Sumarti	06	75	77	80	80	82	85	86	90	90	92	95	96	100	100	100	100	100	102	105	105	105	110	000
Nardi	11	79	80	80	81	85	85	85	85	88	89	97	92	90	95	95	95	95	100	100	100	101	100	000
*Wiwit	61	130	137	140	140	142	142	144	150	150	150	150	151											
*Sutriano	55	135	137	140	140	140	142	143	148	148	149	151												
*Listingah	13	95	95	95	100	100	102	105	100	105	104	105	107	110	115	115	115	115	120	121	117	117	120	000
Parmin	06	70	70	73	75	75	78	80	82	85	85	85	85	85	86	88	90	90	93	97	92	99	100	000
Sumardi	07	62	62	63	75	80	82	85	85	90	95	95	95	90	90	92	95	95	96	97	105	105	105	000
Sumanto	19	95	95	95	100	100	103	105	105	107	106	105	105	105	100	100	101	100	101	102	105	103	103	000
Panisri	25	105	107	110	115	120	121	121	120	120	125	125	125	130	135	136	140	136	133	140	146	142	142	000
*Parman	25	110	110	115	115	115	115	118	120	120	120	120	120											
*Suyati	61	130	127	128	130	135	140	140	141	140	142	145	145											
Sarnini	19	105	106	110	110	115	115	115	115	115	114	113	111	110	110	110	117	117	117	122	124	124	000	
Sriyati	25	95	98	100	100	102	105	110	110	110	114	115	117	115	120	122	125	130	130	130	131	131	133	000
Samirah	25	105	105	110	110	115	115	119	119	120	121	123	124	125	130	130	130	130	130	131	131	131	133	000
Bandi	09	90	95	95	100	100	102	105	105	105	105	105	105	105	110	113	115	115	115	115	125	125	125	000
Suniyatin	61	150	150	150	155	157	143	150	155	159	160	162	162	165	166	170	165	172	171	175	172	176	176	000
Mursidi	09	73	75	75	80	85	86	90	90	90	90	90	90	90	90	95	106	106	106	110	108	108	000	
Sumoni	13	75	75	80	80	85	86	85	85	85	87	89	90	90	90	90	95	96	101	100	101	102	000	
Wiji	49	130	133	135	140	140	140	142	140	140	143	143	143	143	144	145	146	149	150	152	148	150	160	000
Sumarsih	49	130	133	135	135	135	137	135	135	136	137	138	138	140	139	140	140	143	143	145	140	141	142	000
Asiyah	61	137	139	139	140	143	139	142	149	150	152	155	155	151	152	154	155	152	153	155	153	153	153	000
Wiyani	13	80	84	85	85	90	93	95	90	94	95	97	99	100	100	102	104	110	110	111	110	112	113	000
Jifah	25	110	110	115	115	120	122	125	120	125	125	125	128	125	123	121	125	126	127	125	125	128	135	000
Partina	49	125	125	130	130	135	136	140	141	140	140	143	144	139	140	141	140	145	147	145	148	148	146	000
Parai	25	105	105	110	115	115	115	118	119	119	120	120	118	110	115	115	116	116	119	117	117	117	000	
Tadi	13	85	85	87	90	95	95	100	102	100	103	104	106	110	115	115	113	115	116	115	115	115	000	
Samidi	49	127	130	130	133	137	138	136	135	140	143	140	140	140	139	140	141	140	141	141	143	148	148	000
Sutingah	25	125	125	130	130	130	133	136	140	138	140	140	140	140	140	141	140	141	141	143	148	148	146	000
Cito	19	109	110	115	115	110	111	111	115	115	120	123	125	128	128	120	125	125	125	127	128	129	135	000
Histin	19	104	105	105	110	115	118	115	118	119	119	120	121	120	124	124	125	125	125	121	123	125	130	000
Parno	13	89	90	95	95	100	102	105	101	105	105	104	104	105	110	110	110	110	111	113	120	120	124	000
Sukarti	06	68	70	70	73	75	79	80	88	88	82	84	85	85	88	89	90	92	90	90	93	93	100	000
Srinatun	37	105	105	110	115	115	116	120	115	116	115	114	113	113	117	118	119	119	120	124	123	123	123	000
Tohari	13	85	90	95	95	100	102	105	100	105	105	105	104	101	90	93	95	95	102	108	113	115	113	000
*Samsuri	49	125	125	125	130	130	135	136	137	139	140	143	145											
Paintin	03	50	50	55	55	60	64	65	65	65	65	65	66	63	70	70	70	70	77	76	77	80	80	000
Saminem	37	97	95	95	100	100	102	102	105	105	109	111	114	114	110	110	115	115	115	115	119	119	119	000
Supriyanto	19	115	110	120	120	125	127	130	130	128	127	127	127	129	124	124	124	124	135	130	136	136	136	000
*Warsi	61	145	145	147	148	150	150	152	152	159	157	159	159											
Priyono	13	80	84	85	85	90	93	95	90	94	85	87	90	93	100	100	100	101	100	101	102	103	105	000
Sunarmin	25	115	115	115	120	125	127	130	130	127	130	130	129	128	129	128	129	130	134	132	130	134	135	000
*Supinah	55	140	140	140	145	140	145	150	150	149	145	147	151											
*Misdi	19	85	85	85	87	89	94	95	95	96	98	99	100	105	105	105	100	95	101	102	103	104	105	000
Laseno	07	67	70	70	72	75	77	80	81	82	85	88	90	94	94	95	98	99	100	102	96	96	105	000
Yanto	49	135	135	135	140	145	147	148	148	148	150	150	150	150	151	151	150	151	150	150	150	150	150	000
Bibit	25	106	105	110	110	115	115	116	117	118	122	124	128	130	133	132	130	127	131	140	136	134	141	000
Slamet	10	61	65	61	62	63	64	63	63	64	65	68	69	66	68	67	68	90	94	92	95	93	93	000

\* - Indicated possible substitution of "graduated" Balita with new recipient.

**PETUNJUK  
PEMBERIAN MAKANAN YANG SEHAT**

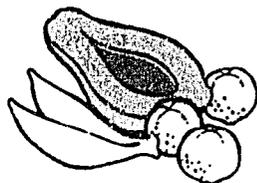


Selain  
Air Susu Ibu  
berikanlah  
makanan tambahan

umur 4-6 Bulan



*makanan lumat*



*buah*

umur 6-12 Bulan

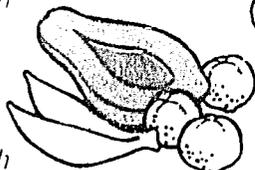


*makanan  
lembik*

*sayuran  
berwarna  
tua*



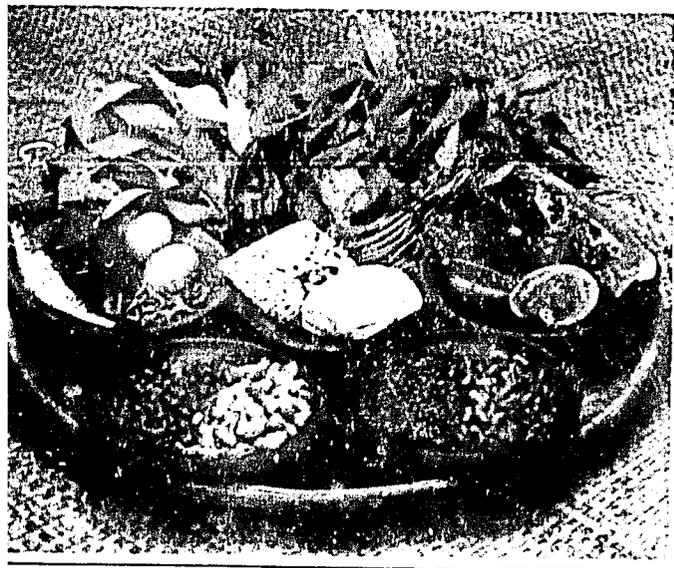
*buah*



*lauk-pauk*



CONTOH BAHAN MAKANAN SEHAT



# KMS

## KARTU MENUJU SEHAT

Nama Anak: .....



**AIR SUSU IBU**  
makanan bayi terbaik

Dibuat oleh  
Departemen Kesehatan Republik Indonesia  
Ditjen BINKESMAS  
DIREKTORAT GIZI  
1981

DIISI OLEH PETUGAS

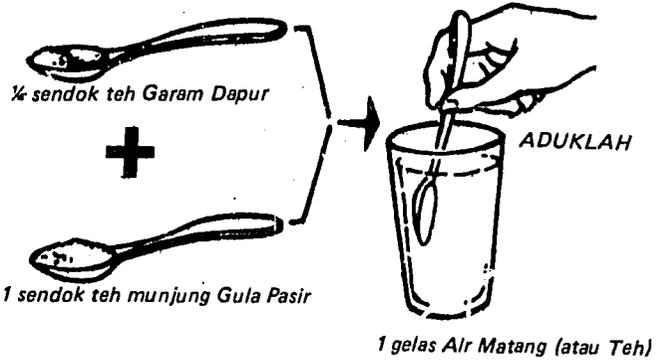
Klinik/Pos Penimbangan	
Tanggal Pendaftaran	No. Pendaftaran

Nama Anak			
Laki-laki		Anak yang ke	Tanggal Lahir
Perempuan			
Berat Badan Waktu Lahir			gram
Nama Ayah			
Pekerjaan			
Nama Ibu			
Pekerjaan			
Alamat			

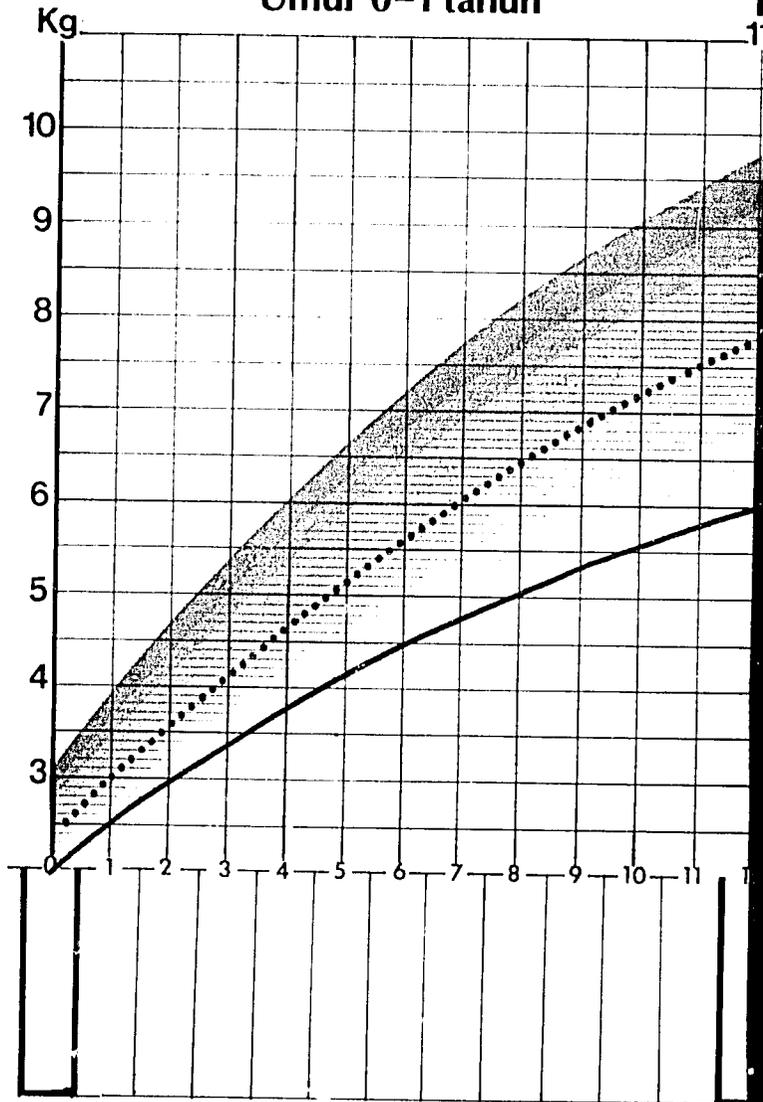
**Kalau anak mencret, berikan segera ORALIT**

Kalau tidak ada, bisa membuat sendiri.

Campurlah:



**Umur 0-1 tahun**



CATATAN PENYAKIT YANG DIDERITA

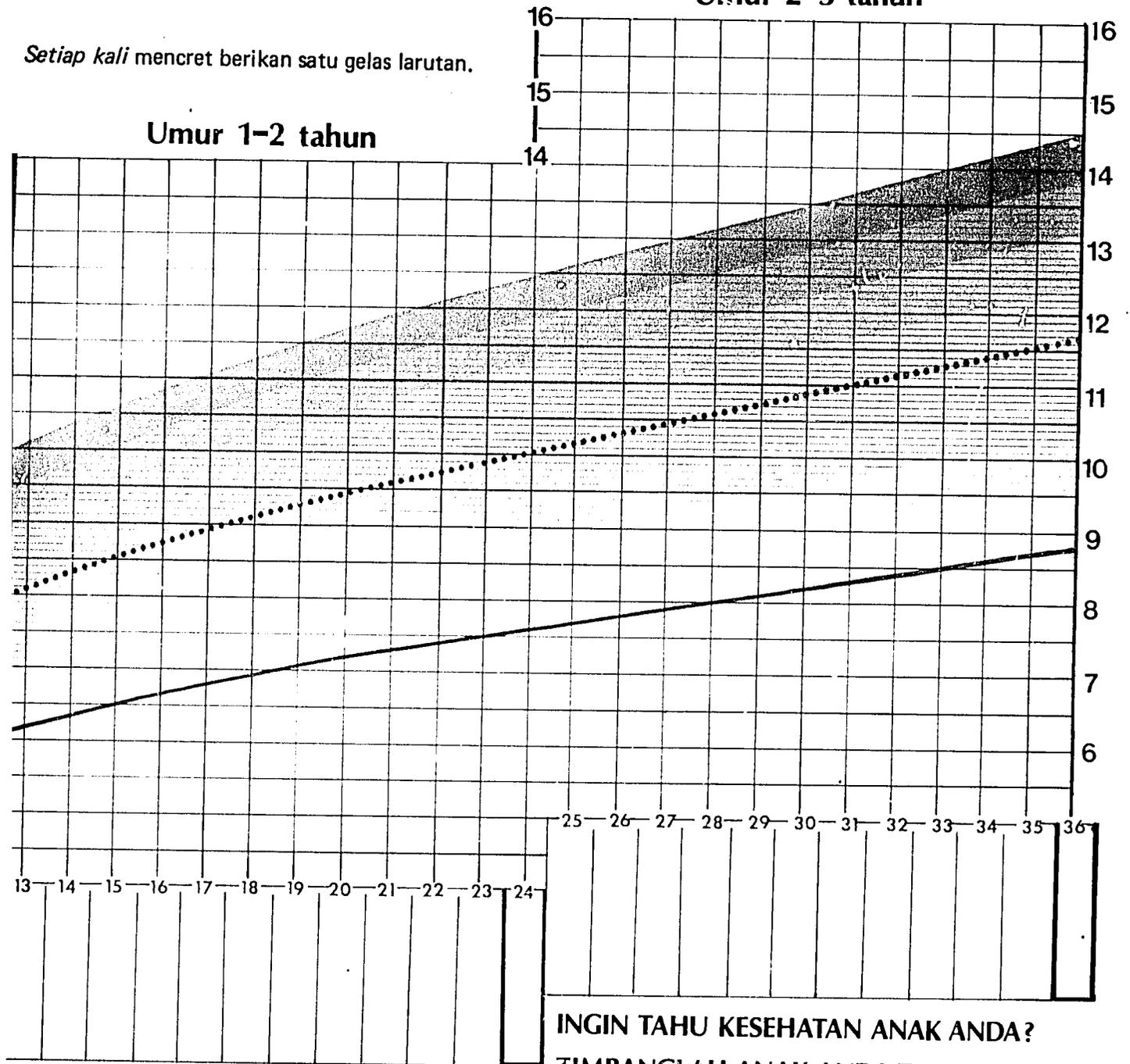
No.	Tanggal	Gejala

Isilah kolom ini dengan bulan dan tahun kelahiran anak. Isilah kolom-kolom berikutnya dengan bulan-bulan selanjutnya.

### Umur 2-3 tahun

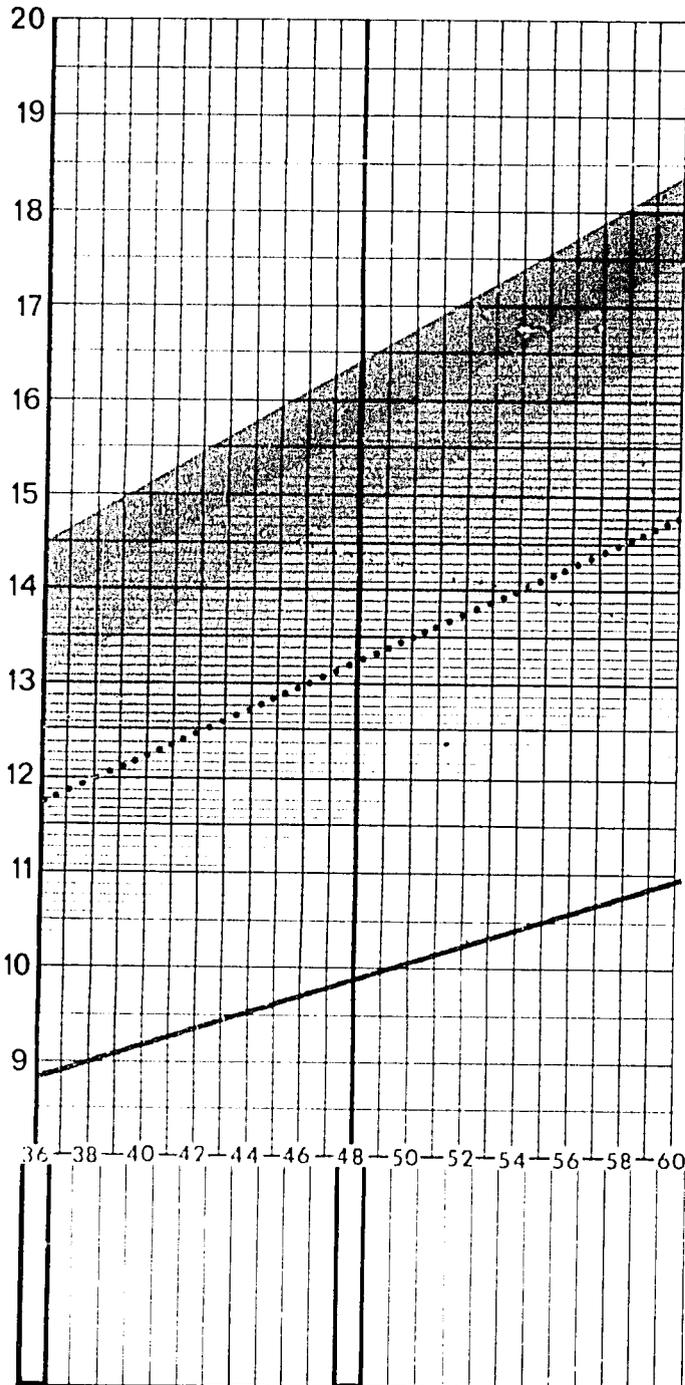
Setiap kali mencoret berikan satu gelas larutan.

### Umur 1-2 tahun



**INGIN TAHU KESEHATAN ANAK ANDA?  
TIMBANGLAH ANAK ANDA TIAP BULAN!**

Umur 3-4 tahun Umur 4-5 tahun



CATATAN PEMBERIAN IMUNISASI

Bayi umur 3 -- 14 bulan	Tgl. diberikan Imunisasi		
	I	II	III
B.C.G.			
D.P.T.			
Polio			
Campak			

- Mintakan Imunisasi untuk anak umur 3 sampai 14 bulan sewaktu dalam keadaan sehat.
- Setiap anak membutuhkan Imunisasi untuk menjaga kesehatannya.

Mintalah Imunisasi pada waktunya.

KAPSUL VITAMIN A-DOSIS TINGGI:

(Diberikan hanya kepada anak umur 1-4 tahun, satu capsul setiap 6 bulan).

Tanggal diberikan ke 1:

ke 2:

ke 3:

ke 4:

ke 5:

ke 6: