

ETHICAL REVIEW COMMITTEE, ICDDR,B.

Principal Investigator D. N. Rizvi Trainee Investigator (if any) X 6c

Application No. 82-037 Supporting Agency (if Non-ICDDR,B) USAID/

Title of Study Culturally Project status: UNICEF/IFPHN

based Nutrition New Study
Education Project Continuation with change
 No change (do not fill out rest of form)

Circle the appropriate answer to each of the following (If Not Applicable write NA).

- 1. Source of Population:
 - (a) Ill subjects Yes No
 - (b) Non-ill subjects Yes No
 - (c) Minors or persons under guardianship Yes No
- 2. Does the study involve:
 - (a) Physical risks to the subjects Yes No
 - (b) Social Risks Yes No
 - (c) Psychological risks to subjects Yes No
 - (d) Discomfort to subjects Yes No
 - (e) Invasion of privacy Yes No
 - (f) Disclosure of information damaging to subject or others Yes No
- 3. Does the study involve:
 - (a) Use of records, (hospital, medical, death, birth or other) Yes No
 - (b) Use of fetal tissue or abortus Yes No
 - (c) Use of organs or body fluids Yes No
- 4. Are subjects clearly informed about:
 - (a) Nature and purposes of study Yes No
 - (b) Procedures to be followed including alternatives used Yes No
 - (c) Physical risks Yes No
 - (d) Sensitive questions Yes No
 - (e) Benefits to be derived Yes No
 - (f) Right to refuse to participate or to withdraw from study Yes No
 - (g) Confidential handling of data Yes No
 - (h) Compensation &/or treatment where there are risks or privacy is involved in any particular procedure Yes No

- 5. Will signed consent form be required:
 - (a) From subjects Yes No
 - (b) From parent or guardian (if subjects are minors) Yes No
 - 6. Will precautions be taken to protect anonymity of subjects Yes No
 - 7. Check documents being submitted herewith to Committee:
 - Umbrella proposal - Initially submit an overview (all other requirements will be submitted with individual studies).
 - Protocol (Required)
 - Abstract Summary (Required)
 - Statement given or read to subjects on nature of study, risks, types of questions to be asked, and right to refuse to participate or withdraw (Required)
 - Informed consent form for subjects
 - Informed consent form for parent or guardian
 - Procedure for maintaining confidentiality
 - Questionnaire or interview schedule *
- * If the final instrument is not completed prior to review, the following information should be included in the abstract summary
- 1. A description of the areas to be covered in the questionnaire or interview which could be considered either sensitive or which would constitute an invasion of privacy.
 - 2. Examples of the type of specific questions to be asked in the sensitive areas.
 - 3. An indication as to when the questionnaire will be presented to the Cttee. for review.

We agree to obtain approval of the Ethical Review Committee for any changes involving the rights and welfare of subjects before making such change.

Nazma Rizvi
Principal Investigator

Trainee

REF
WS 115.JB2
R627c
1982

A CULTURALLY-BASED
NUTRITION EDUCATION RESEARCH - CUM ACTION PROJECT
TO IMPROVE THE FEEDING OF YOUNG CHILDREN
IN BANGLADESH

1982-1984

ABSTRACT SUMMARY FOR ERC

The purpose of the study is to study the "cultural blocks" surrounding the practice of delaying the introduction of solid foods with a view to devising and evaluating programs to overcome them.

1. The subject population of children of 0-24 months have been chosen to find out the variation in feeding pattern of semi-solid and solid food and study the impact of semi-solid and solid food supplementation in different age groups of children.
2. The methods of research to be used include interviewing mothers, in-depth observation and anthropometric measurements which pose no potential risks to the young children of the family.
3. Not applicable.
4. The confidentiality of the data collected will be maintained at all times. Information will be used only for devising effective nutrition education strategies. The anonymity of the sample households will be assured through the use of code numbers for the household and the child.
5. Informed consent will be obtained from the parent or the guardian of the children. The consent forms written in local Bangla which is to be used is enclosed. Consent will be obtained at the household.
6. The interview will take place in an informal setting in the children's own homes. At no time, any pressure will be given to the family to answer any question. Also, the respondents will be allowed to continue with their routine work during the interview, if they wish to do so.

Abstract Summary for ERC, Page-2.

7. The potential benefit of the study will be to make mother understand the growth pattern of her child, help to develop a nutrition education program promoting timely introduction of solid food and thus reduce the risk of late marasmus at first in the study area and then in future disseminate the nutrition education program with modifications if needed to other representative areas of Bangladesh.
 8. The research will not require any hospital records, organs or tissues.
- The study does not involve any sensitive questions although visitation of the households studying behavioral practices may be considered to be an invasion of privacy.

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SECTION I - RESEARCH PROTOCOL

Title : A Culturally Based Nutrition Education Action-cum-Research Project to Improve the Feeding of Young Children in Bangladesh.

Principal Investigator : Dr. Najma Rizvi

Starting Date : September 1982

Completion Date : September 1984

Total Direct Cost : \$ 83,195

Scientific Program Head :

This protocol has been approved by the Nutrition Working Group.

Signature of Scientific Program Head: [Signature]

Date: 12/8/1982

Abstract Summary:

In Bangladesh, growth retardation often commences in the second six months of life and clinical malnutrition has its greatest impact on young children from the second year of life. While there exists many causes for inadequate food intake in early childhood, including poverty (the increasingly high cost of some basic foods), difficulties in household culinary technology (including limited fuel) and nutritional loss from infections, there also exists a number of cultural beliefs and practices which have a negative impact on the nutritional status of the young child.

The major objective of this research is to study those cultural factors which limit the food intake of the young child, with a view to devising

and evaluating the nutrition education programs to overcome them. Data will be collected from households with children 0-12 months. This age range is suggested to include babies prior to the need of supplementary solids and thus enable us to have sufficient number of children in different age groups to see the effect of intervention. Morbidity and anthropometry data will be collected for the whole period of two years.

The research will have three components:

- (1) Baseline survey for collecting information on household socio-economic status, demography, morbidity data covering identifiable infections, anthropometry and dietary intake. The baseline data collection will precede intervention and this would take one year although anthropometry and morbidity data will be collected during the 2 year period of the study. In-depth ethnographic investigation of the behavior related to feeding of children will be done during baseline survey period as well as during and after intervention to monitor changes in maternal behavior.
- (2) Intervention or Action Phase Nutrition Intervention will be carried out by home visiting and messages will be disseminated during cooking, feeding demonstrations and weighing sessions. Intervention will begin at the second year of the study and will continue for the whole year.
- (3) Evaluation of the program will consist of the measurement of maternal behavior, growth curves and prevalence of infection at 6 and 12 months for both intervention (one year of nutrition education received) group and control group (no nutrition education). Detailed ethnographic investigation of two sets of 30 households will be done. The purpose of the in-depth ethnography is to obtain a better understanding of the complex set of factors affecting decision making process in feeding young children. Since the decision to withhold solid foods until the child is almost a year

Section - I Research Protocol, Page-3.

old is made mainly as a preventive measure for diarrhoea and "indigestion", the ethnographic investigation will help to identify how patterns of infant feeding are related to the incidence of diarrhoea.

Reviews:

Ethical Review Committee: _____

Research Review Committee: _____

Director: _____

BMRC: _____

Controller: _____

A. INTRODUCTION

Objectives: The main objectives of this study are;

- (1) To identify restrictive beliefs and practices ("cultural blocks") responsible for delaying the information of solid foods.
- (2) Devise nutrition education programs to overcome the "cultural blocks" introduce them in selected households and evaluate the impact of the program by monitoring the growth of the children and studying changes in maternal behavior related to feeding of young children.

Background:

In Bangladesh, growth retardation often commences in the second six months of life, and clinical malnutrition usually has its greatest impact on young children from the second year of life (Khan 1980, Nutrition Survey 1975-76). Most commonly, this takes the form of "late marasmus," due to the interacting effects of an inadequate food intake (mainly calories) and repeated infections, including diarrhea.

There are plainly many causes for inadequate food intakes in early childhood, including poverty (particularly the increasingly high cost of some basic foods), difficulties in household culinary technology (including limited fuel), and nutritional loss from infections. (See "Conceptual Framework," P. 4.).

At the same time, a sequence of cultural attitudes and practices has a potentially cumulative negative effect on the young human organism, including the fetus during pregnancy, the extero-gestate fetus (from birth to six months or so) and the transitional ("weanling"). Some of the main cultural restrictive practices ("cultural blocks") limiting the intake or availability of foods to mothers and young children have been described by Najma Rizvi (1979-81) and are summarized diagrammatically in Figure 1. Many of these "cultural blocks" need further investigation

including, for example, the significance of maternal dietary change in pregnancy, the puerperium and lactation* which results in anthropometric growth retardation at these vulnerable physiological periods.

Several studies on infant feeding practices in Bangladesh and in other parts of the sub-continent report that the introduction of semi-solid or solid foods needed to supply the additional calories, protein and other nutrients is delayed until the age of one year or more (Khan 1980, Rizvi 1979, Ghosh et al 1976, Mankodi 1976). The delay in the introduction of solids is related to the mothers belief that such foods will cause diarrhea, indigestion and worms, therefore many cultural proscriptions result in inadequate food intake. To understand cultural proscriptions, food classification of garam-thanda (hot-cold), nirog (disease-free), etc. (Rizvi 1981) needs to be understood. Similar cultural blocks have been recorded in West Bengal (Jelliffe 1956).

While malnutrition can be caused by both socio-economic and cultural factors, cultural blocks can play a major role in delaying the use of locally available foods. Improvement of nutritional status of children of the main high-risk group (5 months to 24 months) needs to be sought through appropriate culturally-based nutrition education programs designed to motivate and persuade mothers to introduce locally available foods into the diets of their infants in increasing quantities from the beginning of the second semester of life.

For the present research, we plan to study the "cultural blocks" surrounding the practice of delaying the introduction of solid foods, with a view to devising and evaluating programs to overcome them.

*One of the more important of these to nutrition and to the prevention of diarrhea, CRS (Colostrum Rejection Syndrome), is suggested as a separate research sub-project (Appendix-I).

Rationale:

In Bangladesh, where breast feeding is universal, clinical malnutrition is associated with the delay in the introduction of solids. Any attempt to improve nutritional status of children of "high risk group" (5-12 months) means promoting timely introduction of solid food which in turn necessitates a careful study of the feeding behavior of young children. The published literature on feeding practices (1980) and Huffman et als (1981) breast pattern in Bangladesh. The delay in the introduction of solid food even when mentioned as is done in Khan's study remains limited to percentages of children taking breast milk and other supplements. Khan reports that only 4% of the children receive solids by 9 months which increases to 19% by one year. The author recommends supplementation to start from the age of 3 months but gives little information on the strategies to be used and what type of supplementation he had in mind. Huffman and Chowdhury's study on breast feeding deals only with breast feeding patterns and makes no reference to the delay in the introduction of solids. Rizvi studied infant feeding behavior and found delay in the introduction of solids caused by the perceived fear of indigestion and diarrhea and cultural beliefs regarding readiness of a child to eat solids. The cultural blocks identified in Rizvi's study and the fear of diarrhoea and indigestion requires that these be examined in relation to other socio-economic variables and morbidity data.

In sum, rationale can be stated like this,

- (1) no in-depth study of feeding behavior of young children of 0-24 months age is available which takes into account social, economic, cultural, biological and medical variables;
- (2) there exists no example of the mix of survey ethnographic investigation techniques for collecting morbidity data concerning identifiable infections and anthropometry in Bangladesh or in the sub-continent as a whole country.
- (3) By bringing basic research, application and evaluation under one study proposal, this research sets a new pattern in nutrition education research.

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SECTION II - RESEARCH PLAN

B. SPECIFIC AIMS

The following hypotheses will be tested:-

- 1) Malnutrition in children aged between 5 and 24 in Bangladesh is due to inadequate food intake in large measure resulting from cultural restrictive beliefs.
- 2) Appropriate culturally-based nutrition education directed to these restrictions will motivate mothers and persuade them to give children in this age group a wider range of need foods.
- 3) Nutrition education based on foods in the nirog (disease-free) classification will facilitate and promote the use of these foods by this age group.
- 4) Acceptance by mothers of nirog foods will increase their acceptance of other foods not currently used due to their supposed negative or harmful effects.
- 5) Familiarity with culinary techniques as judged by domestic task analysis will:
 - a) increase the knowledge of investigators
 - b) improve mutual understanding and rapport
 - c) assist in suggesting household-nutrition appropriate technology to facilitate the preparation of homemade supplementary solids (weaning foods) and thus increase the likelihood of their being used.

CONCEPTUAL FRAMEWORK

VARIABLES

The conceptual framework on which this study is based is that a complex set of variables which include social, cultural, economic, biological and medical considerations affects the pattern of feeding. The relative importance of these variables can best be identified through ethnographic investigation, and the ones judged to have the greatest effect will be estimated in the survey.

An incomplete set of variables considered to have an effect on infant feeding in Bangladesh include the following:

Biological variables

- Age of first pregnancy
- Age of infant
- Sex of infant
- Parity
- Birth interval

Social variables

- Size of household
- Composition of household
- Reference groups
- Urban contact
- Local family (bari) network
- Education of father and mother
- Working time available and task load

Economic variables

- Land tenure
- Draft animals
- Occupation
- Employment opportunities

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Economic variables (continued)

Housing (kitchen, latrine)
Sources of water
Fuel, kitchen utensils
Food purchased

Cultural variables

Categories relating food, health and disease
Beliefs regarding colostrum, pre-lacteal feeds
(dilute barley or rice "water" or other milky-
looking liquids)
Beliefs regarding effects of available solid foods
on infant's health
Beliefs regarding changes of infant needs and
capacity with age.
Special ceremonies
Dietary customs in pregnancy, the puerperium, and
lactation
Beliefs of dais and indigenous healers about foods

Environmental variables

Possible bacterial contamination
Disposal of wastes
Hand washing pattern

✓ Health variables

Morbidity pattern among children of the bari (extended
households)
Diarrhea (age frequency/treatment)
Measles
Upper respiratory infections
Maternal health (weight gain in pregnancy, puerperium)

✓ Health services variables

Attitudes to health care
Health care facilities (traditional, technological)
Personnel
Programs for immunization, oral rehydration
Delivery procedure (home, dai, etc.)

RESEARCH DESIGN
Pre-Intervention

- 1) Base-line Survey (Cross-Sectional)
- 2) In-Depth Ethnographic Investigations
- 3) Religious Textual Study
- 4) Clinical Case Analyses
- 5) Food Ranking
- 6) Food Contamination

1) Base-line Survey

Data will be collected from households with one or more children aged 3 to 12 months. This age range is suggested to include mothers with babies prior to the need for supplementary foods, and all included will be nutritionally at risk for the whole period of the intervention. Data collected will be selected from the variables listed earlier and will include socio-economic and demographic household information concerning the families, morbidity data concerning identifiable infections, and nutritional status as measured by anthropometry (weight, length) using standard techniques (Jelliffe 1966) and by assessment of dietary intake as judged by the semi-quantitative 24-hour recall method of Flores (1976).

Sample selection. The area selected will have to be culturally homogeneous (although economically diverse) and will be predominantly Muslim and rural. The community will also not currently be the site of other research projects for voluntary agencies or special health service activities. Existing health services will consist of FHWS,

Footnote: Family Health Workers (FHWS)

but a health center/hospital needs to be available within a few miles for referral of very sick individuals. If possible, an area that has been covered by the EPI (Expanded Program of Immunization) will be selected in order for some major childhood diseases, especially measles, to have been prevented.

To obtain a sample of 500 infants from 3 to 12 months of age, statistical guidance indicates that 2,000 households will have to be visited. This number is statistically needed for the expected frequency of the findings in the community and to cover non-compliance. Selection will also be on the basis of cluster sampling of random baris (collections of houses).

In the research area, populations of 250 infants in two groups of baris will be identified--those in cell I (Intervention) and in cell C((Control)). (See Figure 2.) These will be selected so that a zone of several miles separates them (Area Z) to minimize diffusion of the effects of the nutrition education intervention ("contamination") into the control area.

2) In-Depth Ethnographic Investigations

In addition to the base-line survey carried out by questionnaire interviews during home visits, two sets of 30 households will be selected for detailed ethnographic investigation. The purpose of this in-depth study is to obtain a better understanding of the interplay of socio-economic and cultural factors affecting the food intake of mothers and young children. Such a study will enable knowledge to be obtained concerning the decision-making process in the

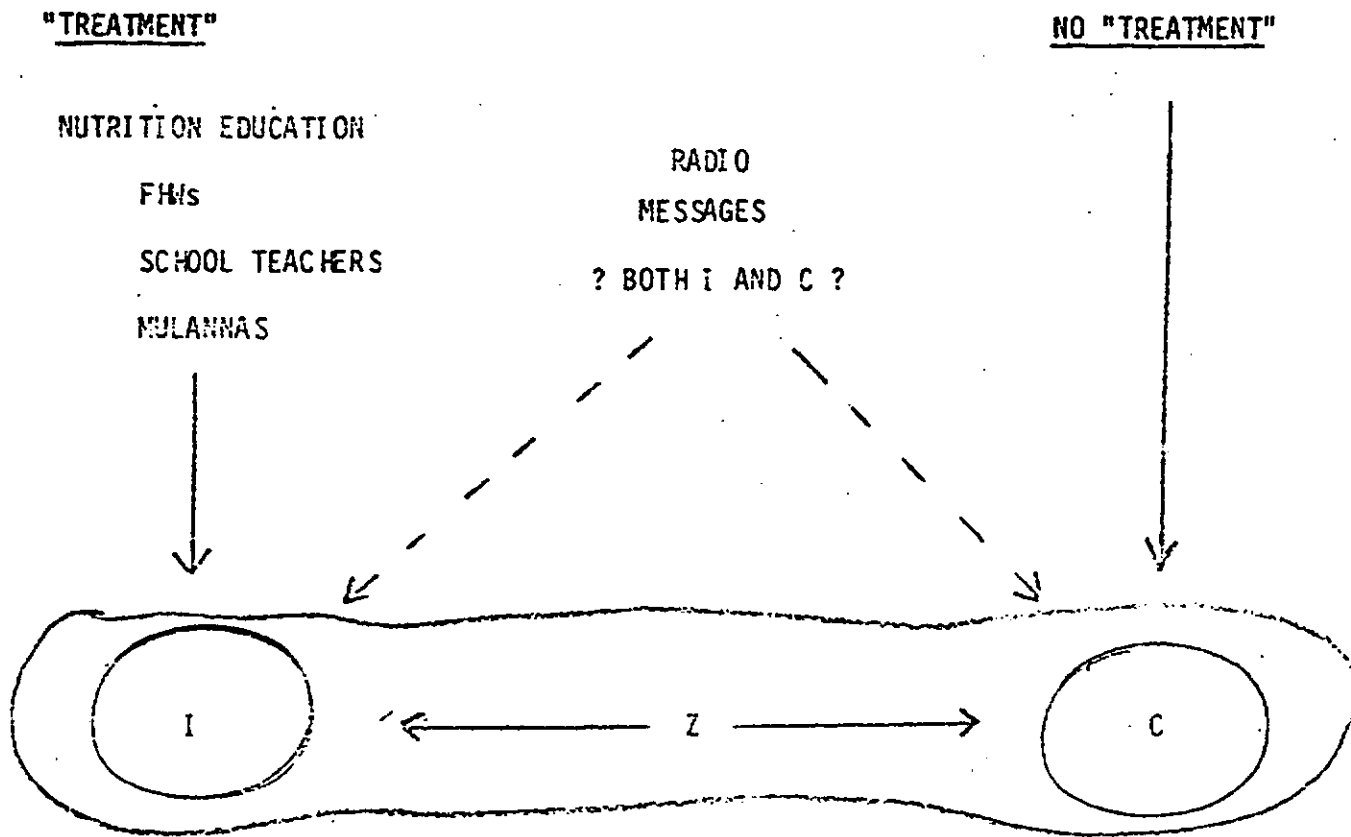


FIGURE 2: DIAGRAM OF PROPOSED RESEARCH AREA (250 infants ages 3-12 months in cell I (Intervention) and cell C (Control); 30 households in each cell for ethnographic investigations.)

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allocation of resources for food against other essential and non-essential expenditures and in the food use by vulnerable groups. It is generally known that decision making in Bangladesh households rests with men, but in the domain of food use, women are the decision makers. In order to understand the food beliefs, culinary practices and intra-household food distribution mechanisms and the beliefs and practices associated with food intake in pregnancy, puerperium and breast feeding and weaning, investigations will focus on activities and attitudes of women.

In studying feeding patterns of the sample children, the aim will be to identify the relative influence of different factors. The assumption underlying the study is that cultural factors are responsible for the delay in the introduction of solid foods. Since the decision to withhold solid foods until the child is almost a year old is made mainly as a preventive measure for diarrhea and "indigestion," the ethnographic investigation will also help to identify how patterns of infant feeding are related to the incidence of diarrhea. To what extent feeding practices confirm this belief can only be found through the unobtrusive observation and unstructured interviews which will be undertaken.

Sample selection. Samples of 30 households will be randomly selected from each of the cells designated Intervention (I) and Control (C). In selecting the study households, attention will be paid to the socio-economic diversity including land tenure and occupation. Also, households will be representative of the baris.

Procedure. Ethnographic investigation demands that data be

collected with little disruption in the lives of the people studied. The initial visits by the field researcher-anthropologist and assistants undoubtedly arouse curiosity and some disruption of the daily routine. But as researchers learn to be a part of the community and to understand the cues of household routine and the culture pattern, the ethnographic investigation can be carried out with minimum disturbance.

The team of workers responsible for doing ethnography will be guided by the anthropologist/principal investigator. The senior research assistant, already trained in ethnographic research will assist the anthropologist in explaining the details of procedure of ethnographic field work.

In training the field workers for ethnography, examples of distinction between belief and practice will be drawn as has been done in O'Gara's study of Infant Feeding Practices in Tegucigalpa, Honduras. Whether the same belief results in different practices in different households will be carefully investigated.

The unobtrusive observation of the daily life schedule and informal interviewing will provide useful information on the complex of factors affecting food use pattern. However, for the purpose of the investigation it will be useful if information is also collected systematically by task analysis and child following.

Task analysis. Analysis of the mothers'/caretakers' tasks in collecting, preparing, cooking and serving foods will be carried out following Jelliffe and Jelliffe's method and Rizvi's study outlined in

the proceedings of the First Asian Household Nutrition Appropriate Tehcnology Conference held in Colombo, July 1981.

Child following. This will be based on the method of Christine Wilson (1964) and consists of following the child throughout the day, noting ^{the} number of times the child is breast fed and other foods are eaten or drunk, until the child goes to bed. In case a child ^{has been} is fed at night, the mother needs to be questioned.

Relation of ethnography to survey development and design of nutrition education messages. The collection of detailed ethnographic information will 1) help in the interpretation of survey results in the context of sensitive and careful observation and 2) be useful in formulating more detailed hypotheses which can be quantatively tested in the larger questionnaire sample.

In addition, ethnography can provide guidelines in the formulation of nutrition education strategies. For example, how to involve the mothers/grandmothers in the decision-making techniques leading to the introduction of solid foods at an earlier age can only be known through intensive interaction between the field worker and the experienced mothers. Visits to a number of nutrition education programs promoting solid (weaning) food shows that nutrition education is very often simply a cooking demonstration and the teaching is a one-way process.

It is important that mothers are made to feel proud of what they know rather than denigrating them for what they do not know and operating with the assumption that non-literate mothers are inept and stupid.

3) Religious Textual Study

A special study of the Holy Koran and the Hadis will be undertaken to identify supportive quotations from the religious texts and guides to moral behavior, especially those related to the use of colostrum and foods in the second semester of life. This will also enable consideration to be given to the incorporation of the mu'annas into the nutrition education program.

4) Clinical Case Analyses

Fifty young children with "late marasmus"* admitted to a hospital or attending outpatient or other clinical facilities will be analyzed to obtain approximate retrospective information on the preceding dietary practices, the special reference to cultural reasons for acceptance or rejection of available foods.

5) Food Ranking

Available foods will be ranked for the two main seasons in regard to a) apparent cultural acceptability for infants aged 6 to 12 months, with items designated as staples, legumes, dark green leafy vegetables (DGLVs), compact calories, or animal products; b) cost-nutrient value, in relation to calories, protein, iron, and beta carotene; c) digestibility; and d) ease of cooking. Cost-nutrient ranking will be calculated in reference to the needs of a one-year old child (1,000 kcalories, 20 grams of protein, etc.) according to the method

*Late marasmus refers to children aged 1 to 3 years and preferably who were full-term and of normal birth weight.

of McKigney (1968)*.

Analyses are needed of the composition of frequently used recipes and special mixtures suggested, as cooked. Some of these are available and resources exist for such analyses.

6) Food Contamination

Following the techniques evolved at ICDDR, B, sampling will be undertaken on specimens of foods and food mixtures at different times after preparation for pathogens and for fecal contaminants.

(For other details and methodology please see Appendix-III).

*In view of relating low cost, under-appreciated nutritional value, increasing consumption nationally (especially among the poor) and its nirog classification, the potato is expected to figure prominently in all rankings.

INTERVENTION

Personal contact. Nutrition education will be undertaken by trained

- (1) Research Intervention Group.
- (2) Government Family Health Workers.

Research team worker will be doing only nutrition intervention while government workers will do nutrition intervention in addition to their normal workload. The purpose for using two teams is to compare the success of the program. Both teams will be supervised by the research working group. Nutrition intervention will be carried out by home visiting and vari-centered activities, particularly cooking-feeding demonstrations and weighing sessions. School teachers and maulanas may also be used for intervention. The use of weight charts retained by mothers will play a major role in the FNWS training and motivation of mothers. Photographs of children will be taken to show mothers improvement/deterioration of their children.

Personnel: training and remuneration. Details of the content of training will depend on results of the pre-intervention study and on decisions as to whether the nutrition education will be via FHWS alone or together with school teachers and/or maulanas. Also, the question of simultaneously using radio messages reaching both cells I and C will need deciding upon.

Messages. It is anticipated that these will be considerably related to the earlier introduction of nirog foods such as the potato, together with other traditional items, specifically rice. Guidance will be incorporated from religious texts, as appropriate.

Since we believe that effective nutrition education messages can only be developed with adequate knowledge of complete set of factors affecting feeding pattern, the nutrition education messages cannot be included in the protocol. The nutrition education message package will be developed at the end of the first year of research by a multidisciplinary group of scientists. The group will include the anthropologist P.I. and consultants from the fields of health education, social psychology, communication and advertising. A two-week workshop will be held in Dacca in May 1983 to develop the messages and design the strategies for disseminating messages. Before the actual intervention, the messages will be pre-tasted in the field.

EVALUATION

The general model to be used in evaluation is given below:

	<u>TREATMENT</u>	<u>MEASUREMENT</u>
Intervention group	One year of nutrition education	Maternal behavior Child anthropometry, growth curves Prevalence of infections at 6 and 12 months
Control group	No nutrition education	Maternal behavior Child anthropometry, growth curves Prevalence of infections at 6 and 12 months

Evaluation will be undertaken by:

a) A repeat cross-sectional data collection in the households covered in the base-line study, but only information on (i) 7-day dietary intake (semi-quantitative), (ii) anthropometry and (iii) infectious diseases will be collected.

b) Evaluation of growth charts by monthly home visiting by FHs (using NCHS reference levels), particularly for slopes* of curves.

c) Repeat ethnographic investigations in the two sets of 30 households in cells I and C.

Evaluation will be undertaken at 6 months and 12 months after the beginning of the intervention phase. Thus, a quantitative comparison will be made between the situations in cell I and cell C.

*Definition of slopes needs to be undertaken prior to analysis, e.g., greater than 30° slope over 12-month period is inadequate, etc.

The schedule for the timing of the measurements following the treatment requires that a sufficient time delay be permitted to provide a reasonable estimate of the effort of the nutrition education program (e.g., 6 to 12 months after the treatment). This will also allow flexibility to let researchers identify areas of difficulty in which improved nutrition education techniques should be used, or will allow them to concentrate on areas of major concern which have been identified.

In addition, detailed analysis needs to include information on:

a) Cost-effectiveness. Information will be needed on the total costs associated with the program, the total participants (minus drop-outs), number of mothers and children positively affected. From this, the cost per individual positively can be estimated.

The costs need to include personnel, equipment, supplies, travel, communications, training, etc. Donated resources need to be included and costs of replication in a non-research manner will be critical.

b) Quality control. Measures will include review of field data collected on each child, sorting out of appropriate and inappropriate reports, establishing the percentage of children in each group who have received an "adequate" diet (breast milk plus semi-solids at 4, 6, 12 months, etc.).

A statistical comparison of results will be needed between experimental and control groups at this stage using the chi-square test and other methods. The direction of change in dietary behavior for each child and for each group will be estimated.

D. SIGNIFICANCE

The present research will show that to design effective nutrition education programs, a better understanding of the complex set of variables affecting feeding behavior of young children is necessary. By combining research and action in the same proposal, the study will show that research action are not miles apart; as programs need research so does research needs programs. Evaluation of the devised programs will help us to see whether the planned intervention had any positive impact on feeding behavior and the growth status of children. Finally, the use of interdisciplinary research techniques where survey and in-depth ethnographic study measures are combined with morbidity and anthropometric measurement techniques will show that a combination of interdisciplinary methods can give a "holistic" picture of the problem of malnutrition.

E. FACILITIES REQUIRED

The facilities needed for research include,

- (1) three salter scales and three length boards; one dozen tapes for doing anthropometry.
- (2) Biochemistry Laboratory facilities of ICDDR,B and BCSIR for analysing nutrient contents and micro-biology laboratory facilities for testing samples of food for possible sources of contamination.

The equipment costs will be borne by UNICEF.

F. COLLABORATIVE ARRANGEMENTS

Dr. Derrick B. Jelliffe and Mrs. E.F.P. Jelliffe of the School of Public Health, University of California, Los Angeles, California, U.S.A.

Dr. Nargis Akhter, Director MCH-FP, Mr. Rukonuddin Ahmed of BCSIR and

Dr. G. Bairagi of University of Dacca participated in the First Workshop

Collaborative Arrangements, Page-2.

held in May at ICDDR,B for the development of the research proposal. Three national institutes namely BCSIR, MCH-FP service and Public Health, Nutrition of Government of Bangladesh will collaborate and Dr. Bairagi of Dacca University will act as a statistical consultant. In addition to Dr. D.B. Jelliffee and Mrs. E.F.P. Jelliffe, Dr. Snehendu Kar of the School of Public Health, UCLA and Richard Manoff of Nutrition Advertising Agency of New York will act as member of the collaborative group. All expenses for outside collaboration will be paid by AID/Washington.

APPENDICES

(I) RESEARCH ON CRS
(COLOSTRUM REJECTION SYNDROME)

The associated practices of "colostrum rejection," delay in initiation of breast feeding (lactogenesis) and the use of various substances for the newborn by mouth (e.g., mustard oil, sugar water, honey) badly need further anthropological investigation. This should include a study of contrasting "positive deviants," that is, mothers who do not follow these harmful practices, their reasons for this and the public health effects.

An initial research project is proposed to investigate the "colostrum rejection syndrome" (CRS) in Muslim communities in the following parts of the country: northwest (Comilla), northeast (sylhet), south (Sundarban) and southeast (Chittagong).

Mother's Number

*

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Mother Module

I understand that you have given birth to a child since last year. Is that correct?

Yes - - - 1

No - - - 2

In which Bangla month the child was born?

_____ Month

_____ Year

- Is this year
- (1) first child _____
 - (2) second child _____
 - (3) third child _____
 - (4) _____
 - (5) _____

* Mother's number consists of household number plus an additional digit 'one' for first eligible mother in household, two for second mother, etc.

* Household module being prepared.

Appendix II
Child Module

Child Number

(Child information to be collected from the Mother/Primary Caretaker to be completed for each child in the age group of 3-12 M.)

What was the first food given to the child?

- Colostrum - 1
- Sugar + Water - 2
- Honey - 3
- Cows milk + water - 4
- Powdered milk + water - 5

(Question on Feeding)

When did you put the baby on the breast?

- 1 1st day
- 2 2nd day
- 3 3rd day

Where was this baby born?

- In laws home - 1
- Mothers home - 2
- Hospital - 3
- Maternity - 4
- Other - 9

was this baby a full term on a premature baby

Full term - 1 (40-42 weeks of gestation)

Average size - (2.25 kg)

Small size - (<2.25 kg)

How I would like to ask you how you have been feeding your baby?

Does your baby receive breast milk?

Yes - 1

No. - 2

Is he/she receiving anything else besides breast milk?

Yes - 1

No - 2

If yes, cows milk - 1

Formula - 2

Powdered milk - 3

Rice powder - 4

Flour - 5

Arrowroot barley - 7

"Sothi" barley - 8

Other - 9

At what age supplementary liquid food was started?

Before 1 month - 1

1 month - 2

2 month - 3

3 month - 4

4 month - 5

13. did you introduce other liquid foods?

- Mother's illness - 1
- Baby ill could not suck - 2
- Insufficient milk - 3
- Baby did not like the milk - 4
- Wished to give something in addition to breast milk - 5
- Other - 9

14. do you decide when your baby is hungry? (Record verbatim response)

15. do you give the breast whenever she seems hungry?

16. do you usually give your baby both breasts at each feeding?

- Yes - - 1
- No. - - 2

17. Which breast you give?

- left - 1
- right - 2
- alternate- 3

18. Between the time you got up, yesterday morning and the time you went to bed last night how many times did you breast feed your baby?

_____ times during day.

19. Between the time you got up yesterday morning and the time you went to bed last night, how many times did you breast feed your baby?

_____ times during night.

Would you say that your baby gets more breast milk, more supplementary liquid, an equal amount of each?

- more breast milk - 1
- more supplementary - 2
- liquid (formula, powdered milk, cow's milk - 3
- Don't know - 4

How old was the baby when he/she was given other supplementary liquid?

_____ days _____ weeks _____ months

Is the formula, milk or barley given by yourself or someone else?

- Self _____ 1
- Other _____ 2

When you give the formula or other milk, how do you give it?

- bottle - 1
- Cup/Spoon - 2
- Other - 3
- Describe _____

How many times during the day do you prepare the supplementary feeding?

- Once a day - 1
- Twice a day - 2
- 3 times a day - 3
- Every time the child is fed - 4

Do you give any other liquid besides milk or milky looking liquid?

	Yes	No	Bottle	Cup/spoon	Other
Plain water					
Glucose water					

What solid food is your baby eating now?

- Rice - 1
- Dal (pulses) - 2
- Fish - 3
- Eggs - 4
- All vegetables - 5
- All shag (leafy greens) - 6
- Mangoe - 7
- Jackfruit - 8
- Other - 9

At what age did you start giving solid food from the family meal

_____ months _____ year

Are you familiar with hot, cold and Nirog categories of food?

- Yes - - - 1
- No - - - 2

Of these three groups of foods which type would you give to the baby first?

- Hot - 1
- Cold - 2
- Nirog (Disease free) - 3

At this time, would you say your baby is just getting used to the solid or is eating an adequate quantity of solid food?

picking up few pieces of rice - 1
(not eating solid regularly)

Eats adequate amount of solid food from the family pot - 2

Do you or anybody else feed solid to the child or the child is eating on his/her own.

Self fed --- 1 fed by mother/caretaker

Foods given to the baby (last 24 hours)

	How often	Fed by	Quantity*
Breast milk			
Cows milk			
Formula			
Barley			
Rice powder			
Dal (pulses)			
Vegetables (kind?)			
Shag (leafy greens)			
Fish			

* will be sending more information on the technique to used for measuring

Would you think it is too much of a _____ to cook separately for the young child?

Yes _____ No _____

- Why? takes time - 1
- a hassle - 2
- has other work - 3
- cannot afford extra fuel - 4
- Other - 9

Are you familiar with hot, cold and Nirog categories of food?

Yes - - - - 1 No - - - - 2

Of these three groups of foods which type would you give to the baby first?

- Hot - 1
- Cold - 2
- Nirog (Disease free) - 3

(For mothers giving solid food at 1 year or later) What is your reason for not giving solid food before 1 year?)

(Record verbatium)

For mother's who gave solid food before 7 or 8 months

What made you decide to give solid food at this age?

(Record Verbatim)

Did your child have any illness in the last two weeks?

Yes - - - - 1

No - - - - - 2

If yes, what was the nature of illness?

- Diarrhoea - 1
- Dysentery - 2
- Fever - 3
- Fever with respiratory infection - 4
- Measles - 5
- Chicken pox - 6
- Mumps - 7
- Eye Infection - 8
- Scabies - 9
- Other - 10

Household Number _____

Interviewer Number _____

Village _____

Date of Visit _____

Para _____

Bari _____

Demographic Data

Name of household members	Sex	Age	Relationship to the Head of Household

Socio-economic Data

Homestead (Bari)

AGRICULTURAL LAND (Amount)

No Agricultural Land	Own	Leased in	Leased Out

Yearly Income:

SOURCE	TAKA	PRODUCE
Agricultural Labor		
Agricultural Produce		
Non-Agricultural Wage Work		
Office Work		
Business		

Education

Father's Education

Mother's Education

Highest Education in the Family

What does the father do to support the family (write in detail)

How do the children contribute to the family? Distinguish between cash and contribution in kind. (for example, catching fish for the family meal).

Does the mother work to bring any cash to the family? Also record if she gathers any food or fuel.

ANTHROPOMETRY (Monthly Record)

Household No.

Child's No.

Date of Birth _____

<u>Date of Visit</u>			<u>Weight (kg)</u>	<u>Height (cm)</u>	<u>Arm Circumference (cm)</u>
<u>Month</u>	<u>Day</u>	<u>Year</u>			

Name of Field Worker _____

WEEKLY ILLNESS RECORD

Name of the Child _____

Number of the Child _____

Age _____

Sex _____

In the past one week did your child (0-24 mo.) suffer from any illness.

- 1. Yes
- 2. No.

If yes, record the following:

Name of illness

Symptoms

Therapy

Home Care

Medical Practitioner or
or Physician Contact

Diet Regular

Changes if any addition
or withdrawal.

Duration

Severity

(III) METHODOLOGY

The base-line data will be collected by questionnaire and in the course of home visiting by trained survey assistants. The questionnaire and methodology will require pretesting in the field after initial drafting. The coverage will include the following:

a) Socio-economic, demographic and household data. Information will include types of housing as well as landholding status and father's occupation by direct inquiry concerning income.

b) Morbidity. The questionnaire will include information on major identifiable infectious diseases, such as diarrhea, measles and respiratory tract infections during the previous week. Standardized definitions of these diseases will be needed.

c) Anthropometry. Two measurements will be taken: weight and length. Ages can be estimated to the month (by translating from the Bengali calendar). Eventually, three anthropometric indicators will be calculated: weight-for-age, weight-for-length, and height-for-age, permitting differentiation into normal, wasted, and stunted categories. Equipment needed will comprise Salter hanging scales (25 kg x 100 g) and locally made wooden length boards (Children's Nutrition Unit model), managed by Save the Children UK.*

d) Reference levels. In accordance with the WHO recommendations, it is proposed that the results can be compared with NCHS reference levels (National Center for Health Statistics, US). Data for weight, length, and weight-for-length for both sexes are available from CDC in

*Blueprints for similar length boards are also available from CDC (Center for Disease Control, Atlanta, Georgia).

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tables with standard deviations (and percentiles) on tape suitable for computer analysis.

e) Standardization. With all the data to be collected, pre-testing, standardization and quality control are imperative. This is especially so with anthropometry. Standardization following the method of Zerfas (1980) will be undertaken before the survey and repeated during it. Supervision during the survey will also be undertaken.

f) Dietary. Dietary intake will be obtained by 24-hour recall, including questioning concerning breast feeding. This information will be quantitative, giving a general cross-sectional view of young child feeding practices. In addition, further information will be attempted regarding breast feeding, especially how many times during the day and night.

Also, approximate semi-quantative recall information will be obtained using locally available domestic utensils (e.g., spoonsful of rice, etc.) ^{according to the method of Zerfas (1976)}. Calculation of nutrient intake, especially calories, but also protein, iron, and beta carotene, depends on the availability of biochemical analyses of cooked and fresh food items, including commonly used recipes. Further dietary information will be obtained in the course of the in-depth ethnographic studies. ~~(See Appendix II.)~~
In view of the importance of obtaining semi-quantative information on the dietary intake, semi-quantative data will be obtained in the ethnographic investigation for seven consecutive days.

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ଭୂମିତି ପତ୍ର

ଆଜ୍ଞାନର ଫଳା ଫୋଡ଼ ବାହାରର ଆଖୁ) ପ୍ରଥମ ଡର
ମାଟି ଛାଆ ମର୍ଯ୍ୟୁ ବେଳା ଡେଇଁ ଅଟେ, କିନ୍ତୁ ଭିତର
ଅଳ୍ପ ଭିତର ବାହାର ଆଖୁ)ର ଅବସ୍ଥାକୁ ନିଜେ ଅଧିକ
ଅଧିକ ବାହାରର ଆଖୁ) ଅବସ୍ଥାକୁ ଅଧିକ ନିଜେ ନିଜେ
କାରଣ ଅଧିକତା ମାଟିର ଉତ୍ପତ୍ତିର ଭିତରର ଜ୍ଞାନ ଡେଇଁ।
କେବଳ ଉତ୍ପତ୍ତିର ଜ୍ଞାନ ମାଟିର ଭିତରର ଅବସ୍ଥାକୁ
ବଳାତ ମାଟିର କି ଡେଇଁ ବାହାରକୁ ଅଧିକ ନିଜେ
ଭିତରକୁ ବୋଧ କରା ଅଧିକ।

ଆଜ୍ଞାନର ଆତ୍ମ ମରାଜ୍ଞ କାର, ଅଧିକା. ଭୂମିତି
ଜ୍ଞାନ ଭିତରର ଆଜ୍ଞାନର ବଳାତ ମାଟିର କି ଡେଇଁ
ବାହାରର ଆଖୁ) ଅଧିକ ବାହାର ଅଧିକ।

ବାହାରର ଅଧିକତା ମାଟିର ୩ ଓ ମାଟିର ଅଧିକ; ଭୂମିତିର
ଅଧିକତା ଭିତରର ଆଜ୍ଞାନରୁ କିଛି ପ୍ରକାଶ କରା
ଭିତର ଭିତର ପ୍ରତିଭାତ ଭିତରର ବାହାର ଓ ଉତ୍ତମ ଅଧିକ
ଉତ୍ତମ ଭିତର ଭିତର — ଅଧିକ କାରଣ ଭିତର, ଉତ୍ପତ୍ତିର
ଜ୍ଞାନ ମାଟିର ଭିତରର ଆଜ୍ଞାନରୁ କିଛି ଅଧିକତା
ଭିତରର ନିଜେ ମାଟିର।

ଭୂମିତିର ଜ୍ଞାନ ଅଧିକ କେବଳ ଉତ୍ପତ୍ତିର ଡେଇଁ ଭିତର
ର ନିଜେ ଅଧିକ କୁଣ୍ଡଳିନି ଅଧିକତା ଭିତର ଯେ, ଭିତର ଭିତର
ଭିତର ଭିତର (କେବଳର ଅଧିକତା) କେବଳ ଭିତର ଭିତର
କିନ୍ତୁ କୁଣ୍ଡଳିନି ଅଧିକତା ଭିତରର ଭିତରର ଜ୍ଞାନ ବାହାର
କେବଳ ଭିତର କରା।

ଭିତରର ନାମ ନାହିଁ ବିଭିନ୍ନ। କେବଳ ଭିତରର
ଭିତରର ଭିତର ଭିତର ଭିତର ଭିତର ଭିତର

କର୍ତ୍ତବ୍ୟତା ଆମେନାଦର ଆମେ ତମେକ ଆମେକେକ ଏହି
କାଳେ ଆମେକେକ କରାଏ ।

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କୃତ୍ୟ ଆମେକେକେ ହାସ୍ତି ।

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ଆମେକେକେ ଆମେକେକେ ଏହି କରାଏ ।

ବାବା ନାମ :-

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ବାବା ଏହି

CONSENT FORM FOR NUTRITION EDUCATION STUDY

The young children of Bangladesh do not generally suffer from the insults of malnutrition until the age of four or five months.

The reasons for deterioration of health from this age and how to prevent it need careful study of the feeding and morbidity pattern of the child. In doing such a study, it is also important to know the food availability as well as the constraints under which family functions.

We want to ask you a few questions regarding your family and the child's feeding pattern. In addition, we want to keep a monthly record of your child's growth pattern and a weekly record of child's illness. This will help us to devise a nutrition education program for improvement of the health of children.

If, at any time, you wish to seek health advice or get treatment please feel free to ask. You may refuse to participate or withdraw at any time from the study.

Please sign or give thumb imprint in behalf of your child/children if you agree to participate in our study.

Signature/L. T. I. of the Parents

Father's Name _____

Mother's Name _____

Household No. _____

Village _____

Date _____

TENTATIVE TIME SCHEDULE

	<u>1982</u>	<u>1983</u>	<u>1984</u>
<u>PHASE - I</u>			
Workshop - I	May 10-14		
Baseline Research	May -	January	
<u>PHASE - II</u>			
Data Processing		Feb.-March	
<u>PHASE - III</u>			
Workshop - II			
Message Dosing/Finalization of program/Printing forms/ and Organization of training		April-May	
<u>PHASE - IV</u>			
Implementation		July	August
<u>PHASE - V</u>			
Evaluation (midpoint)		December	
Evaluation (final)			June
Final meeting in Dacca, Bangladesh (All participants from home and abroad).			September

RIZVI Nutrition Proposal

OUTLINE AND TENTATIVE BUDGET

PHASE - 1

	<u>Time</u>	<u>Personnel</u>	<u>Resources</u>	<u>Costs</u>	<u>Amount</u>	
					<u>Taka</u>	<u>Dollar</u>
Workshop	1 week	D.B. Jelliffe E.F.P. Jelliffe Najma Rizvi A. Nolla Rukonuddin Ahmed Bairagi	AID/W ICDDR,B	Fare and consultancy fee. Per diem		
<u>Baseline Data Collection</u>						
Socio-economic survey of 500 households	July-Aug. (2 months)	1 team (2 field Assts.)	ICDDR,B	Salary Monthly Tk.2000 per person	16,000	800
Morbidity data on diarrhea and common infections (to be collected bimonthly for the research and intervention period)	Sep. 1982-Aug. 1984	Asma Khanam	ICDDR,B	15% time	20,000	1,000
		1 trained field assistant	AID/W	Salary Monthly Tk.3000 2,500	72,000 48,500	2,600 2,400
5. Anthropometry to be collected in every 2 months during research and intervention.	Sep. 1982-Aug. 1984	1 team (3 persons)	AID/W	Monthly Tk.3000 Salary " 2000 " 1500	72,000 48,000 36,000	7,800

Baseline Data Collection	Time	Personnel	Resources	Costs	Amount		
					Taka	Dollars	
4. Food Intake (semi quantitative and dietary recall)	Oct. 1982- Feb. 1983 (5 mo. twice a week per household of 60 households)	1 team (2 persons)	AID/W	Monthly Salary per person Tk. 1500	15,000	800	
5. In-depth Anthropological Study of Cultural Beliefs and Practices	July 1982 March 1983	1 team (1 anthropologist-P.I. 1 Research Asst. 1 Field Asst.)	ICDDR,B	60% time	Salary/Mo. Tk.3000	27,000	1,350
					Salary/Mo. Tk.2000	18,000	900
6. Nutrient* Analysis of Cooked Foods	1 year	Ayesha Nolla	ICDDR,B	15% time		18,000	900
		Akbar Ali	ICDDR,B	15% "		9,000	450
		Rukonuddin Ahmed	BCSIR (Consultancy)	15% "		9,000	450
		1 Lab Technician	ICDDR,B			36,000	1,800
		Assay	ICDDR,B	Tk.60 per assay		66,000	3,300
7. Statistical Guidance	2 years	Bairagi	AID/W	15% time		28,000	1,400
		M. Chowdhury	ICDDR,B	15% "		9,000	450
		N. Alam	ICDDR,B	15% "		9,000	450

* Nutrient analysis of cooked foods and commonly used recipes in Bangladesh are planned as these are not presently available. No biochemical analysis of nutritional status is planned.

PHASE - II

	<u>Time</u>	<u>Personnel</u>	<u>Resources</u>	<u>Costs</u>	<u>Taka</u>	<u>Amount</u> <u>Dollars</u>
Coding/Data Processing/ Computer Analysis	3 months	Statistical/ Computer Br.	ICDDR, B		1,20,000	6,000

PHASE - III

Workshop-II Message Design	2 weeks	R. Manoff	INCS	Fare		6,000
	1 "	R. Israel	INCS	Consultancy Fee		6,000
		S. Kar	INCS	Materials, transport		1,000
			ICDDR, B	Per Diem		1,200
Field Testing of Message	1 week	R. Manoff				
		R. Israel				
		S. Kar				
Printing of Message/Posters Radiotime			UNICEF			
		IPHN Staff				5,000
		MCH-FP Staff				
Training of Trainers	2 months	Najma Rizvi	(UNICEF) ICDDR, B	(Trainee Per diem)		
		1 local Consultant		Tk.4000/-monthly	8,000	400
		1 experienced Consultant		" 5000/- (Fare/Fee)		2,500
		(from India or Sri Lanka)				

PHASE - IV

	<u>Time</u>	<u>Personnel</u>	<u>Resources</u>	<u>Costs</u>	<u>Amount</u> <u>Taka</u>	<u>Dollars</u>
Dissemination of Materials	1 year	Research Intervention Team	AID/W	Monthly Tk.2000	24,000	1,200
		BDG Staff	UNICEF	Per diem		1,000

PHASE - VEvaluation

Mid Point Evaluation	Dec. 1983	Consultant	AID/W	Fee, Fare		3,000
Final Evaluation	June 1984	Consultant	AID/W	Per diem		5,000
Final Meeting in Dacca (All participants from home and abroad)	Sep. 1984	All personnel	AID/W	Fee, Fare Per diem		10,000

Other Expenses

Field Co-ordinator	1 year		AID/W	Monthly Salary Tk.4,000	48,000	2,400
Trip to USA (N. Rizvi)	Dec. 1983		ICDDR, B	Fare, Per diem		3,000

Secretarial Services

	1 year		ICDDR, B AID/W	50% time - Tk.2000 monthly salary	24,000	600 600
Printing and Reproduction			ICDDR, B	Tk.2 per page 5000 pages		500
Printing Questionnaires			ICDDR, B		3,000	150
Color Films and Reproductions of Slides and Tables			ICDDR, B		4,000	200

Equipment

3 Scales			UNICEF			135
3 Length Boards						60

Transportation

500 miles per week
25,880 miles

<u>Time</u>	<u>Personnel</u>	<u>Resources</u>	<u>Costs</u>	<u>Amount</u>	
				<u>Taka</u>	<u>Dollar</u>
2 years	ICDDR, B Drivers	AID/W	.25c per mile		3,000
			.65c per mile for Driver		
		ICDDR, B	Gasoline		

* It will be cheaper to buy a duty free second-hand car for the project between \$3,000-3,500 than paying milage.