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AN EXAMINATION OF THE FINANCIAL STRUCTURE AND HEALTH SERVICES COMPONENT OF THE INTEGRATED MATERNAL AND CHILD NUTRITION PROJECT

Reports Prepared By:
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During The Period:
MARCH 18, 1981 - MAY 15, 1981

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EXECUTIVE SUMMARY

This report is an appraisal of the health services component of the Special Nutrition Program (SNP) and the Integrated Child Development Services (ICDS) scheme. The author examined the following five areas:

1. Adequacy of basic services for children and pregnant and lactating women.

   The author concluded that SNP services were inadequate; he has suggested that they be replaced gradually by the ICDS. He feels that, conceptually, ICDS is providing adequate services, but that it is weak operationally, particularly in prenatal and under-three care. The author suggests that it might be a matrix in which to place the new project.

2. Cooperation between the Ministry of Health and the Ministry of Social Welfare.

   The author found this area to be weak operationally, partly because coordination and communication at state levels are ineffective. However, at the central level, the apparently different senses of mission suggest a more fundamental constraint, which was not probed in depth. The author suggests that efforts be concentrated at the state levels, with support coming from the central ministry or other ministries most interested in the work.

3. Appropriateness of selection criteria for admission and graduation of children from supplementary feeding programs.

   Operationally, this area is very weak. The author suggests more cost-effective use of supplementary nutrition resources through specific targeting according to standardized weight-for-age criteria.

4. Usefulness and relationships of group of medical consultants from All-India Institute of Medical Sciences (AIIMS).

   These consultants are a distinct asset to the program, but the number of available personnel is probably insufficient to cope with an expanded scheme. Current modifications might alter this judgment.

5. Training.

Several categorical programs have considerable merit, but medical college education needs to be reoriented continually. This step is reported to be under way at this time. Team-training in the community is strongly recommended.

The author also examined the health services component (HSC) of a new Integrated Maternal and Child Nutrition (IMCN) project. The importance of integrating the HSC with the nutrition, management, and training components is discussed. The emphasis is on the project's response to the needs and resources of the community, the achievement of national policy goals, and operation within national guidelines.

Most of the issues raised in the scope of work (see Appendix) are addressed in the six main topics of design: objectives and programs; personnel; facilities; training; organization and management; and funding and budget. It is proposed that the new IMCN project be structured as an integral part of the ICDS scheme and phased in, starting with those blocks where the Integrated Rural Health and Population project (or one of the other analogous projects aided by other agencies) is operational. The descriptive term used in this report is "combined block projects." This strategy should have the synergistic advantage of combining two closely related programs.

The author highlights the major problems in reducing mortality and morbidity in under-three-year-olds and suggests measures that might facilitate their resolution. Eight problems are identified.

1. *Problem:* Low birth weight: prematurity.

   Solution: Research study on etiology; improved prenatal nutrition; better family spacing.

2. *Problem:* Inadequate prenatal care.

   Solution: Early and complete registration; upgraded care, including standard protocol for village-based care; identification and referral of high-risk patients; nutritional supplementation.

3. *Problem:* Hazardous delivery.

   Solution: Improved training of dai and continuing education of female multipurpose workers; better provision of supplies by improved management.

4. *Problem:* Highest mortality in newborn.

   Solution: Improved training of dai for immediate care; recognition and early referral of distressed infants.

5. *Problem:* High mortality in 0-6 months.

   Solution: Support breastfeeding; improve nutrition of nursing mothers; treat diarrhea immediately, refer quickly; refer early high-risk infants.

6. *Problem:* Significant mortality and malnutrition in 0-36 months.

   Solution: Routine weight-for-age surveillance for all; encourage breastfeeding; introduction of appropriate weaning foods and feeding schedule; supplementary nutrition for malnourished; vitamin A and iron for all; immunization starting at 0-6 months; referral of high-risk, severely malnourished, and severely ill.

7. *Problem:* Ineffective integration of health care team.

   Solution: Training as a team in operationally competent primary health center.

8. *Problem:* Poor coordination and communication between health and nutrition providers.

   Solution: Implementation of three pilot projects ("Combined Block Projects," "Analysis of Constraints to Coordination," and "Information System Study"); decentralized decisionmaking.

ABBREVIATIONS

AIIMS	All-India Institute of Medical Sciences
ANM	Auxiliary Nurse-Midwife*
AWW	Anganwadi Worker
BCG	Immunization against Tuberculosis
BDO	Block Development Officer
CDPO	Child Development Project Officer
CHV	Community Health Volunteer
Dai (TBA)	Traditional Birth Attendant
DPT	Diphtheria, Pertussis, and Tetanus
FMW	Female Multipurpose Worker*
FP	Family Planning
GOI	Government of India
HA	Health Assistant
HAF	Health Assistant, Female
HAM	Health Assistant, Male
HSC	Health Services Component
ICDS	Integrated Child Development Services
IHP	Integrated Rural Health and Population Project
IMCN	Integrated Maternal and Child Nutrition Program
LHV	Lady Health Visitor**

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* Interchangeable with ANM.

** Interchangeable with HAF.

MCH	Maternal and Child Health
MDM	Mid-day Meal
Min SW	Ministry of Social Welfare
MMW	Male Multipurpose Worker
MO	Medical Officer
MOH	Ministry of Health and Family Welfare
MS	Mukhyasevikas; Supervisor in ICDS Program
MW	Multipurpose Worker
NIPCCD	National Institute of Public Cooperation and Child Development
PAHO	Pan American Health Organization
PHC	Primary Health Center
PID	Project Implementation Document
ROME	Reorientation of Medical Education
SC	Subcenter
SNP	Special Nutrition Program
WHO	World Health Organization

GLOSSARY

Anganwadi Center

A village facility for the Integrated Child Development Services (ICDS) program.

Block

The area designated for development projects. A block contains approximately one million people.

Family Welfare

A term encompassing a broad range of care and concerns and which specifically includes family planning (FP). In this report, the latter is the principal focus.

Health Services

In this report, those activities specifically identified as "health services" in Indian government agency publications on the Special Nutrition Program (SNP) or ICDS. The term encompasses health checkups, the diagnosis of nutritional disorders, the treatment of simple disease, and deworming. With the exception of hospitalization for severe malnutrition, the usual nutritional interventions which might, in a broader context, be considered medical activities are not included in this definition.

Combined Block Projects

Descriptive term for integrated development projects.

I. AN APPRAISAL OF THE HEALTH SERVICES COMPONENT OF THE SNP AND ICDS SCHEME

I. AN APPRAISAL OF THE HEALTH SERVICES COMPONENT OF THE SNP AND ICDS SCHEME

Introduction

The opinions expressed in this paper are based on observations of a small, non-random sample which was not studied in depth. The findings, however, have been corroborated by cross-checks from earlier, published studies and retrospective interviews, the perusal of current records, and direct observations in the field. It is felt that the conclusions are sufficiently reliable for planning purposes.

The report is divided into three chapters. The first chapter contains an appraisal of the health services component (HSC) of the Special Nutrition Program (SNP) and the Integrated Child Development Services (ICDS) scheme. The organization roughly parallels the suggested scope of work for the study (see Appendix). The second chapter includes a discussion of the relationship of the HSC component to other components of the Integrated Maternal and Child Nutrition (IMCN) project. The third chapter contains a design for an HSC component for the IMCN project. The design is based on the results of the appraisal described in Chapter I.

In this chapter, the author examines the adequacy of basic services provided to children and pregnant and lactating women and assesses how well the staff of the Ministry of Health and Family Welfare (MOH) and the Ministry of Social Welfare (Min SW) cooperate at the state, district, block, and village levels. In addition, the writer evaluates selection criteria for children's admission to and graduation from supplementary feeding programs; the usefulness of medical school consultants and their relationships with MOH staff; and training.

Adequacy of Services and Cooperation Between the MOH and the Min SW

A. SNP

The Ministry of Health has a definite conceptual commitment to provide health services in conjunction with the Min SW-sponsored nutrition program.[1] However, there are no specific budgetary inputs to support these services. Instead, the strategy, although not clearly spelled out, appears to rely on existing health programs (e.g., routine care through the hospital, primary health center (PHC), and subcenter structure) and special programs, such as supplementation of vitamin A and iron and folic acid.[1]

In practice, programs are separated and specific medical care for recipients of the SNP is not provided routinely.[2] For example, the SNP does not systematically seek out those who need acute care. There is no weighing program, and in most states only socioeconomic criteria, as opposed to nutritional status, are used to select beneficiaries.[3] The health care system operates independently, striving to fulfil its minimal needs program. It is uncommon for PHC patients to be referred to the SNP, or, conversely, for health care personnel to be actively involved in promoting preventive nutritional programs.

Field Observations

The team confirmed that the programs for health care are separate from the SNP and that there is minimal interaction among them. The beneficiaries of the SNP in the 3-6-year age range appear to be in good health and nutritional status. Contrary to statements made in the Project Implementation Document (PID),[4] the 0-3 group is represented in the SNP feeding programs but is absent from the ICDS programs that were observed. There is no concrete evidence of interaction, cross-referral, or specific health inputs targeted to SNP beneficiaries.

It was observed that the "upgraded" SNP organizer is supplied with simple medications to provide symptomatic and specific treatment for common disorders. Unfortunately, the effective use of these supplies is less than satisfactory, probably because of minimal training (only a few hours out of the total of three days) and the lack of precise guidelines.[5]

B. ICDS

The government's commitments for health care and infrastructure support are clearly spelled out in the various government pronouncements and other descriptive studies and analyses. Two of these are particularly helpful.[6,7] In one citation no fewer than 16 communications refer specifically to either health or the activities of the medical consultants; one appendix contains a list of 11 explicit points of action for state health departments.

The group of medical consultants from the All-India Institute of Medical Sciences (AIIMS) has completed the first evaluation study. The results reported from 27 of 33 initial blocks indicate definite increases in medical service inputs (e.g., vitamin A supplementation, immunization for DPT and BCG in children and tetanus in pregnant women, iron and folic acid supplementation in pregnancy, and postnatal care). The methodologic weaknesses of these first studies have been identified, and additional research, intended to improve and expand the evaluation process and precision, is in progress.

The reports of seven regional meetings sponsored by the National Institute of Public Cooperation and Child Development (NIPCCD)[9,15] do not quantify the progress or problems, but they do contain a summary of the recommendations of the block development officers (BDOs), child development project officers (CDPOs), medical officers (MOs), and district- and regional-level officers. From these reports it can be inferred that there are major needs for correcting immunization deficiencies; providing better and more extensive health checkups; improving cooperation between ICDS and the health care system; providing more health and family planning education; and expanding health care delivery at the anganwadi center (e.g., vigorous oral rehydration activities).

Field Observations

The team encountered several instances of good, active health care delivery by medical personnel, particularly auxiliary nurse-midwives (ANMs) and MOs in rural block ICDS projects--some of which are recent and some of which are well established. The role of the lady health visitor (LHV) was never satisfactorily observed, demonstrated, or explained at the operational level.

In a distressing number of instances where the team observed understaffing, poorly prepared staff, underutilization, the breakdown of equipment, failure to maintain supplies, and the absence of drugs and other practices, the standards toward which the ICDS is striving are not being met. This is a particular concern because, ordinarily, the tendency is to "put the best foot forward"--a practice which should bias the field observations toward the positive side.

Three matters are of particular concern. First, the essence of "integration" is to promote interaction (cross-referral, exchange of information, cooperative activities, mutual promotional campaigns, etc.). Even where there are "good" health delivery programs and "good" anganwadi and social programs, there is very little evidence of this desired quality of interaction. For example, at one well established and well running program, 12 mukhyasevikas (MS) and 3 LHVs were assembled. Only one instance could be recalled in the past five years when any of these persons had actually met as a group to discuss or work on a common problem. David Sahn's review of the relevant Indian literature[10] includes several examples of inefficiencies in carefully planned integrated research projects. The lack of communication among the participants in ICDS could cancel the accepted advantages of integrated activities.

Second, the separate lines of authority (ranging from social welfare to rural development to education to health) make it difficult to integrate the administration of this complex program. This is not so great a problem in Gujarat, where the Department of Health has line authority

over the entire program and has made significant progress in logistical and administrative support. However, it is in Gujarat where the problem cited above was observed.

The problem in Uttar Pradesh is more acute. Lines of authority that facilitate interdepartmental cooperation and operational efficiency are, theoretically, possible, but they do not appear to be established at this time. Clearly, if this matter is not resolved, the impact of an increase in blocks might only further confuse the existing "non-system" of shared authority.

Third, the failure of the ICDS to effectively reach pregnant and lactating women and 0-3 infants and children[7,17] is confirmed by the absence of these intended beneficiaries from all the ICDS gatherings which were observed. Furthermore, there is a notable failure to tie in the maternal and child health (MCH) services of the ANM with this particular target group. This "non-observation" may have been partly a matter of timing, but a review of records and interviews of personnel from both subsystems confirm the findings in the previously cited Government of India (GOI) reports. This group of prenatal and 0-3 children has been unequivocally identified as those persons most vulnerable to morbidity and mortality. Family welfare, prenatal and delivery services, and infant and toddler care are of critical importance and appear to be among the most deficient services provided.

Appropriateness of Selection Criteria

A. SNP

Conceptually, eligibility for participation is based on family income, social status (scheduled castes or tribes), and nutritional need. However, in practice, these criteria are not followed carefully, except indirectly; areas are selected where the proportion of such eligible beneficiaries is thought to be high. Specific selection by nutritional criteria is most uncommon and, except for age (greater than six), there are no clearly stated requirements for graduation from the program.[18,19]

Field Observations

There is no evidence that nutritional criteria are being applied or were recorded for either entrance to or graduation from the programs. It appears that initial arrangements are not strictly controlled and that beneficiary status is continued with similar flexibility. However, the period of observation was very short. Minimal records are kept by the

SNP to maintain the low administrative cost of the program. Furthermore, the average child in the SNP appears to be less well nourished than children participating in the ICDS or even the Mid-Day Meal (MDM) program. This clinical observation may indicate a more critical selection of beneficiaries, but, more likely, it reflects the socioeconomic factors in area selection, or perhaps the greater effectiveness of ICDS programs.

B. ICDS

The scheme, as officially described,[20] does not specify selection criteria, although there is mention of "low-income families and in accordance with guidelines issued from time to time." The Min SW's most pertinent letter, "Selection of Beneficiaries of Supplementary Nutrition in ICDS Projects,"[6] details the socioeconomic criteria for pregnant and nursing women, allows for medical judgments to override those criteria, and explicitly includes "all children below six years of age whose weights fall below the second curve on the growth chart." A "greater amount of supplementary nutrition" is advised for those below the fourth line on the weight-for-age graph. The criteria are broadly extended for the three-to-five-plus group, not on the basis of malnourishment, but on the basis of attendance at preschool activities.

The most recent reports on subsequent, operationally-oriented meetings contain nothing on the matter of selection.[17,21] Earlier, it was recommended that "priority for inclusion as beneficiaries should be given to children who are malnourished," although, if "resources permit,"[22] supplements should be given to non-malnourished children who attend the anganwadi center.

At a series of regional meetings conducted primarily for project officials at the operational level, 9-15, only two relevant comments were made. The workshop participants from Gujarat, Madhya Pradesh, Maharashtra, Dadra, and Nagur Haveli recommended that "feeding be concentrated on such beneficiaries" selected by "simpler methods of identification of severely malnourished children."[10] The workshop was attended by representatives from West Bengal, Orissa, Manipur, Meghalya, Mizoram, Nagaland, and Tripura. The participants "realized the need for careful selection of beneficiaries and felt that priority attention [should] be bestowed upon the malnourished children, especially third and fourth degree...."[12]

Field Observations

The team's direct observations, and the results of discussions at all levels, uniformly support the commonly held view that, in practice, there is no adherence to strict nutritional criteria for admission to

the feeding programs. This is most apparent in the "non-selection" practiced in the anganwadi center. There, the error may be considered to be in the "positive direction" (i.e., of potential good and certainly not harmful unless resources are used inappropriately). There is no evidence that the medical component of the ICDS or the community itself makes specific referrals for supplementary feeding to the anganwadi center. This error in a "negative direction"--the failure to select specifically the malnourished for special attention--is of more importance. Although there are no data to substantiate it, conventional wisdom suggests that the highest mortality and morbidity occur in the undetected or unreached minority of the population who is malnourished. These potential beneficiaries suffer because no concerted effort is made to select them for feeding programs.

Medical School Consultants

In May 1976, soon after the first 33 ICDS projects were initiated, the Min SW arranged for the appointment of medical college faculty members as consultants to the scheme. Under the leadership of Professor B. N. Tandon, AIIMS, one consultant was appointed for each block. The growth of the cadre of consultants has kept pace with the growth of ICDS, although, in some instances, consultants have been drawn from the ranks of district-level health officers, and not academia.

No published rationale for this strategy of outside consultants is available, but it may be inferred that the need was seen for an objective, scientific, and extraoperational "surveillance mechanism" to facilitate the evaluation and the direction-setting process. The consultants have not only fulfilled those functions, but they also have become increasingly involved in operational aspects, especially training and the redesign of implementation measures.

The effort has been extremely useful in the evolution of the system. The evolutionary aspect is stressed because the system is still in process--which is good--and because it is continuous, a condition which does make the assessment and comparison of earlier results difficult. It appears that the actual subjects measured in the baseline survey differed from those measured in the repeat survey. In other words, the study subjects were not followed as a cohort. However, in the succeeding study subjects were from comparable socioeconomic groups. The current survey has been modified to follow a cohort. One result should be more useful findings.

One beneficial result of the consultant approach has been the involvement of the academic community in the practical problems of health delivery.[23] The central committee at AIIMS, chaired by Professor B. N. Tandon, recently redesigned the approach to make it more efficient. In

part, the effort involved shifting some responsibilities to district-level and non-academic government officials; it also required that responsibilities be reorganized by functional assignment (e.g., training, survey, analysis).[24] It remains to be seen whether the changes will be sufficient to cope with the large increase in ICDS blocks, contemplated in the Sixth Five-Year Plan, which would be nearly matched by the AID-assisted extension under consideration in this study.

In light of the report from the AIIMS,[8] the group of consultants can be said to be functioning very well at this time. It has the prospect of adapting equally well to future expansion.

Field Observations

There is evidence to support the AIIMS's conclusion, but some acknowledged weaknesses have been confirmed also. Of more importance are concerns about the expansion of the system. Given the acknowledgment and corroboration of the positive aspects of the consultant group, it is hoped that the comments that follow will be viewed as constructive criticism.

Some consultants are disassociated from the practical applications of the system and appear to be engaged solely in the isolated collection of data for monitoring reports. This seems to be the case in Uttar Pradesh; the observation was supported indirectly by the absence of the consultant on the occasion of field visits to Rae Bareli District. There is a variety of good reasons to explain such absence, but it is less easy to condone the failure to provide any written feedback to the block surveyed in December.

In Gujarat, there is no question about the positive presence, contribution, and dedication of the six consultants who met with the team. In fact, it is precisely these qualities that necessitate the need for reconsideration of the system. Uniformly, the consultants report a level of involvement exceeding the nominal rewards they receive as professionals. Those who "labor for love" are as unusual as they are admired. Realistically, it is hard to build a perpetuating system on such people. Among them are some who have reached the limit of their endurance and would like to withdraw.

Although the consultants have made significant contributions, and despite the fervent charisma of the leadership, it appears that the role of the consultants needs to be more focused, and the cadre must be expanded to include those within the ranks of the operational service. The AIIMS is actively pursuing these steps, and the continued positive evaluation of the consultant group can be anticipated. It is hoped that the consultants will continue to contribute scientific, stable, and innovative external assistance and leadership.

Training

A. Medical Officers

For many years, Indian medical colleges have devoted time and effort to subjects that fall in the general category of public health and the specific area of maternal and child health. Departments of pediatrics, social and preventive medicine, community medicine, and obstetrics are the principal groups involved. In spite of the best efforts of these dedicated people, the average graduate is not likely to select as his or her first career choice the post of MO in a PHC. Furthermore, even though there are some inspiring exceptions, the fresh graduate is distressingly deficient in knowledge, attitude, and skills for the rural, preventive, managerial, low-technology practice that is needed to meet the needs of the 80 percent of people who live outside India's medically well-served cities. This observation is not surprising, given the usual bias of medical education toward urban, curative, individualistic, high-technology medicine. Accordingly, a new program, "ROME" (Reorientation of Medical Education), was developed to try to provide a curricular approach that is more relevant to India's needs.

The medical college at Baroda has pioneered in similar efforts, originally under Professor O. H. Trivedi, now emeritus, the resident director of the Institute of Rural Development in Samiala, Baroda District. His successor, Professor D. N. Shah, continues the campus-based efforts and, as an ICDS consultant, provides valuable, enthusiastic support to the Chhotaudepur Block. A disproportionate number of Baroda graduates continues to emigrate, however, and many MOs from other faculties are, it seems, less well prepared and less interested. This may be because of differences in their education, or perhaps because they are disappointed that they failed to make their preferred postings <u>or</u> to immigrate to more financially rewarding areas.

This rather gloomy introduction to general conditions was brightened considerably on the field trips by the presence of several enthusiastic and dedicated doctors, both young and not so young, who are trying to do a good job in the face of daunting circumstances. However, their enthusiasm aside, most of them (let alone their more pedestrian colleagues) are not prepared to exercise leadership or exert competent control over all their responsibilities. Consequently, it is to the significant clinical needs, principally, the daily outpatient clinic, that they devote their attention. The ICDS program is the most easily neglected activity, because program supervisors are isolated and social, and even nutritional, activities of the ICDS are considered to be "non-medical" tasks.

Duties tend to be performed pro forma. For example, one MO in a PHC reported that he faithfully made his "touring day" visits for several

years, but he was unable to cite any instance when he had discovered an unsuspected medical problem, detected an epidemiologically noteworthy event, or provided significant quality control. "Quantity control"--ensuring that spaces are filled with numbers--is more the rule than the exception. In most instances, it is apparent that MOs have virtually no familiarity with the operations or problems of the anganwadi center. Worse yet, the medical advice sometimes is contrary to current practice (e.g., one MO advised an anganwadi worker (AWW) who did not know how to treat infant diarrhea to use Sulfaguanidine).

The consequences of the basic training deficits and the undoubted hardships of posting are significant vacancies and high turnover of personnel. These problems complicate the training function.

A disproportionate space has been allotted to the description of the education of the MO and to some of the difficulties observed in the field. Here, the author's purpose has been to emphasize the fact that five days of training[25] cannot significantly change five years of conditioning. It is even more critical that the doctor "set the tone" for the rest of the medical establishment--the LHV and the ANM, as well as the anganwadi worker. He or she has, or should have, continuing responsibility for the training of his or her staff.

B. Other Personnel

The training programs for other members of the ICDS team have been surveyed in more depth by AID team member Dr. Chauls; however, a few additional comments here may add another perspective.

1. SNP

The training of the "organizer" is minimal, but this is in keeping with the objectives and purpose of the program. SNP functions principally as a food distribution scheme with imprecise targeting to vulnerable groups. For this reason, the program will be replaced gradually by the ICDS scheme. Efforts to broaden the activities and the training should probably be resisted in favor of directing the same energies toward the implementation and improvement of the ICDS.

The SNP training program does illustrate an important point. In recognizing the worthiness of a medical component, the program ensures that during the three-day training several hours are devoted to the treatment of simple illness and the use of a first-aid kit.

Field Observations

The single organizer who was questioned was not clear on the use of materials. This means that the training, the supplies, and the potential beneficiary can all be misused. It is likely that other organizers are similarly ill-prepared. Although it is not likely that great harm will be done, the better use of resources might be beneficial to health and promote the program as well. What must be emphasized is the need for a precise definition of the competencies desired and the careful construction of an appropriate training program to achieve those competencies and ensure quality in their implementation. The provision of medical care, even simple medical care, should be delineated carefully in the scope of work and ensured through appropriate training. The more simple and limited the task, the more precise the training must be, because it is less likely that the general knowledge of the person will be sufficient to fill the gaps in training or to accommodate unforeseen circumstances.

2. ICDS

Team work and community participation are basic to the efficient operation of the program. However, training activities are least effective in promoting these aspects. The CDPO is trained in an area separated from the community and from other members of the team. Similarly, the ANM, the LHV, and the AWW are each trained separately, although increasingly closer to the community.

Unquestionably, there are special problems involved in coordinating the schedules of training institutions. Similarly, there are operational advantages in centralizing special groups (e.g., doctors) to create what appear to be efficiencies of scale. But the competency which is sought--the competency to interact with the community and as team members--is difficult, if not impossible, to achieve when the training centers are separate and distant. It is unfortunate that the team members first encounter each other in the work situation. This approach is probably also inefficient in the long run. Although it is possible to integrate the team and to have it interact, on the job, with the members of the community, special efforts are required by all that involve much time, good communication, and a clear understanding of what needs to be done. Individual members of the team may not be aware that the latter is especially important. Certainly, the training programs fail to provide ample opportunity to develop practical skills and to acquire real-life experiences.

Field Observations

Many good elements and certainly much enthusiasm were observed in the training programs for AWWs and MSs at the Balsevika Training Institute, in Vailabh Vidyanagar, and the V.T.K. Rural Health Training Center, in Samiala. But these two programs do not interact in any way, and neither has any connection--or even knowledge of--the six-day training course for MOs offered at the civil hospital at Ahmedabad by the faculty of B. J. Medical College.

This dissociation of training is not an isolated example. In fact, the AID team neither observed nor heard about the joint participation of ICDS team members in any training exercise.

II. THE RELATIONSHIP OF HSC TO OTHER COMPONENTS

Introduction

The health services component must be considered in relation to the other components of the IMCN project. Accordingly, the design plan which the author proposes must begin with some hypotheses about those other components. Several assumptions must be made about the evolution of the design. Some of the assumptions and some of the design concepts that are suggested here may be out of phase with current planning; however, it is hoped that the necessary adjustments can be made to incorporate those elements of this proposal that are compatible with the final design.

Overall Design

A. Elements

Considering the primary explicit goal of the proposed project, "to reduce the prevalence of severe . . . and moderate malnutrition for all children zero to five (0-5) years in the target areas . . . ,"[4] three inputs are critical:

--nutrition education and care;

--medical care (here used interchangeably with health services); and

--community participation.

These inputs must be harmonious with the social, economic, and political contexts in which they operate, and they must be efficiently and economically managed. Two additional factors thus come into play:

--appropriateness and

--management.

Finally, to operate successfully, the project must be implemented by persons who have the requisite knowledge, attitude, and skills. To acquire these attributes, they must have a sixth input:

--training.

In other sections of the AID team's report, factors other than the medical component are examined in depth. The comments that follow are intended to create a context in which to consider the proposed medical component. This context is intended to be consistent with the needs, constraints, resources, and government policies which were reviewed and observed during the consultation.

B. Appropriateness

It is important to recognize that certain other objectives are implicit in the statement on goals. Two objectives are to reduce mortality and morbidity and (thereby) improve the quality of life. These objectives are consistent with and supportive of the GOI's objectives in the ICDS scheme.[20] "Appropriateness" is thus ensured. It will be necessary, however, to make various adjustments in the operational aspects of each local project to accommodate local conditions. Furthermore, the commitment of the GOI to the broader goals and programs of the ICDS will protect and extend the accomplishments of the IMCN as a "subsystem" appropriate (indeed, necessary and vital) to the larger scheme.

C. Community Participation

The nutrition and health of a community reflect the cumulative conditions of the individuals of that community. Yet, these conditions are largely determined by the social attitudes, customary practices, and ecology of the community itself. Ecology can be modified somewhat by direct external inputs (dams, roads, wells, etc.), but prevailing attitudes and practices are changed more slowly and less predictably. Knowledge--the product and panacea of the education faction--may or may not have an effect. Indeed, in the long term, it may be a decisive factor in social evolution, but in the short term it may only be adjunctive. A sense of need coupled with a sense of possession or control may be decisive in determining change. (This positive statement is conjectural, but the converse has certainly been demonstrated in the many failures of projects which communities have not felt were their own or which they felt were not in their own best interests.)

D. Training

Training should be provided close to the community--as close as possible, considering the other pertinent factors of finance, logistics, and personnel availability. Staff or students who are trained in a milieu which may be the same as or similar to the area where they will work will be better motivated to learn and better equipped to enter active duty than if they are educated in a different practical setting, or, worse yet, not really involved with the community, but only acting as observers of the community.

Similarly, conjunct training, or at least training coordinated with other members of the team, provides a basis for understanding and cooperation in the workplace. Practical constraints and specific differences in responsibilities and background require separate sections for the various aspects of training, but the advantages of studying together are potentially great. Doctors, if they are perceptive, can learn as much from the other team members as the team can learn from them. The well-trained physician should know the capabilities and limitations of his team members as well as he knows the anatomy and physiology of the human body. Conversely, the LHV, the AWW, the multipurpose worker (MW), and certainly the patient or the villager must understand clearly what is expected of him or her.

E. Nutrition

Even though it is the preeminent factor in the project, nutrition does not stand alone. There is good evidence that malnutrition and illness interact intimately, each compounding the other's ill effects.[26] Furthermore, the benefits of integrating approaches to ameliorate these effects have been convincingly demonstrated in the Indian context.[27,28,29]

There is much to be said about the interaction between nutrition and health; however, one other factor must be discussed before an in-depth examination is made of the design of the health services component: Who exactly should be the target of IMCN? The 0-5 age group has been designated, and it is clear that this group suffers from a broad range of very different nutritional and medical problems. In addition, it is entirely reasonable to include family, maternal, and gestational factors in considerations of the health and nutrition of the child. The important elements of family spacing, maternal health and nutrition, and prenatal care must be considered before conception and during gestation. Labor and delivery pose hazards for both the mother and the baby, and indirectly for older siblings whose health would be at greater risk should the mother die. In the Indian context, the period from birth to six months is the time of maximum mortality, with the peak skewed to the first month.[4,30]

Between six months and 30 or 36 months is the second most critical phase of life. By age three, the surviving child, although still at risk, has a better chance of continued life because of increased resistance to disease and increased ability to seek out food for him- or herself.

It is appropriate to consider the "minus one to plus three years" period as the critical "bull's eye" of the target group. It is here that the IMCN program should concentrate its efforts. Such a concentration is entirely compatible with the ICDS scheme and the suggestions[17,22] made for its improvement.

F. Management

The best of intentions and the best of plans for medical care, nutritional interventions, and community participation have often failed for lack of good management and all it implies: funding, organization logistics, communications, monitoring, evaluation, and decisionmaking. The significant accomplishments of the CARE-assisted SNP projects suggest strongly that elements of that management structure should be incorporated into the eventual scheme. The SNP could form an organizational framework on which the IMCN program, with the assistance of CARE, could build.

This discussion can be summarized diagrammatically. As Figure 1 shows, nutritional and medical inputs are coordinated "on target" within the circle of the community and are supported by the community. All the elements are tied together by management.

Summary

The preceding characterization of the various elements in the overall design is not intended to be comprehensive; instead, it provides a framework or context to which the medical component can be related. Indeed, health services should relate intimately to each of these elements, and vice versa; together, they comprise a comprehensive subsystem. The system of which IMCN would become a part is, clearly, the ICDS scheme. This scheme can be symbolized diagrammatically (see Figure 2) as three interlocking, interacting, and interdependent subsystems: preschool education, functional literacy, and maternal and child nutrition and health. The details which follow (see Chapter III) should not obscure these broader relationships. The author thus cautions the reader to "be aware of the forest before plunging into the trees."

Figure 1

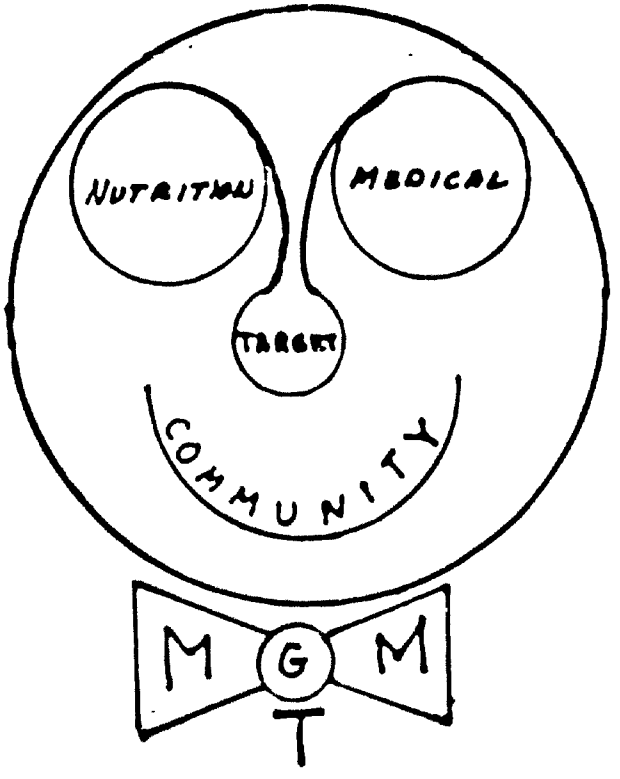
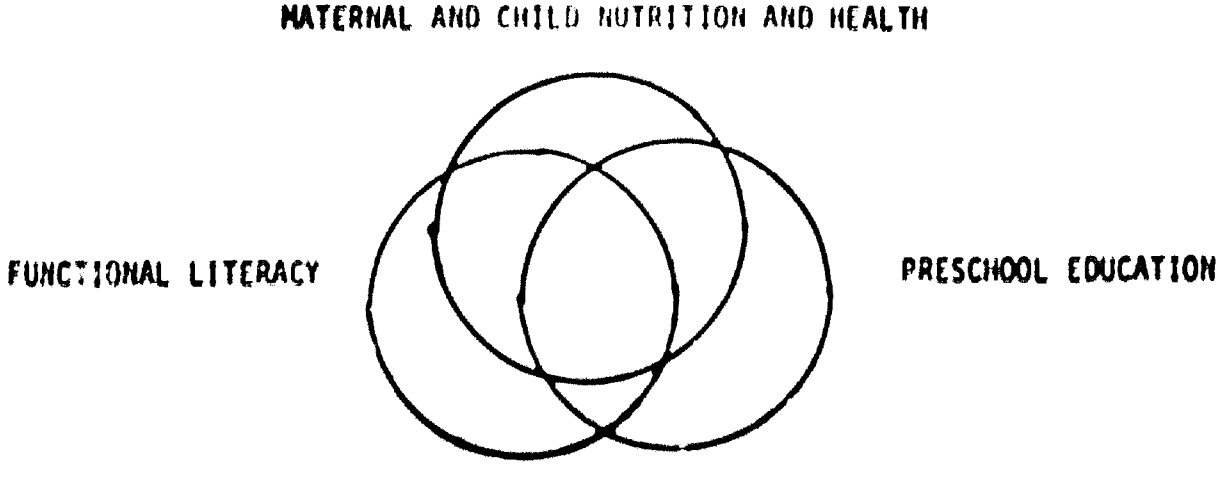


Figure 2



III. A DESIGN FOR AN HSC COMPONENT

Introduction

The constraints of time precluded an in-depth study of all the topics suggested in the scope of work (see Appendix). Accordingly, only points of interface are afforded for the managerial, fiscal, and training aspects of the HSC. The subjects are covered in the scope of work of other team members.

Regrettably, nothing is offered specifically on evaluation. This is not an oversight. An evaluation design team is scheduled to follow on the heels of the present team. In addition, attention is redirected to the discussion of the medical consultants' role in evaluation (see Chapter I).

Objectives and Program Activities

To concentrate many of the elements involved, the information in this section is presented in a terse outline of HSC objectives specific to the IMCN project. Italicized subheadings are followed by itemized program activities. A detailed description of technical procedures and treatment is omitted; these features will be developed in conjunction with standard operating procedures in the existing health care system. The marginal abbreviations refer to personnel categories which are defined subsequently in paragraph 3. In general, only the primary contacts or responsible persons are listed. Where appropriate, the person with the major responsibility is identified by an underscore. The competency and responsibility of those who occupy secondary and tertiary positions on the referral scale are assumed. The symbol → is used when referral is part of the program strategy.

.1 Family Welfare: *Increase family spacing; decrease average family size; decrease rate of population growth.*

CHV & Dai → MW ..1 Identify and register all eligible couples.

CHV & Dai → MW ..2 Increase eligible couples' knowledge and use of and motivation for contraception.

MW & HA ..3 Increase knowledge of, motivation for, and use of sterilization by those attaining optimal family size.

CHV, Dai & MW	..4	Provide closer access to contraceptive information and supplies for eligible couples.
MW → HA	..5	Identify and respond to special targets and problems in motivation and implementation.
CHV & Dai → MW → HA	..6	Identify and refer complications of contraception to more specialized care.
MW	..7	Maintain carefully planned, simple, and brief standard records of high utility that contain operationally relevant information.

.2 Prenatal: *Improve quality and quantity of health care, nutrition, and the management of high-risk cases.*

Dai & CHV → FMW	..1	Identify and register all pregnancies.
FMW → HAF	..2	Identify and refer all high-risk pregnancies appropriately, motivating and following up on the patient's response.
Dai & FMW	..3	Conduct regular, standardized prenatal examinations.
Dai & FMW	..4	Provide iron and folic acid tablets.
FMW & HAF	..5	Administer tetanus toxoid immunization.
Dai & FMW	..6	Motivate and educate for improved nutrition; refer to anganwadi nutrition supplementation program, if indicated.
Dai & FMW	..7	Educate and prepare for labor, delivery, and parenting.
Dai & FMW	..8	Motivate and inform about family welfare, contraception, and sterilization measures; arrange for early referral if tubectomy requested.

.3 Labor and Delivery: *Improve quality of normal deliveries and newborn care; decrease maternal morbidity and mortality.*

Dai & FMW ..1 Attend all normal labors and deliveries, using best hygienic care, consistent with local conditions.

Dai & FMW ..2 Recognize early and refer promptly complications unanticipated in high-risk assessment.

Dai & FMW ..3 Provide immediate, appropriate newborn care and guard against hypothermia.

Dai & FMW ..4 Recognize and seek consultation on birth injuries to mother.

Dai & FMW ..5 Recognize and seek consultation on birth injuries, congenital defects, and prematurity or low birth-weight of infant.

Dai & FMW ..6 Recognize convulsive and tetanic symptoms; refer immediately, administering standard emergency treatment for presumptive hypoglycemia.

Dai & FMW ..7 Encourage and instruct mothers to breastfeed early, emphasizing benefits of colostrum.

Dai & FMW ..8 Instruct mothers and families in early care of normal newborn.

Dai → FMW ..9 Refer for well-baby care.

Dai → FMW ..10 Maintain carefully planned, simple, and brief standard register, including birth weight, and note complications on mothers' and infants' personal records.

.4 First Six Months: *Improve preventive and illness care and strengthen nutrition.*

CHV & FMW ..1 Support and promote proper breastfeeding through education and care of mother.

CHV & FMW ..2 Educate and motivate family to nourish lactating mother properly; refer to anganwadi nutrition supplementation program, if indicated.

CHV → FMW ..3 Prevent failure of breastfeeding by promptly treating simple problems and referring more complex problems.

CHV & FMW ..4 Promote disease prevention through education for improved personal hygiene, sanitation, and timely immunization, according to standard PHC procedure.

CHV & FMW ..5 Maintain surveillance of health status with periodic well-baby checks and charting of monthly weighings; refer either for supplementary feeding or medical evaluation and therapy, according to criteria in PHC's standard protocol.

CHV & FMW ..6 Educate mothers to treat properly and refer quickly cases of diarrhea while guided by PHC standard protocol.

CHV & FMW ..7 Educate mothers according to standard protocol about home care; when necessary, educate mothers to refer fever and respiratory illness according to specific protocol.

FMW & HAF ..8 Educate mothers about, and identify and treat, symptomatic worm infestation.

FMW → HAF ..9 Identify and maintain special case register of infants at risk as defined in standard protocol (e.g., one-parent family, previous infant death in family, bottle-fed, episode of acute or severe illness, failure to gain weight parallel to standard growth curves); refer for consultation.

CHV → FMW ..10 Review family welfare measures in the early postpartum period.

.5 Six to Thirty-Six Months: *Maintain nutrition while gradually weaning and continuing preventive and illness care.*

CHV & FMW ..1 Continue to support and promote breastfeeding until 18 months or two years of age.

CHV & FMW ..2 As with zero to six months.

..3
- ..9 Same as zero to six months.

CHV & FMW ..3a Promote and educate mothers to start weaning foods no later than six months; supplement iron, folic acid, and vitamin A according to standard protocol.

CHV & FMW ..10 Review family welfare measures, particularly sterilization, if family is at optimal size and child is over 30 months.

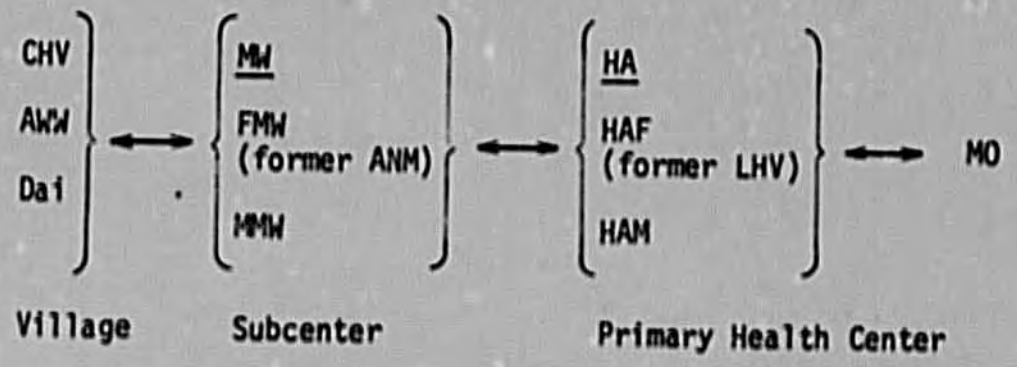
CHV & FMW ..11 At 36 months, refer to anganwadi for non-formal education, continued health surveillance, and continued nutritional supplement, if indicated.

Personnel and Job Descriptions

Various characteristics of categories of personnel are described briefly. For the most part, specific HSC-related tasks can be identified easily from the program activities listed in paragraph .2 above. The tasks do not constitute a complete job description, for only those which are relevant to the HSC of the IMCN project are listed. These suggested tasks must be integrated with the workers' other functions and the entire job description must be evaluated both theoretically and in the field to determine whether the tasks can be performed satisfactorily. Too often, a scheme is developed which requires that an already overburdened person assume additional duties. The result is the neglect of one or more of the roles which that person is intended to play.

The linkages and venue of the personnel are depicted schematically (see Figure 3). A brief descriptive outline follows.

Figure 3



.1 AWW (Anganwadi Worker): *The AWW is not an official in the government health service. (This position is described in detail elsewhere.*[31]*) The AWW is, generically, a community health volunteer (CHV) with a special set of duties adjunct to her other responsibilities to the ICDS.*

..1 HSC-Related Duties: Encourages family welfare, personal hygiene, and improved sanitation through functional literacy classes and by informal contact with mothers who bring other children to the anganwadi. Organizes and cooperates with immunization and health education activities conducted at the anganwadi. Interacts as liaison person with village institutions, officials, and particularly mothers of infants. According to one authority, also provides simple medical care.[7]

..2 Refers to subcenter (SC) infants or children who fail to gain, or actually lose, weight in successive two-month periods; refers immediately those with obvious illness and follows up on referral.

..3 Based at anganwadi.

.2 CHV (Community Health Volunteers): *CHVs are not official health service employees. Both males and females serve different constituencies according to sex. None was observed in the field; the description below is based on an analysis and description of the Integrated Rural Health and Population (IHP) Project.*[32]

..1 HSC-Related Duties: Active in the family welfare, prenatal care, and zero to thirty-six-month programs. Serve as principal liaison with the community and as neighborly health educators; also involved as aides to community gatherings, and perhaps as conduits for supplies. Activities are divided between male and female workers, according to the person or group being served.

..2 Refers to SC.

..3 Resident members of village.

.3 Dai (Traditional Birth Attendant): A dai is not an official employee of the health service, but she is, culturally and historically, more deeply rooted.

..1 HSC-Related Duties: Traditionally attends women in labor and delivery. Recently expanded role under auspices of health care system involves participation in family welfare, prenatal care, improved labor and delivery practices, and supplies and equipment. No role has been assigned to her for the care of the infant other than the newborn, because none was observed or discussed during the field visits; however, there may well be dais who do provide health care for infants and who might, therefore, serve more broadly.

..2 Refers to female multipurpose worker.

..3 Resident member of village.

.4 FMW (Female Multipurpose Worker): *This designation is synonymous with and replaces the auxiliary nurse-midwife (ANM), which is more commonly encountered in the literature, government publications, and elsewhere in this report. She is the first link in the official, salaried health service system.*

..1 HSC-Related Duties: Active in all programs; a key person, serving as a liaison between the community and the PHC--either directly or through the intermediaries of the CHVs or HAs, respectively. Assumes significant responsibility for primary health care, distribution of medicine, and referral of cases. Primary collector of data for information systems aided by CHVs and dais.

..2 Refers to (1) PHC directly, or in consultation with supervising HA; (2) AWW, CHV, or dai, appropriate to need of patient.

..3 Based at SC.

.5 HA (Health Assistants): *This new designation includes both males (HAMs) and females (HAFs); the latter are better known as lady health visitors (LHVs), a term used extensively in the literature, government reports, and this paper. HAs are the second link in the official, salaried health service. The training, role, and duties of the HAM are not well formulated.*

..1 HSC-Related Duties: Active in the family welfare program. Responsible for and competent in the teaching, supervision, and performance of all activities of the MWs, CHVs, and dais. The HAs bear major responsibility for implementing the upgrading and continuing the education of the MWs and the volunteers and traditional workers at the village level.

..2 Refers to PHC and MO.

..3 Based at PHC; some supervise in the field and some work at the center.

.6 HAF (Health Assistant, Female): *See HA.*

.7 MO (Medical Officer): *The medical officer is the leader of the medical team and a trained physician.*

..1 HSC-Related Duties: Responsible for continuing training, supervision, and management of staff of PHC and SCs. Specific duties include care of severely malnourished children; establishment and interpretation of operational standards; performance of human sterilization procedures; and analysis and decisionmaking on the basis of field reports.

The MO is expected to prepare or adapt standard protocols to guide the health team. These protocols, referred to repeatedly in the program sector, are critical to the successful operation of the referral pyramid. Careful delegation of responsibility and definition of criteria for referral are a fundamental and intellectually demanding part of the MO's responsibilities. Official guidelines may exist to aid the MO in this task, but they were not in evidence on the field trips.

..2 Refers to (1) district hospital for specialized care and (2) SC for follow-up care; anganwadi for nutritional supplement and continuing nutritional surveillance.

..3 Based at PHC, but tours SC and villages regularly.

.8 MW (Multipurpose Worker): *In this paper, the abbreviation "MW" is used to designate both female multipurpose workers (FMWs) and male multipurpose workers (MMWs). The former has already been described; the latter category is evolving from earlier uni-purpose health workers.*

..1 HSC-Related Duties: Function in the family welfare program (see also FMW).

..2 As with FMW.

..3 Based at SC.

Facilities

The program of the HSC can be adequately accommodated in the facilities projected for the IHP,[33,34] which are based on and consistent with the GOI's "model plan" for rural family planning and health services.[35] The latter, as part of the multisector National Minimal Needs Program, proposes similar facilities throughout the country. In addition to those facilities, anganwadi centers, some of which are in place at this time, are planned.

A brief outline of the program, personnel involved, and locations of the facilities follows.

.1 Anganwadi: The anganwadi is located in the village it serves; it is staffed by an AWW, functions as a storehouse and distribution point for supplementary nutrition, and is a venue for weighing programs for 3-6-year children and adjunct weighing programs for under-threes. The anganwadi is the logical site for health education, group immunization, and regular distributions of such specific supplements as vitamin A, iron, and folic acid. In essence, it is the health and nutrition center for the village.

.2 SC: The subcenter is located in the village, but it serves two to seven other villages. It is staffed by a FMW, and also serves as a base of operations, but not the living quarters, for the MMW. The SC is a storehouse and distribution point for medical, contraceptive, and certain nutritional supplies (e.g., vitamin A, iron, and folic acid). Diagnostic equipment and space are consistent with the program.

.3 PHC: The primary health center serves one development block of 60 to 100 villages with an average of 100,000 total population. The PHC supervises the SCs in the block. It is staffed by a MO, LHVs, and HAs. Most LHVs and HAs travel in the field. The PHC is the primary depot for medical, contraceptive, and special nutritional supplements; it is also a communication point, linking the subdistrict and district hospitals.

.4 Upgraded PHC or Subdistrict Hospital: Additional inpatient facilities and specialized staff are available for treatment; otherwise, this facility functions like a PHC. It serves two to four contiguous PHCs.

.5 District Hospital: The standard general-care hospital, this facility serves a population in excess of one million people and is the principal secondary referral facility.

Training

The duties of several distinct categories of personnel have been described. With the possible exception of some of the newer categories (e.g., the male health assistant), well-established training and educational programs exist for the members of the team, but there is no program in which to train them as team members. The need for training experience as a team, both in and with the community, merits serious consideration (see Chapter II).

.1 Curriculum Design: "Systematic Course Design for the Health Fields," by A. J. Segall, is highly recommended as a guide. In brief, the tasks are as follows:

..1 Prepare an analysis and a tentative job description compatible with the program.

..2 Observe and record actual performance in the field.

..3 Modify the job description (..1) on the basis of (..2).

..4 Field-test and observe.

..5 Evaluate feedback and observations; formulate final job description.

..6 Determine competencies necessary to perform the job.

..7 Devise learning experiences to allow the student or worker to master the competencies.

..8 Evaluate results in the field.

.2 Responsibility and Continuity: Training should allow the student to assume responsibility under supervision and to

feel the burden of that responsibility by having the opportunity to follow up and thus observe relatively long-term results--good or bad. These two important aspects of training usually can be accomplished if the system of training on-the-job with a preceptor is adopted.

.3 Specific Suggestions:

..1 Locally-based training is recommended because it is desirable to keep training close to the field and because the organization and implementation patterns vary from state to state. Feasibility trials need to be done. The following scenario has theoretical appeal.

Assume a well-motivated candidate is available for an MO position whose basic education provides the epidemiological, sociological, and clinical knowledge to complement his managerial and scientific skills for community health care. Assume also that HA and MW institutions are intimately associated with health care facilities (e.g., a district hospital). These three categories of personnel would form the nucleus of a team-in-training that would be posted to an operational PHC in an ICDS block that is working with the communities under the preceptorship of the staff. The AWWs, CHVs, dais, and the team learn by doing real tasks in a real setting where they have sufficient time and adequate facilities to discuss and analyze their activities. By adding their input, they share the load, thus allowing time for operational staff to upgrade their knowledge and experience. After achieving specified competencies, graduates are placed in PHCs slated to initiate ICDS programs.

There are three obvious prerequisites to ensuring the success of this projected scheme:

(1) Medical colleges with successful community-oriented curricula;

(2) Paramedical educational institutions with similar curricula which are committed to the integration of educational programs; and

(3) Competent, well-motivated, experienced field staff who are committed to improved training.

The initial "egg" to form these "chickens" would have to be "hatched" by the state authorities who are responsible for the ICDS program. Their continuing supervision and evaluation of the program, which would be staffed by graduates, would provide feedback for evaluation and appropriate revision. As new blocks develop, additional training centers could be established.

..2 A Possible Prototype: The scenario described above is considered to be practical. Such a program could be envisioned in the Baroda District. It would involve, for example, the following units:

(1) The Medical College, Baroda;

(2) The V.T.K. Institute of Rural Development, University of Baroda; and

(3) The PHC at Tejgadh.

The medical college program in community medicine and pediatrics would provide significant experience which, combined with the faculty members' extensive consultation with the Chhotaudepur ICDS project, would represent an uncommonly strong resource for medical input. The V.T.K. Institute has adequate space and enthusiastic staff who have experience in training mukhyasevikas (nutrition supervisors). It could provide an important social science input into the training programs which, generically, are deficient in such matters. The PHC at Tejgadh, by virtue of its association with the Chhotaudepur project, would provide practical field experience dating back to the inception of the ICDS scheme.

In Gujarat, on-the-job training for LHVs and ANMs has been provided by the local MOs with the aid of the AIIMS consultant.[36] The intent of the proposed design is to incorporate team-training directly into the initial curriculum. LHVs and ANMs usually are trained in district hospitals; thus, this should not pose a

problem in Baroda. Unfortunately, the possibility could not be explored during field visits.

Another alternative site with less experience, but both the potential and the enthusiasm to encompass all training for all categories, from the AWW to the LHV, would be Vallabh Vidyanagar, in Kaira District, 40 kilometers outside Baroda. There, a unique educational center is located in what is referred to as a "university township." A new hospital complex, Charutar Arogya Mandal,[37] which plans to establish a medical college and is at this time training nurses, is in close proximity to the Home Science College;[38] both are affiliated with the Sardar Patel University. Equally close geographically, but organizationally under different sponsorship, is the Rural Bal Sevika Training Institute,[39] which trains AWWs. If a new approach involving new and developing institutions is adopted, it will be possible to integrate the curriculum during the planning stage rather than accommodate established curricula which are more likely not to be in phase.

Organization and Management

The organization and structure of the HSC component of the IMCH project are formidable tasks. Health services depend on the cooperation of a very large department, which, in most states, is not the same as the department that administers IMCH. Gujarat has been the exception in placing the project within the health department, but even there serious failures of coordination can be observed.

The organizational gap seems to be even wider at the central level, where the ministries appear to have different senses of mission that seem to be difficult to bridge. This difference in attitude may be the result of the burdens imposed on the ministries, but this is speculation. The matter was not probed in depth by the author.

The author does not intend in this report to analyze the overall management scheme in the design of a new project. That is the task of another team member. He would raise, however, two issues that bear directly on the matters at hand and a third issue which concerns management.

.1 <u>"Combined Block Projects": Potential Synergism</u>: The related problems of the central "gap" and local "coordination

failures" might be solved if the IMCN project were to select blocks where the IHP project was already operational. For the purposes of this paper, this concept will be called "Combined Block Projects."

The timing of implementation of the two projects is appropriate; the IHP, having started in this fiscal year, would precede the IMCN, which could phase into blocks prepared with accelerated health programs. The two projects can be shown to be complementary by comparing the two most relevant documents.[4,33] Initial costs could be reduced significantly by avoiding the duplication of facilities. The close coordination of the two projects would increase efficiency. Conceptually, the approach is appealing. There is convincing evidence that disease and malnutrition are linked to increased mortality.[26,29]

An analogy can be drawn to illustrate how the two projects, if they were in separate blocks, would compare with the proposed congruence of projects in the same blocks by contrasting the sprinting ability of two one-legged men with canes with the ability of one two-legged man with good track shoes.

The central ministries would have equal interest in ensuring the success of the projects they share. Local coordination would be facilitated by concentrating projects in the same areas before expanding, step by step, to other blocks.

The potential disadvantages of the proposed approach must also be considered. The IHP will not be operational in Uttar Pradesh. Moreover, there are plans to involve other agencies in that state. Even without external aid, the GOI's Minimal Needs Program intends to upgrade all health centers at a less accelerated pace. Upgraded blocks could be selected in which to introduce the IMCN project.

Local facilities could be overwhelmed by the presence of two projects that demand much time and many local resources. Logistic and administrative problems would arise if the projects were implemented in separate blocks in the same district.

There is also the practical political problem of concentrating extra resources in fewer blocks, thus creating greater disparities. This problem could be offset by

expanding into new blocks, building on experience, and using the staff and facilities of the pioneer blocks to train the new health teams.

.2 Analysis of Constraints to Coordination: At the local level, various coordination councils were established to bring together the separate officials and agencies to identify, discuss, and resolve problems. There is no evidence that this effort has been particularly successful. It is proposed, therefore, that early in the IMCH project a pilot project be conducted to identify and seek solutions to the constraints that are blocking interdepartmental cooperation.

.3 Information Systems Study: Performance monitoring and decisionmaking--two important management functions--are based largely on the accurate and timely flow of appropriate information. Health systems worldwide are struggling to satisfy the need for accurate data. They have had modest success. Similarly, field observations confirm that there is great potential to improve this aspect of health service management.

It is suggested that each state begin the first combined block project with a careful study of current recordkeeping and reports on the interface between ICDS and the health care system. Each register, each report, indeed each item, in all records maintained should be scrutinized and as many as possible should be eliminated, simplified, or entirely revised. The criteria for the retention of items or forms should be rigorously demanding. They should be based on the minimal needs for essential decisionmaking and critical epidemiological data collection.

Coincident with the reduction and revision of forms, it is suggested that the level of decisionmaking be placed as close as possible to the point of data collection. Generally, this is where the service is being rendered. Two beneficial results can be expected. The person collecting the data will have an immediate interest in the information because it will determine his or her activities; therefore, he or she usually will do a better job while collecting data and performing the related duties. The time for decisionmaking will be reduced; "turnaround time" will be immediate.

It would be tempting to add a third advantage, viz., the reduction of the time of the supervisors who might have made the decision. However, this reduction in time may not be

significant because the supervisor will still be required to review decisions and to analyze the data collected in order to provide the information that is needed in supervisory decisionmaking.

Take supplies as an example. One of the FWWs who was interviewed during the field visits (the more familiar term used then was auxiliary nurse-midwife) kept records of prenatal visits. She also kept separate records of supplies, including those needed for deliveries. The need for the latter is clearly determined by the former activity. The decision about the projected need for such supplies (and, of course, for many others) could have been made by the FMW. Instead, the decisions were made by supervisory personnel. As a result, the workload of supervisory personnel was increased, and, in some areas, supplies were not delivered on time.

Funding and Budget

Lack of time precluded the formulation of a detailed budget for the HSC. Studies are under way, however; the economist who is on the team is planning to address this matter. The uncertainty about the final form of the project at the time this report was written makes it difficult to estimate budget costs. Should the proposed concept of "combined block projects" be adopted, it is anticipated that costs will be shared with the IHP project and thus significantly reduced.

If the economies result in savings, the funds that are available could be used to extend the projects into new blocks, using the phased approach that has been recommended, rather than increasing the scope of work for or input into the initial block of combined projects.

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INTEGRATED MATERNAL AND CHILD NUTRITION PROJECT: DESIGN TEAM

SCOPE OF WORK - PAUL ALEXANDER

HEALTH SERVICES

I. Appraise the health services component of the Special Nutrition Program (SNP) and the Integrated Child Development Services Scheme (ICDS), addressing the following points:

   A. Adequacy of basic services provided to children, pregnant women, and lactating women.

   B. Cooperation between Ministry of Health and Ministry of Social Welfare staff at state, district, block, and village levels.

   C. Appropriateness of selection criteria for children's admission to and graduation from the supplementary feeding programs.

   D. Usefulness of medical school consultants, as coordinated by All-India Institute of Medical Sciences, and their relationship with MCH staff at state, district, and block levels.

   E. Training.

II. Based on outcome of appraisal, design health services component of new IMCN project. Descriptive section for project paper should cover:

   A. High-risk assessment of pregnant women and delivery of services, including iron and folic acid.

   B. High-risk assessment of children 6-36 months.

   C. Immunizations.

   D. Oral rehydration.

   E. Provision of high-potency vitamin A capsules to children.

   F. Deworming for symptomatic cases.

   G. Routine checkup.

   H. Sickness-care capabilities.

   I. Family planning.

J. Mobilization of GOI-MOH resources and funds from donors, such as USAID, who are strengthening the GOI health sector for use by IMCN project.

K. Plan for coordination between MOSW and MOH at central, state, district, block, and village levels and project implementation responsibilities of each of these ministries at each of these levels.

L. List of tasks assigned to and supplies required by medical officers (MOs), lady health visitors (LHVs), auxiliary nurse-midwives (ANMs), community health volunteers (CHVs) and nutrition (anganwadi) workers (AWWs) for delivery of basic health services.

M. Availability of existing MOH personnel (MOs, LHVs, ANMs, CHVs) to provide health services required by new project and estimated number of additional staff; USAID budget for staff salaries (likely to be required) to meet any shortfall; and recruitment criteria.

N. Two-way referral system at village level between nutrition worker and health worker in villages covered by both workers.

O. Establishment of a system for the collection of infant and child morbidity and mortality data to measure achievement of project goals.

P. Implementation plan for health services component.

Q. Names of voluntary agencies or Indian institutions most qualified to provide technical assistance to health services component of the IMCN program.

R. Detailed budget for costs of health services component.

S. Evaluation system (both process and impact) for health services component.

T. Training methods.

AN ECONOMIC AND FINANCIAL ANALYSIS OF THE INTEGRATED MATERNAL AND CHILD NUTRITION PROJECT IN INDIA

A Report Prepared By:
MARTY MAKINEN

During The Period:
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ABBREVIATIONS

AIIMS	All-India Institute of Medical Sciences
ANM	Auxiliary Nurse-Midwife
AW	Anganwadi
AWW	Anganwadi Worker
BDO	Block Development Officer
CARE	Cooperative for American Relief to Everywhere
CDPO	Child Development Project Officer
CHV	Community Health Volunteer
DHO	District Health Officer
FLAW	Functional Literacy for Adult Women
GOG	Government of Gujarat
GOI	Government of India
GOM	Government of Maharashtra
GOUP	Government of Uttar Pradesh
ICDS	Integrated Child Development Services
LHV	Lady Health Visitor
MCH	Maternal and Child Health
MO	Medical Officer
MOH	Ministry of Health
MOSW	Ministry of Social Welfare
MS	Mukhyasevika, or Supervisor
MT	Metric Ton
NIPCCD	National Institute for Public Cooperation and Child Development

PHC	Primary Health Center
P&L	Pregnant Women and Lactating Mothers
POL	Petrol, Oil, and Lubricants
RTE	Ready-To-Eat Food
Rs.	Indian Rupees (Rs.1.0 = $0.125, $1.00 = Rs.8.0)
SN	Supplementary Nutrition Ration
SNP	Special Nutrition Program
TA/DA	Travel Allowance and Daily Allowance
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development

I. INTRODUCTION

The use of a targeted nutrition-supplementation program seems to be a relatively cost-effective way to achieve the goals of reduced malnutrition, morbidity, and mortality among young children in India. The low (less than 0.5) calorie-income elasticities found in India and elsewhere,[1] even among the poorest income groups, indicate that pure income transfers would be an expensive way to reach these goals. In a study by Kerala, it has been shown that food subsidies are much more effective (six to ten times better) in improving nutritional status than increases in household income.[2] However, subsidy programs can become a heavy fiscal burden, even when they are targeted only to low-income groups, as in Sri Lanka.[3] Hence, direct nutrition supplementation programs targeted to in-need groups are believed to give the greatest effectiveness at the least cost.

It is of economic and social importance that malnourishment of young children be controlled because "malnourishment of infants and pregnant as well as lactating mothers can have severe damaging and lasting ill effects on the physical and mental well-being and the productivity of future generations. . . ."[4] Thus, the allowance of young-child malnutrition would create a long-term drag on productivity. In addition, it would have pure utility-reducing effects.

The proposed nutrition "package" includes a number of elements that fit with the recommendations[5] for high cost-effectiveness.

- The nutrition supplement proposed is large enough to overcome any intra-family substitutions.

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[1] M. Selowsky, "The Economic Dimensions of Malnutrition in Young Children," World Bank Staff Working Paper No. 294, 1978, p. 29.

[2] S.K. Kumar, "Impact of Subsidized Rice on Food Consumption and Nutrition in Kerla," Research Report 5, International Food Policy Research Institute, 1979, p. 33.

[3] J.D. Gavan and I.S. Chandrasekera, "The Impact of Public Foodgrain Distribution on Food Consumption and Welfare in Sri Lanka," Research Report 13, Washington, D.C.: International Food Policy Research Institute, 1978.

[4] S. Reutlinger and M. Selowsky, "Undernutrition and Poverty," World Bank Staff Working Paper No. 202, 1975, p. 77.

[5] See especially Reutlinger and Selowsky, "Undernutrition and Poverty."

- The take-home food ration for severely malnourished children will be a special children's food, not easily consumable by adults.

- Similarly, the pregnancy food will be a special food for pregnant women, delivered by midwives (dais), not easily consumed by men.

- A complementary program of nutrition education for mothers is included so that better use can be made of the food resources that are on hand.

- Relatively expensive construction of feeding centers is avoided by using a take-home ration.

- The use of auxiliary nurse-midwives as supervisors for village-level workers ensures the integration of the health and nutrition sectors and increased output in both.

- Targeting to the most severe cases will lead to the greatest reduction in mortality per unit of spending, because death rates can be as much as eight to ten times higher among these persons than among those who normally are nourished.[6]

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[6] See A. Sommer and M.S. Lowenstein, "Nutritional Status and Mortality: A Prospective Validation of the QUAC Stick," International Journal of Clinical Nutrition, 28(March 1975):287-292; and A. Kielmann, "Weight-for-Age as an Index of Risk of Deaths in Children," The Lancet, June 10, 1978, pp. 1,247 ff.

II. A METHODOLOGY FOR MEASURING COST-EFFECTIVENESS

In this section, the author explains how an analysis of the cost-effectiveness of nutrition projects is undertaken under ideal circumstances. He then shows how a cost-effectiveness analysis of the Integrated Child Development Services (ICDS) model can be made using information that is available. In the analysis of the ICDS model, the ICDS is broken into separate components to show where costs may be saved or improvements in effectiveness realized. As a final step, the author presents a modified ICDS model which will improve on both the costs and effectiveness of the current ICDS.

It must be kept in mind that both parts of the cost-effectiveness analysis--the costs of the inputs and the effectiveness of the project in achieving its objectives--are equally important. A project that achieves the same objectives as another project, but at lower cost, is more cost-effective, as is one that better achieves the objective at the same cost. Of course, an alternative that can both lower costs and increase effectiveness is the best project available.

To do any analysis, one must have objectives with which to measure effectiveness. The analysis of nutrition projects should use reductions in malnutrition, morbidity, and mortality as standards. To determine the effectiveness of a given project in reaching its objectives, it is necessary to measure the rates of malnutrition, morbidity, and mortality before nutrition intervention, and then to follow the intervention in both the demonstration and a similar area which did not benefit from the project. This second area should act as a control on the influence of events, other than the nutrition intervention, on the objectives. The difference in rates of malnutrition, morbidity, and mortality between the project area and the control area can then be attributed to the project as a measure of its effectiveness.

Similar studies of effectiveness should be carried out for all possible project interventions or levels of intervention. The alternative interventions can then be compared on the basis of the achievement of objectives per dollar or rupee. That intervention which had the greatest impact at the lowest cost would be the preferred project to pursue.

A similar kind of analysis should be carried out for each component of a project which has many parts. Each part of the project should be tested for the impact it achieves per rupee spent. Components that have greater impact per rupee should be retained and given greater emphasis; those with less impact either should be discarded or given lesser emphasis.

The current ICDS scheme has been in operation for approximately five years--ample time over which the impact of such an effort may be shown. However, because of the way the scheme has been monitored, the right kind

of information has not been collected, and it is difficult to accurately judge the impact of the effort.

Consultants from the All-India Institute of Medical Sciences (AIIMS), of which Dr. B.N. Tandon is director, have done a fine job of collecting information about ICDS blocks and beneficiaries. The information gathered in the baseline survey and during the follow-up gives good pictures of what the blocks were like before the ICDS intervention and 21 months later. Casual scrutiny of these data would seem to indicate that the ICDS has been quite successful in achieving at least one of the objectives: reduction in malnutrition. The data show a reduction from more than 20 percent to less than 12 percent in severe (Grades III and IV) malnutrition in rural blocks, from more than 20 percent to less than 6 percent in tribal blocks, and from more than 20 percent to approximately 6 percent in urban blocks. Dr. Tandon's group has presented no data on the other two objectives: reduction in mortality and reduction in morbidity.

The AIIMS data would appear to indicate that the ICDS has been highly effective in achieving its objectives, especially because there is likely to be a high correlation between malnutrition reduction and decreased mortality and morbidity. However, a closer look at the data reveals that although they may be an indicator of the effectiveness of the scheme, they do not prove its effectiveness. The reasons for this are threefold: (1) there was no concurrent survey of similar, non-ICDS control areas; (2) the baseline and follow-up surveys were not conducted at the same time of year; and (3) cohorts of ICDS beneficiaries were not specifically followed between the baseline and the follow-up period.

In view of the failure to survey simultaneously the control areas and the ICDS areas, it is possible that some influence other than ICDS could have been responsible for the improvement in nutritional status. This would mean that nutritional improvements would have resulted whether or not the ICDS was in place. If, in control areas, the incidence of severe malnutrition had been shown to have remained constant, or had it been reduced to a lesser degree than incidence in the ICDS areas, the difference could have been attributed more convincingly to the ICDS intervention.

That the baseline survey was taken in August-October 1976 and the follow-up in May-August 1978 presents a second problem. It is possible that the reduction in malnutrition is attributable to the influence of seasons. The August-October (baseline) period may be a time of low food supplies, because it precedes the harvest, or a time of high incidence of disease, which would lower children's weights (weight-for-age was the standard used to evaluate nutritional status). In the same way, the May-August period may be a period of plentiful food, because it occurs after the harvest, or a period of low disease incidence. If these or other seasonal effects are present, the data that are collected may reflect,

wholly or in part, a normal seasonal pattern of nutrition-status fluctuation, with the ICDS having little impact.

By not following age cohorts from the baseline through the follow-up period, the surveys may also have given a misleading picture of the impact of the ICDS. The group sampled in the baseline is not the same group that was sampled in the follow-up because 21 months elapsed between the two. More than 58 percent of children 3-6 years in the baseline were not in the follow-up sample. A similar percentage of those 0-3 years moved into the 3-6 years group, and an additional 58 percent of newborns was added to the 0-3 years group. This means that the baseline and follow-up were not looking at the same groups of children; hence, the impact of ICDS on the former is difficult to ascertain. Moreover, there is no accounting for those children who died in the interval between the baseline and the follow-up study. Thus, if a large proportion of those who were found to be severely malnourished in the baseline died in the interim, the apparently successful "curing" of malnutrition would be spurious. Those who were not rehabilitated only dropped out of the sample because of death.

III. ECONOMIC AND FINANCIAL ANALYSIS OF SNP AND ICDS

The Special Nutrition Program: Costs and Cost-Effectiveness

A. SNP Costs

The current costs of the Special Nutrition Program (SNP) in the states of Uttar Pradesh, Gujarat, and Maharashtra are shown in Table 1. The total annual cost per beneficiary[1] ranges from Rs.133.18 (U.S.$16.65) to Rs.175.75 (U.S.$21.97).

1. Beneficiaries

The breakdowns of SNP costs (see Table 1) are found in the reports submitted by CARE state offices to CARE/Delhi. The information included under each of the rather vague headings of these reports is not clear and, it is doubtless, varies from state to state. In the following sections, the author attempts to break down the costs more precisely, using information collected during field interviews of CARE officials. It is difficult to correlate the figures calculated from the field interviews with the figures presented, by category, in Table 1. However, the food value and total figures in Table 1 are felt to be accurate representations of 300-day costs of the SNP, as are the more specific breakdowns from the field interviews.

More than one million preschool children and mothers are reported to benefit from the program: 48 percent are children in the 37-60 months age group, 44 percent are children less than 37 months old, and the remaining 8 percent are mothers.

2. Food

Food averages 82 percent of total cost, which ranges from 34 paise to 49 paise per beneficiary per day. CARE supplies food to all except the one state-supported SNP in Gujarat. The CARE food in Gujarat's urban SNP is processed, with added condiments, into a ready-to-eat (RTE) noodle. Bulgur wheat and soy bean oil (80 grams containing 300 calories and 7 grams of protein) constitute the standard ration elsewhere in

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[1] SNP costs have been standardized to a 300-day year to make them comparable to the ICDS, which operates for 300 days.

Table 1

SNP COSTS AND BENEFICIARIES IN UTTAR PRADESH, MAHARASHTRA, AND GUJARAT

	Uttar Pradesh	Maharashtra	Gujarat		
	Urban	Tribal/ Rural	Urban	Tribal/ Rural	State
Cost/ben/Year*(Rs.)					
Food Value	132.70	138.00	146.25	101.18	123.75
Service Cost	8.60	29.10	12.00	2.00	-
Health Costs	-	-	10.00	10.00	10.00
Management	19.00	5.73	7.50	7.50	1.50
TOTAL	160.30	172.83	175.75	133.18	135.25
	($20.40)	($21.60)	($21.97)	($16.65)	($16.91)
Beneficiaries					
Mothers	9,000	23,457	9,419	39,762	-
Children 0-36 Months	31,000	101,465	139,608	197,118	-
Children 37-60 Months	50,000	150,078	127,974	186,120	-
TOTAL	90,000	275,000	277,000	423,000	7,000
Areas Covered					
Districts	4	12	14	11	1
Blocks	4	68	22	92	1
Centers	900	1,954	1,750	3,600	63

* Standardized to a 300-day year, although SNP usually operates 240 days per year.

Sources: State office reports, CARE, and report on supplementary feeding programs, Government of Gujarat.

Gujarat. In Uttar Pradesh, the 80-gram ration is 55 percent bulgur wheat, 18 percent soy flour, 5 percent oil, 5 percent gram, and 17 percent jaggery. It provides 300 calories and 12 grams of protein.

3. Health

Gujarat makes an annual extra allocation, out of state funds, of Rs.10 per SNP beneficiary for medicines. The other states rely on the existing health network to meet the needs of the SNP beneficiaries. In Maharashtra, CARE[a] reports that the state government asked the district health officers (DHOs) to give priority to SNP beneficiaries and the district councils (zilla parishads) to make special contributions to SNP-area primary health centers (PHCs). Despite this, CARE concludes that "the health input component, though desired to be implemented by the government, is not specifically provided for, and, as such, the implementation of government instructions in this regard is very tardy." Similarly, in Uttar Pradesh, the CARE representative reported that, despite exhortations to provide health services to SNP beneficiaries in official communications, "health services are inadequate and irregular...."[b]

4. SNP Organizers

In Gujarat, rural and tribal SNP organizers are paid an honorarium of Rs.40 per month; in urban SNPs, they receive Rs.30. The organizers are asked to allocate Rs.10 of this sum for a helper. The total comes to Rs.4.09 per beneficiary per year, rural and tribal, and Rs.2.27 urban. In Uttar Pradesh, the SNP is operated by the Department of Education. School teachers are asked to take on extra responsibility as SNP organizers. For this, they earn an honorarium of Rs.20 per month; this, plus the Rs.10 per month for a helper, amounts to Rs.3.60 per beneficiary per year. In Maharashtra, SNP organizers are paid the standard Rs.30 per month, with Rs.10 allocated to the helper.

5. Administration and Transport of Food

Except in one state-supported district in Gujarat, the administration and transport of food is handled everywhere by CARE under contracts with the states. In Uttar Pradesh, CARE[c] spends 8-9 paise per ration (Rs.24-27 per beneficiary per year; 300-day year) on processing, transportation, administration, and added sugar. CARE/Gujarat has an annual administration budget of Rs.950,000,[d] which amounts to Rs.1.36 per beneficiary per year. It spends 2.5 paise for transport and is allocated 4 paise for contingencies per beneficiary per day. Over a

300-day year, these sums amount to Rs.7.50 for transportation and Rs.12.00 for contingencies per beneficiary.

No field interviews were conducted with CARE/Maharashtra officials because of a recent depletion of CARE staff for emergency relief work in Somalia. Thus, no specific breakdown of the costs of food administration and transport in Maharashtra may be given.

6. GOI and State Administration

At the national level, the SNP is overseen by a research officer and a senior investigator at the Ministry of Social Welfare (MOSW). Most of the administrative burden of the program has been decentralized to the state governments. The administrative setup in Delhi is illustrative of the state systems.(n) The director of social welfare oversees the program with the assistance of the joint director. Actual supervision of the program is handled by two special officers (nutrition) at the level of assistant director; each receives an annual salary of Rs.7,800-Rs.14,400. An inspector is allocated for every 10,000 beneficiaries, at an annual salary of Rs.5,100-Rs.7,680. Each inspector is provided with a motorcycle. Also allocated to the program are a clerk, a junior stenographer, a peon, and a driver. This administration costs approximately 3.5 paise per beneficiary per year.

7. Equipment

The amount of Rs.250 per SNP center has been allocated for the purchase of utensils and other equipment. One scale costing Rs.200 may be purchased for every eight urban SNP centers.

ICDS Costs

The currently budgeted costs, by major component, of one rural ICDS block (population: 100,000) and one tribal ICDS block (population: 35,000) are shown in Table 2. The total cost per beneficiary (Rs.131-Rs.145) is within the same range as the reported SNP costs above. The figures in the component breakdown were calculated from official budget allocations made by the Government of India's (GOI) Ministry of Social Welfare,(e,f,g)

Table 2

BUDGETED COSTS OF ICDS

	Rural Block (100,000 population)	Tribal Block (35,000 population)
Cost/ben/Year[1]		
Food Costs	Rs. 93.59	Rs. 84.92
Anganwadi Costs	31.11	23.28
Health Services	12.19	12.56
Social Welfare Management	7.83	10.41
TOTAL	Rs.144.72	Rs.131.16
	($18.09)	($16.40)
Beneficiaries/Block		
Mothers	2,800	1,835
Children 0-36 Months		
Supplementary	2,700	2,048
Therapeutic Ration	900	315
Children 37-60 Months		
Supplementary Ration	2,400	1,820
Therapeutic Ration	800	280
TOTAL	9,600	6,298
Area Covered		
Block	1	1
Centers	100	100
Cost/Block/Year*		
Food Costs	Rs. 898,480	Rs.534,852
Anganwadi Costs	298,700	146,600
Health Services	117,000	79,100
Social Welfare Management	75,152	65,546
TOTAL	Rs.1,389,332	Rs.826,071
	($173,691)	($103,259)

* Assumes a 300-day year.

1. Beneficiaries

The MOSW's estimate of the number of beneficiaries per ICDS block is given in Table 2. Based on MOSW estimates, the number of current ICDS beneficiaries in Uttar Pradesh, Gujarat, and Maharashtra is shown in Table 3. Included is an estimate of the current annual operating cost of ICDS blocks.

The actual number of ICDS beneficiaries per block differs from the planning figure shown.[1] Operating ICDS projects do not seem to be serving food to the percentages of the beneficiary groups used to make the budget projections.[h]

A comparison of the MOSW's assumptions to the proportion of young children and mothers who should be receiving supplementary nutrition (SN) under the ICDS, and to the proportion of those who are receiving SN, is found in surveys of ICDS blocks by the All-India Institute of Medical Sciences and is shown in Table 4. An estimate of the actual number of ICDS beneficiaries receiving SN, assuming the proportions found by the AIIMS consultants, is shown in Table 5.[2]

In rural blocks, 2,150 beneficiaries may be receiving SN above the number planned annually, whereas in tribal blocks some 1,517 fewer beneficiaries are fed than planned. The results of the comparison are as follows:

- Pregnant women and lactating mothers (P&L) are to be included on a family-income (less than Rs.330 per month[j]) basis or on the advice of an auxiliary nurse-midwife (ANM) or medical officer (MO).

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[1] It should be noted that the planning figure is just that, a planning figure. The MOSW recognizes that population characteristics vary from block to block and that, consequently, the number of beneficiaries, hence, the required allocations of food and personnel, vary, too.

[2] The MOSW tries to keep its ICDS projects within areas of (more or less) 100,000 population, covered less than a full block, if necessary. Population growth that is unaccounted for is not a problem in calculating ICDS costs project-by-project, but it must be kept in mind when calculating costs of ICDS coverage of a district (i.e., there may be more ICDS projects than blocks in a district).

Table 3

ESTIMATED CURRENT (1981) ICDS BENEFICIARIES IN UTTAR PRADESH, GUJARAT, AND MAHARASHTRA

	Uttar Pradesh	Gujarat	Maharashtra
Urban			
Blocks	6	2	4
Beneficiaries	57,600	19,200	38,400
Rural			
Blocks	13	4	4
Beneficiaries	124,800	38,400	38,400
Tribal			
Blocks	2	5	5
Beneficiaries	12,596	31,490	31,490
TOTAL			
Blocks	21	11	13
Beneficiaries	194,996	89,090	108,290
Estimated Annual Total Cost	Rs.28.0 mil.	Rs.12.5 mil.	Rs.15.2 mil.
	$3.5 mil.	$1.6 mil.	$1.9 mil.

Table 4

PLANNED VERSUS ACTUAL PERCENT OF GROUP RECEIVING ICDS SUPPLEMENTARY NUTRITION

	Percent Receiving SN		
	Actual	Planned	Difference
Rural Project			
Children 0-3 Years	40	40	0
Children 3-6 Years	73	40	+ 33
Pregnant and Lactating Women	33	40	- 7
Tribal Project			
Children 0-3 Years	53	75	- 22
Children 3-6 Years	72	75	- 3
Pregnant and Lactating Women	44	75	- 31

Table 5

PLANNED VS. ACTUAL ICDS BENEFICIARIES OF SUPPLEMENTARY NUTRITION (SN) PER PROJECT

	Receive SN		
	Actual	Planned	Difference
Rural Project			
Children 0-3 Years	3,600	3,600	0
Children 3-6 Years	5,840	3,200	+ 2,640
Pregnant and Lactating Women	2,310	2,800	- 490
TOTAL	11,750	9,600	+ 2,150
Tribal Project			
Children 0-3 Years	1,670	2,363	- 673
Children 3-6 Years	2,016	2,100	- 84
Pregnant and Lactating Women	1,078	1,838	- 760
TOTAL	4,764	6,301	- 1,517

- Children aged 0-6 years are to be given supplementary nutrition (SN) (a ration of 25 paise in value) if they are Grade II malnourished or below.[1]

- Those children who are Grade III and Grade IV malnourished are to be given therapeutic rations at a cost of 60 paise per ration.

- In addition, those Grade IV malnourished are to be referred for medical care, possibly hospitalization.

The nutritional status of children in ICDS areas was assessed in a baseline study and a follow-up survey (20 months later) by AIIMS consultants. This information, and block populations of 100,000 rural and 35,000 tribal, are used in Table 6 to compare actual numbers of beneficiaries with numbers in need, based on ICDS criteria for inclusion. The table shows that children 3-6 years are actually receiving SN in numbers exceeding those in need, while children 0-3 years and P&L are not receiving enough to cover those in need.

2. Food

The food in ICDS is paid for out of state government budgets under the Minimum Needs Program. The ICDS plan calls for an allocation of 25 paise per day for food rations to moderately malnourished children (Grade II) and P&L and an allocation of 60 paise per day for therapeutic rations for severely malnourished children (Grades III and IV).

Food is purchased locally, either at the block or village level, depending on local conditions. A block-level committee, made up of the ICDS child development project officer (CDPO), the block development officer (BDO), and a marketing inspector, sets policy on what may be bought for

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[1] The following definitions of grades of malnourishment are used; they are expressed as percentages of the mean Harvard standard:

Normal	≥	80%		
Grade I	≥	70%	<	80%
Grade II	≥	60%	<	70%
Grade III	≥	50%	<	60%
Grade IV	<	50%		

Table 6

ACTUAL COVERAGE VS. THOSE IN NEED IN ICDS AREAS

	Actually Receive SN (1)	In Need of SN (2)	Difference (1) - (2)
Rural Project			
Pregnant and Lactating Women	2,471	2,800[1]	- 329
Children 0-3 Years	3,600	4,185	- 585
Children 3-6 Years	5,840	2,656	+ 3,184
TOTAL	11,911	9,641	+ 2,270
Tribal Project			
Pregnant and Lactating Women	1,078	1,838[1]	- 760
Children 0-3 Years	1,670	1,922	- 252
Children 3-6 Years	2,016	1,210	+ 806
TOTAL	4,764	4,970	- 206

[1] The number of pregnant and lactating (P&L) women in need was not found by AIIMS surveys; the numbers shown are the planning figures for in-need P&L.

the ICDS ration. The block committee then responds to the requests of anganwadi workers (AWWs) for food allocations, based on the number of recorded beneficiaries, as needed. Where and when there are transportation difficulties, funds are given directly by the CDPO to the AWW for food purchases. In these cases, a village-level committee for food purchases is formed, including the AWW, the sarpanch or pradhan, a woman member of the panchayat, and sometimes the ANM assigned to the village.[1] The ANM makes fortnightly reports on food purchases to the CDPO; the CDPO makes monthly reports to the state government; the state governments make summary reports to send to the MOSW. This reporting procedure is reported to be working poorly.(k)

The philosophy of the ICDS has been to use only indigenous food,(l) a practice that has been upheld in the ordinary rations given in Uttar Pradesh[2] and Maharashtra. However, in Gujarat, ICDS food is supplied by CARE. This consists of ready-to-eat processed food made from U.S. P.L. 480 Title II food at the Amul Dairy in Anand. Also produced at Amul Dairy, and until recently from processed U.S. food, is the therapeutic food, balamul, which is used throughout India in the ICDS. Balamul was distributed nationally at a fixed price of Rs.3,000 per metric ton (MT) until December 1980, when it was raised to Rs.3,500 per MT. A single, 100-gram ration of balamul costs 35 paise, even with a free food input! The real cost, exclusive of processing, of a 100-gram ration of balamul--67.3 paise--can be broken down as follows:(m)

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[1] As will be seen below, there is one ANM for approximately every five villages under the ICDS scheme.

[2] It should be noted that for 10 of the 12 months of FY 1980-1981, this philosophy was honored in the breach, as it were, in Uttar Pradesh, for no food, no matter what the source, was made available to the ICDS because of budgetary wrangling by the Government of Uttar Pradesh (GOUP).

Item	Amount 100 Gm. Ration	Cost
Soy Fortified Flour	58.5 Gm.	Rs.0.223
Milk Powder	25.0 Gm.	Rs.0.123
Sugar	15.0 Gm.	Rs.0.105
Oil (drum price)	1.5 Gm.	Rs.0.012
Vitamins	-	Rs.0.028
Package	Plastic Pack	Rs.0.100
Transport	-	Rs.0.082
TOTAL	100.0 Gm.	Rs.0.673

3. Health

The ICDS scheme is organized and funded at the national level by the MOSW. Since the ICDS is intended to be an integrated approach to child development, and because health and health care are an important part of that development, the MOSW has allocated funds to upgrade the health sector in ICDS project areas. The items involved in this upgrading and their costs are given in Table 7. The health inputs include extra medical staff and equipment; a first-aid box for AWWs, and the help of outside "consultants" from local medical colleges. A monthly allowance of Rs.50, or a one-time lump-sum grant of Rs.3,000, is made for the housing of each additional ANM and lady health visitor (LHV). The cost of the health inputs per planned beneficiary is Rs.13.30 (U.S.$1.66) in rural projects and Rs.13.57 (U.S.$1.69) in tribal projects. These costs account for 8 percent and 9 percent, respectively, of the total ICDS costs.

One AIIMS consultant is assigned to each ICDS project with the following annual budget:[9]

Honorarium to Consultant	Rs. 3,000
TA/DA	5,500
Clerical Assistance	500
Contingencies	1,000
TOTAL	Rs.10,000

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Table 7

ANNUAL HEALTH COMPONENT COST OF ICDS

Item	Cost (Rs.) Per Block Rural	Tribal
Strengthening of Staff in PHC/Subcenters		
MO	12,000(1)	12,000(1)
LHV and Public Health Nurse	10,000(2)	10,000(2)
ANM	28,800(8)	14,400(4)
Part-time Attendant and Contingencies for ANM	7,200(8)	3,600(4)
AIIMS Consultant	10,000	10,000
TOTAL, Staff	68,000	50,000
Other Recurring Expenses		
Medicines	22,500	8,500
POL*	6,500	6,500
Rent	6,000	3,600
Publicity Allowance	1,000	1,000
Total, Other Recurring	36,000	19,600
Other Non-Recurring Expenses		
First-Aid Box for AWWs	3,000 (100)	1,500 (50)
Furniture	2,500	3,000
Refrigerator	5,000	5,000
Total, Other Non-Recurring	13,000	9,500
Total, Recurring	107,000	69,600
TOTAL	117,000	79,100
	($14,625)	($9,888)
Cost Per Beneficiary**	13.30 ($1.66)	13.57 ($1.69)

* Petrol, oil, and lubricants.

** Amortizing non-recurring costs over seven years; assuming planned number of beneficiaries.

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This money is to be used to conduct annual evaluation surveys of ICDS areas and for visits to ICDS projects for training and consultation with personnel.

4. Anganwadis

The annual costs per project of maintaining and staffing the anganwadis (AWs) are shown in Table 8. The largest single item is the anganwadi workers' honoraria. The AWWs' and helpers' honoraria account for 72 percent of AW costs and 16 percent of rural and 13 percent of tribal total project costs.

The rent allowance, as shown, is an allocation of Rs.25 per AW per month. As an alternative, a single lump-sum of Rs.1,500, equal to five years' rent, may be taken to help finance construction of an AW.(P) When the community where the AW is to be located is capable of contributing an existing structure or is willing to construct a building, no allocation of funds is made for rent or construction. Field observations reveal a mixture of AW-location patterns; in many cases, the AW was a structure donated by a wealthy member of the community, or the sarpanch; in others, rent was paid for an AW; and in yet others (e.g., in Gujarat), AW buildings were constructed in a joint Government of Gujarat (GOG)-CARE arrangement. The latter buildings were deluxe (pucca), with a deluxe price tag, viz., Rs.15,000.

A structure of some kind is needed for the AW. The structure may, for example, be used as:

--a site for preschool education;

--a site for cooking and feeding SN:

--a home for the AWW (and spouse);

--a place to store food;

--a place to store records and materials; and

--a site for monthly weighings.

In addition to the first-aid box, which is considered to be a health input, the AWWs are given general equipment such as mats, tables, registers, and cards; kitchen utensils, bathroom equipment; a scale for weighing children; and indoor play equipment. The health cards and scales have been

Table 8

ANNUAL ANGANWADI COSTS OF ICDS

Item	Cost (Rs.) Per Block Rural	Tribal
Anganwadi Workers[1]	156,500	75,500
FLAW[2]	30,000	15,000
Helpers	60,000	30,000
Contingencies	15,000	7,500
Rent Allowance	30,000	15,000
Equipment[3]	7,200	3,600
Cost Per Beneficiary[4]	33.94 ($4.24)	25.39 ($3.17)
TOTAL	Rs.298,700 ($37,338)	Rs.146,600 ($18,325)

1 Honorarium (a) Rs.175/month for matriculates and Rs.125 for non-matriculates; 100 workers in rural blocks, 50 in tribal; assume 50 percent matriculates.

2 FLAW - Functional Literacy for Adult Women, taught by approximately 50 percent of the AWWs for an honorarium of Rs.50/month.

3 Amortized over 10 years.

4 Assuming planned number of beneficiaries.

provided free of charge by the United Nations Children's Fund (UNICEF). The cost to UNICEF is estimated to be Rs.250 for the scales and Rs.1 for cards. There should be 17,000 children 0-6 in each rural project area and 5,950 in each tribal project. To account for births, deaths, passage of children to above six years of age, and migration, approximately one-fourth of this number of cards, or 4,250 per rural and 1,488 per tribal project, is needed. The annual costs would be Rs.4,250 per rural and Rs.1,488 per tribal project. All the other equipment comes to Rs.750 per AW.

Total AW costs make up 21 percent of rural project costs and 18 percent of tribal project costs.

5. Social Welfare Management

The social welfare management costs are the costs of the non-health personnel who are put in place for ICDS at the block level and below and their equipment. These costs are shown in Table 9. In each block, there is a child development project officer (CDPO) who oversees the ICDS operations (100 AWs rural, 50 AWs tribal). Each CDPO is equipped with a jeep, allowance for petrol, oil, and lubricants (POL), a driver, and supporting staff. Under the CDPO are mukyasevikas (supervisors)--five per rural project and three per tribal project. Each mukyasevika has about 20 AWWs to supervise. The cost of this social welfare management setup makes up 5 percent of rural and 8 percent of tribal total project costs.

Table 9

ANNUAL SOCIAL WELFARE MANAGEMENT COSTS OF ICDS

Item	Cost (Rs.) Per Block Rural	Tribal
Staff		
CDPO	10,000	10,000
Assistant	3,000	3,000
Mukyasevika	24,000 (5)	14,400 (3)
Clerk/Typist	3,000	3,000
Driver	3,000	3,000
Peon	2,500	2,500
TOTAL, Staff	45,500	35,900
Other Expenses (Recurring)		
POL	18,500	18,500
Block Contingencies	4,000	4,000
TOTAL, Other Recurring Expenses	22,500	22,500
Non-Recurring Expenses		
Jeep	50,000	50,000
Furniture at the Block	2,500	2,500
TOTAL*	Rs.75,500	Rs.65,900
	($9,438)	($8,238)
Cost* Per Beneficiary	Rs.7.86 ($0.98)	Rs.10.46 ($1.31)

* Amortizing Jeep cost over seven years.

IV. THE IMPLICATIONS OF RECURRING COSTS FOR THE GOI

The capability of the GOI to bear the recurring costs of the USAID-ICDS will be examined in three ways: (1) the USAID-ICDS costs relative to GOI-ICDS spending; (2) spending of USAID-ICDS relative to total MOSW spending; and (3) the phased-in turnover of the recurring costs of USAID-ICDS.

A. GOI-ICDS Spending

The GOI plans to spend $9.6 million on 300 ICDS blocks in 1981-1982.[1] This amounts to $31,960 per block. The author's estimates show that the annual recurring non-food cost of ICDS averages $50,051, or $39,218 if ICDS is operated in upgraded health districts (avoiding $10,833 in ICDS expenses per block to upgrade the health system). The reason for this discrepancy is not clear. The author's calculations of ICDS recurring costs include allowances for an AIIMS consultant and purchase of growth charts; these costs are not included in official ICDS cost estimates,[2] but, even excluding these allowances (including only the official estimate), the recurring cost per block is $35,843. The official cost per block will be used in the following analysis, but it should be remembered that the official allocation per block for 1981-1982 seems to be inadequate.

The recurring non-food cost per USAID-ICDS block is expected to be $26,580. The USAID-ICDS blocks are all expected to be located in upgraded health districts. The total annual recurring cost of the 365 USAID-ICDS blocks in operation by 1987 will be $9.7 million, which is approximately what the GOI says it will spend on 300 blocks in 1981-1982.

The GOI expects to have 530[3] centrally-supported ICDS blocks in operation by the end of the Sixth Five-Year Plan. At the official GOI cost per block ($31,960), the total annual spending on ICDS will amount

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[1] Government of India, "Demands for Grants of Ministry of Social Welfare 1981-82," New Delhi.

[2] Department of Social Welfare, Integrated Child Development Services Scheme, Ministry of Education and Social Welfare, Government of India, New Delhi, 1978.

[3] They expect to reach 600 ICDS blocks by the end of the plan (530 centrally-supported, 70 state-supported).

to $16.9 million. The USAID-ICDS blocks represent a 57 percent increase in ICDS spending for a 69 percent increase in the number of blocks covered.

B. MOSW Spending

The Ministry of Social Welfare spent $76.0 million in 1980-1981, and it has been budgeted $60.7 million for 1981-1982. Expenditures on ICDS make up 16 percent of the 1981-1982 budget. The annual cost of the 365 USAID-ICDS blocks adds another 16 percent to the MOSW budget. If the MOSW reaches its goal of adding 230 more ICDS blocks by 1985-1986, and if it accepts the USAID-ICDS blocks, a 28 percent increase in MOSW spending will be necessary. Holding MOSW spending on all activities, other than ICDS, constant at 1981-1982 levels, ICDS spending would rise to 25 percent of the total budget by 1985-1986 with the planned expansion to 530 blocks. The USAID-ICDS blocks would bring the total to 895 blocks by 1986-1987 and the cost to 34 percent of the MOSW budget.

C. Turnover of Recurring Costs

The gradual turnover of the recurring non-food costs of the USAID-ICDS blocks to the GOI is shown in Table 10. It is assumed that for two years the USAID would pay the recurring costs of the blocks it helped to establish before it turned them over to the GOI. The GOI would have to assume all recurring costs beginning in 1987-1988. This turnover, plus the planned expansion of ICDS, would require an annual average increase of 17 percent in GOI spending on ICDS. The $11.8 million which the GOI would expend during the life of the USAID project (1982-1987) would amount to 26 percent of non-food project costs; hence, it would cover the GOI's matching obligation.

Table 10

PHASEOVER OF ICDS RECURRING COSTS TO GOI

Year	Blocks Covered			Recurring Non-Food Costs ($ million)		
	GOI	USAID	Total	GOI*	USAID*	Total
1981-1982	300	0	300	9.6	0.0	9.6
1982-1983	358	73	431	11.4	2.0	13.4
1983-1984	415	146	561	13.3	3.9	17.2
1984-1985	473	219	692	17.1	3.9	21.0
1985-1986	530	292	822	20.9	3.9	24.8
1986-1987	(530)	365	(895)	22.8	4.0	26.8
1987-1988	(530)	365	(895)	26.8	0.0	26.8

* Assumes recurring costs of USAID blocks are turned over to GOI after two years of operation.

Note: Numbers in parentheses are based on the assumption that GOI will add no new blocks after 1985-1986.

The GOI contribution to USAID-ICDS during the life of the USAID project (1982-1987) is $11.8 million, or 26 percent of non-food costs.

V. A PLAN FOR ACCELERATED PHASE-IN OF USAID-ICDS

A plan for the accelerated phasing-in of USAID-ICDS blocks is shown in Table 11. Here, acceleration means the initiation of a larger number of blocks in each year of the project. No blocks would be started during the first year, 1982; at that time, only preparatory work and training would be done. In the second year, 1983, 50 blocks would be started; and in the final year, 1987, 151 blocks would be started and 504 would be operating.

This plan calls for the conversion, by 1987, of nearly all the food now used in the CARE maternal and child health (MCH) program (see Figure 1) to the ICDS. The ICDS would use the food freed by the planned 50 percent reduction in CARE school feeding programs in the next five years. In 1987, the ICDS would be feeding 2.5 million beneficiaries and would be protecting 7.1 million children 0-6 years old.[1] The $57.6 million spent on ICDS food, if spent, as now, on CARE MCH, would feed 6.6 million children, some of whom would not be in need, and those in need would receive a ration inadequate to ensure their recovery.

This accelerated plan would leave the GOI with a larger burden of recurring costs than would a plan that adds a constant number of blocks per year (see Table 12). The accelerated plan allows for the establishment of 504 blocks by the end of the project, and not the 365 that would be created under a similar-cost, constant-addition alternative. Thus, end-of-project annual recurring costs would be $13.5 million, and not $9.9 million. At the same time, 1,034 blocks, and not 895, would be operating in India. Total GOI-ICDS recurring costs in 1987-1988 would rise from $26.8 million under the constant-addition plan to $30.5 under the accelerated plan. The GOI contribution of $10.9 million for assumed recurring costs during the life of the USAID project (1982-1987) is 26 percent of total project non-food costs. The USAID cost during the life of the project would be $143.9 million in food and $30.9 million in dollar funds. A grant of $2.5 million to CARE would bring the USAID dollar commitment to $33.4 million.

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[1] There will be approximately 7.1 million children 0-6 years in the 504 blocks, only 2.5 million of whom will be in need of the supplementary food ration. The others will benefit from the health referral services, the periodic growth-monitoring, and the potential protection (if needed) of the supplementary food. Those in need will be fed a ration sufficiently large to make probable their recovery to normal nourishment.

Table 11

LOP COSTS OF COMBINED USAID-ICDS PROJECTS
(In $000s)

	1982	1983	1984	1985	1986	1987	LOP
Food Value	0	5,710	14,390	25,925	40,315	57,560	143,900
Blocks	0	50	126	227	353	504	504
Recurring Costs	27	1,376	3,421	6,132	9,481	13,494	30,931
Non-Recurring Costs	1,321	2,165	2,944	3,538	3,922	3,086	8,329
TOTAL, Non-Food	1,348	3,541	6,365	9,670	13,403	16,580	39,260
5 Percent Contingency	67	177	318	484	670	829	1,963
25 Percent GOI	354	1,062	1,910	2,901	4,021	4,974	10,306
75 Percent USAID	1,062	3,187	5,729	8,703	12,063	14,922	30,917

Figure 1

PHASEOVER OF CARE FOOD
TO USAID-ICDS

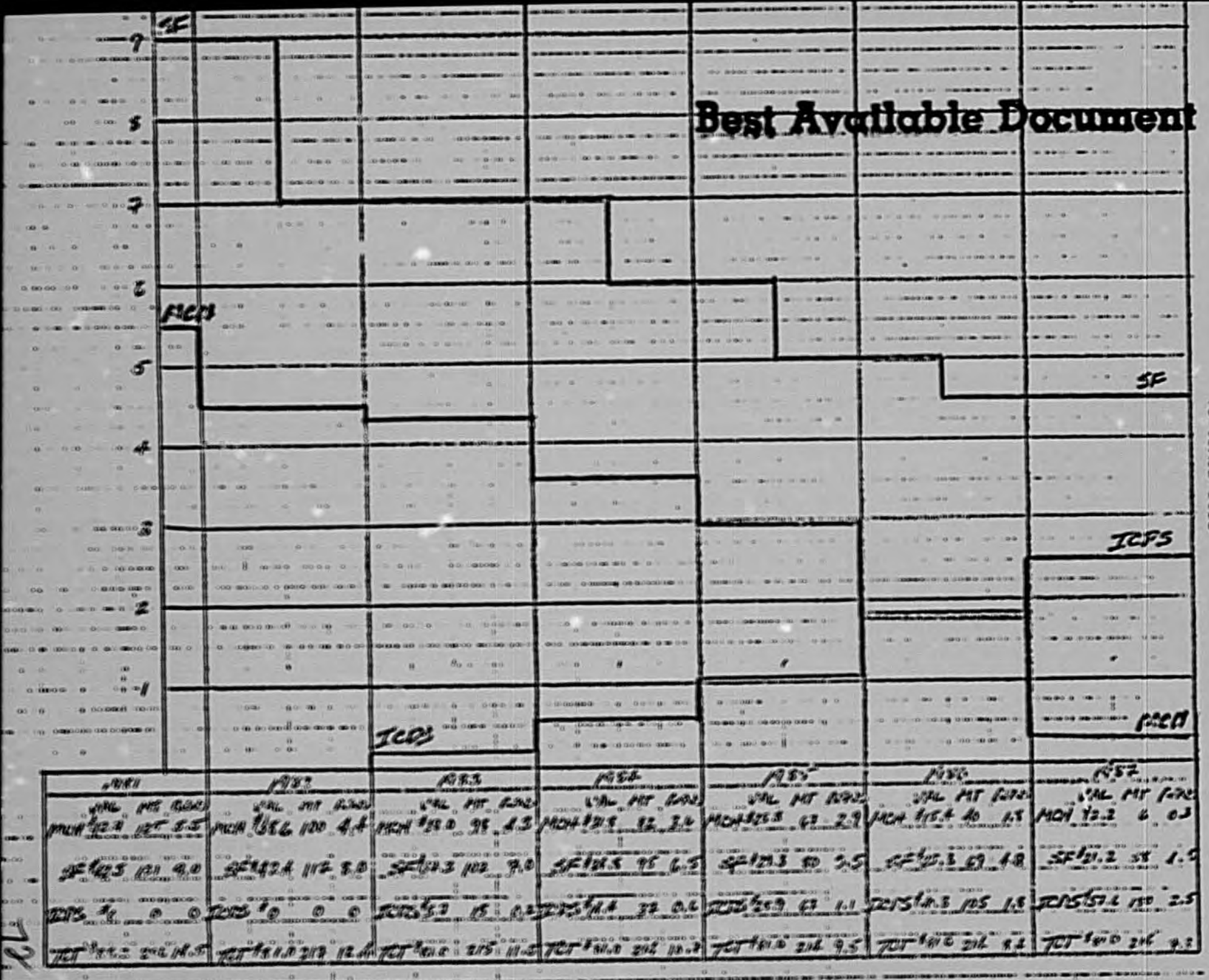

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Table 12

PHASEOVER OF ICDS RECURRING COSTS TO GOI
WITH ACCELERATING IMPLEMENTATION

	Blocks Covered			Recurring Non-Food Costs ($ Million)			
Year	GOI	USAID	Total	GOI	Additional GOI*	USAID	Total
1981-1982	300	0	300	9.6	0.0	0.0	9.6
1982-1983	358	50	408	11.4	0.0	1.4	12.8
1983-1984	415	126	541	13.3	0.0	3.4	16.7
1984-1985	473	227	700	15.1	1.4	4.7	21.2
1985-1986	530	353	883	17.0	3.4	6.0	26.4
1986-1987	(530)	504	(1034)	(17.0)	6.1	7.4	(30.5)
1987-1988	(530)	504	(1034)	(17.0)	13.5	0.0	(30.5)

* Recurring costs of USAID blocks are turned over to the GOI after two years; in 1987-1988, the GOI would assume all recurring costs.

Note: The numbers in parentheses are based on the assumption that GOI will add no new blocks after 1985-1986.

NOTES

[a] See B.S. Rahi's report on non-food components in preschool programs, CARE-Maharashtra, March 11, 1981.

[b] See R.C. Mahajan's report on the AID-appraised team, CARE-Uttar Pradesh, February 27, 1981.

[c] Personal communication with R.C. Mahajan, CARE-Uttar-Pradesh, April 2, 1981.

[d] Personal communication with R.C. Mahajan, CARE-Gujarat, April 6, 1981.

[e] See "Integrated Child Development Services Scheme," Department of Social Welfare, Ministry of Education and Social Welfare, Government of India, New Delhi, 1978.

[f] See "Compilation of Guidelines and Instructions Issued up to June 1979 Regarding the Schemes of Integrated Child Development Services and Functional Literacy for Adult Women," Ministry of Social Welfare (MOSW), Government of India, New Delhi, 1979.

[g] Personal communication with Dr. B.N. Tandon, All-India Institute of Medical Sciences (AIIMS), March 27, 1981.

[h] See "Evaluation of the Delivery of Nutrition and Health Services and the Effect on the Nutritional Status of the Children," Biostatistics Division and Human Nutrition Unit, AIIMS, New Delhi, 1980 (mimeo).

[j] "Compilation of Guidelines," MOSW, 1979, p. 105.

[k] Personal Communication with L.D. Trikha, MOSW, April 2, 1981

[l] See, for example, "Compilation of Guidelines," MOSW, 1979, p. 101.

[m] CSM and milk powder costs are calculated from the P.L. 480 price list (USAID, December 1980) and actual bills of lading for transportation charges from the United States to India. Other costs were provided in a personal communication by Kailash Vyas, Amul Dairy, April 6, 1981.

[n] See "Special Nutrition Programme in Delhi -- A de novo Evaluation Study," NIPCCD, New Delhi, 1979.

[p] "Compilation of Guidelines," MOSW, 1979, pp. 141-142.

[q] "Compilation of Guidelines," MOSW, 1979, p. 207.