

**ANE/TR/HPN
OFFICE OF TECHNICAL RESOURCES
BUREAU FOR ASIA AND THE NEAR EAST
AGENCY FOR INTERNATIONAL DEVELOPMENT**

**BACKGROUND PAPER
ON NUTRITION ISSUES IN ANE REGION:
CONSTRAINTS AND OPPORTUNITIES**

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BACKGROUND PAPER ON NUTRITION ISSUES IN THE ANE REGION: CONSTRAINTS AND OPPORTUNITIES

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STRATEGIC OVERVIEW

The Strategic Overview summarizes the points made in the "Background Paper on Nutrition Issues in the ANE Region: Constraints and Opportunities" which is attached. The overview briefly addresses three major topics - background of the nutrition situation in the ANE Region and why it is important but difficult to address; A.I.D.'s options; recommended A.I.D priorities for nutrition-related interventions and research/studies in the region during the 1990s.

A. ANE REGION NUTRITION BACKGROUND

- Great cultural, political and economic diversity exists among countries of the region, ranging from the more developed Middle Eastern/North African countries to the Southeast Asian countries which have recently begun their economic takeoff to the least developed and predominately poor Subcontinent with a population of over 1.1 billion. The nature and magnitude of the nutrition problems varies; therefore, program emphases must vary by sub-region.
- Two types of malnutrition can be identified:
 - poverty/not enough food at the household level attributable mainly to purchasing power; this is the over-riding constraint to nutrition improvement in the Subcontinent and parts of Southeast Asia.
 - improper feeding/nutrition practices - widespread throughout all subregions though nature of problem varies.
- Malnutrition cannot be separated from the influences of frequent infections and high fertility.
- Prevalence of malnutrition among under five population is greatest in the ANE Region in both absolute and relative terms:
 - Protein-Calorie Malnutrition:
 - 54% of under five children malnourished in Asia (vs. 26% in Africa and 18% in Latin America);
 - 115 million under five children in Asia malnourished (vs. 22 million in Africa and 9 million in Latin America);
 - acute malnutrition (wasting) in Asia over 40% higher than Africa at ages one and two and almost 90% higher at age three; within ANE region, largest number and concentration is in South Asia subregion; and
 - growth failure peaks in 12-24 month age group; two most vulnerable periods when malnutrition begins or has maximum impact are: in utero due to maternal malnutrition and at around six months due to improper weaning.
 - Micro-Nutrient Deficiencies:
 - prevalence of vitamin A deficiencies also greatest in ANE region, especially in the Subcontinent; and
 - prevalence of anemia among pregnant women - 65% in South Asia (higher than Africa) and more than twice the number in all Africa.
- Despite rapid economic growth, increases in agricultural production and calories per capita, the prevalence of malnutrition in the ANE region remained constant over the last several decades and the absolute number of malnourished increased.
- Increased urbanization and participation in market economies are gradually changing the nature of nutrition problems and, simultaneously, the opportunities to intervene and improve nutritional status.
- Reasons to be Concerned
 - **Productivity** - malnutrition negatively impacts school performance, human potential, workforce performance.

- **Cost** - malnutrition results in increased infection and disability, thus increasing health and social service expenditures while decreasing effectiveness of education and training investments.
- **Health/Child Survival** activities are less effective unless nutrition aspect is addressed adequately and malnutrition reduced and prevented.
- Declining and inequitable access to food leads to political instability (in both urban and rural areas) which can force inefficient, cost-ineffective and budget-draining subsidies.

● Limiting Factors

- Limited and diminishing A.I.D. resources available for nutrition programming.
- Reduced personnel with nutrition capabilities available in A.I.D.
- Misconceptions about nutrition programs:
 - o Perceived as a poverty "disease" which is impossibly complex and difficult to impact;
 - o Dependent on food assistance and viewed as welfare;
 - o Seen as requiring political solution ("revolution syndrome"), thus donor agency involvement not practicable and intervention(s) palliative;
 - o Lack of awareness of cost-effectiveness of investments to improve nutrition in national development terms (still viewed as "consumption" expenditure rather than "production" investment);
 - o Limited ability of public sector to implement community-based interventions effectively.

B. OPTIONS FOR A.I.D.

● A.I.D.'s options can be reduced to three:

- HEALTH - emphasize nutrition activities as essential part of health/Child Survival projects.
- HEALTH PLUS FOOD SECURITY - in order not to undermine progress in the health and Child Survival, support policy and program initiatives (macro-economic and agricultural policies, micro-economic/income generation, household food security monitoring and analysis) aimed at broadening economic access to food.
- DO NOTHING - continue with very low level of investment in nutrition with little expectation of any significant impact on the problem.

● Considering A.I.D. budget/personnel constraints, nutrition activities must establish priorities and focus limited resources on a limited number of proven, cost-effective approaches.

● Nutrition-promoting interventions with proven payoffs and benefits to the most vulnerable members of society should be emphasized:

- Targeted nutrition education messages (utilizing marketing communications techniques) to improve such priority practices as young child feeding (breastfeeding and weaning) and dietary intake during pregnancy.
- Product fortification with vitamins and minerals (especially vitamin A and iron);
- Development and promotion of low cost, labor-saving weaning foods utilizing local commodities and private/agribusiness sector (especially in urban areas);

- Support of research on and document successes in such topics as improving workforce productivity through nutritional interventions, low birth weight reduction, improvements in adolescent female nutritional status;
- Monitoring and improvement of household food security through policy and programs in agriculture and small-scale urban and rural enterprises.

● **Three-part Nutrition Strategy for ANE Region would include:**

- Contribute to improving economic and social development performance by promoting preventive nutrition interventions that assist countries to: foster nutrition practices and lifestyles which will help reduce future social costs while improving the present quality of life for the priority target groups which are the poorest and most disenfranchised members of society.
- Promote the use of existing resources (health, agriculture/rural development, other related sectors, and the private sector) to maximize complementary impact on resolving underlying nutrition problems;
- Continue to examine relationships between nutritional status and other development factors so as to identify additional cost-effective opportunities to reduce malnutrition and its impact on the most vulnerable segments of society currently and in the future.

C. ANE REGION PRIORITIES

● **Interventions** - support what has already been shown to have an impact at low cost:

- **Improving young child feeding practices** - utilizing marketing communications strategy, changing hospital practices, and where appropriate, developing and promoting of low-cost, energy-saving private weaning food efforts;
- **Micro-nutrient programming** - especially vitamin A and iron fortification and supplementation supported by nutrition communications;
- **Upgrading of nutrition curricula and provision of nutrition training** for physicians and paramedicals and support of in-service nutrition training for health workers having contact with the priority target populations;
- **Strengthening capabilities in household food security analysis** through education and training of agricultural and macro-economists involved in development policy making.

● **Research/Studies** - support the investigation of the most important nutrition-related questions which require more data before interventions can be launched:

- Research to develop effective interventions to **improve the nutritional status of young women and women of child bearing age** so as to decrease incidence of LBW infants, IMRs and maternal mortality rates (especially in the subcontinent) and improve productivity in women and work force;
- Research to identify most effective interventions to reduce anemia, especially among child-bearing age women, through supplementation and/or improved absorption of iron;
- Operations research to determine how the **private sector** can most effectively complement and strengthen public sector efforts to improve nutritional status among the target populations;
- Analysis to identify linkages between macro-economic and sector policies and household food security on worker productivity.

- **Other Activities** - should be supported as resources are available and needs are identified in specific county settings:
 - Agribusiness and private sector promotion to improve the quality and quantity of food supplies and expand employment opportunities;
 - P.L-480 food aid program support - design, strengthening, evaluation of nutrition aspect, especially targeting;
 - Nutrition services for primary school aged children including food and vitaminA/iron supplements and nutrition education;
 - Operations Research to improve the performance of nutrition efforts, including such areas as:
 - o nutrition education,
 - o growth monitoring/promotion programs,
 - o inclusion of nutrition element in oral rehydration programs,
 - o efficacy of interventions to reduce early growth faltering,
 - o seasonal/ongoing household resource/time constraints women face and practical approaches to infant feeding,
 - o most effective ways to target nutrition benefits to the most needy,
 - o effectiveness of involving private sector in the delivery of nutrition-related services (especially at the community level),
 - o ways to increase participation and access by women to nutrition/health services.

PREFACE

Nutritional well-being is a critical input to economic growth and an important indicator of the success of development strategies. Since it is not a sector in its own right, components dealing with nutrition issues must be built into other sectoral activities. Dramatic changes occurring in countries of the ANE region over the past two decades in food and agriculture production, evolution of rural economies, health services and demographic patterns, and the role of women have affected nutrition. The ANE Bureau is developing strategies in health/population and agriculture/rural development to set new directions in the next decade. It is therefore timely to review the current status of nutrition activities in the region and develop a strategy relevant to conditions in the 1990s.

The diversity found in nutrition and related conditions across countries in the region, calls for a strategy that fosters flexibility and country specific articulation. This paper suggests guidelines for making resource allocation decisions based on country conditions, new knowledge in nutrition programming, and the Agency's role in nutrition and related sectors.

This paper is a supplement to the Draft ANE/TR/HPN Strategy entitled "Better Health for Families Through Public-Private Cooperation", January 1990. It should be supplemented with the following documents for a more complete view of food and nutrition issues as they relate to A.I.D. programs in Asia and Near East.

- o Meeting The Challenge: A Food Systems Strategy for Growth in the 1990s. ANE/TR/ARD. November, 1989.
- o Infant Feeding Practices and Trends: Selected Asia/Near East Countries. Naomi Baumslag and Pamela Putney. May, 1989.
- o The Prevention and Control of Vitamin A Deficiency: Background Paper for ANE/TR/HPN. Tina G. Sanghvi, Susan Pettiss, Diane Hedgecock and Gayle Gibbons. August, 1988.

I. RATIONALE FOR INVESTING IN NUTRITION

Studies in the past two decades have shown that malnutrition impairs the quality of human resources and productivity. Reductions in infant and young child mortality will likely not be sustained without nutritional improvement. Also, the lack of access to adequate food by all segments of the population could be an important destabilizing factor.

A. Productivity

Nutritional status affects productivity, the realization of human potential and national development in several ways, including:

- malnutrition during fetal development and early childhood, and resulting growth failure, is associated with impaired function and leads to wastage in educational, employment and health resources (Calloway et al, 1989; Selowsky, 1981; Selowsky and Taylor, 1973);
- a malnourished child is less capable of fending off the common diseases of childhood leading to greater morbidity, high death rates, and lost resources (Kielmann & McCord, 1978; Chen et al, 1980; Black, 1984);
- an undernourished or anemic adult worker experiences more diseases and has a lower capacity to work (Basta et al, 1979; Popkin, 1978);
- severe anemia in children is causally related to behavioral impairment (Fairchild and Haas, 1989);
- vitamin A deficiency causes irreversible blindness and loss in productivity, in addition to possibly affecting childhood morbidity and mortality (West and Sommers, 1987; Underwood, 1989).

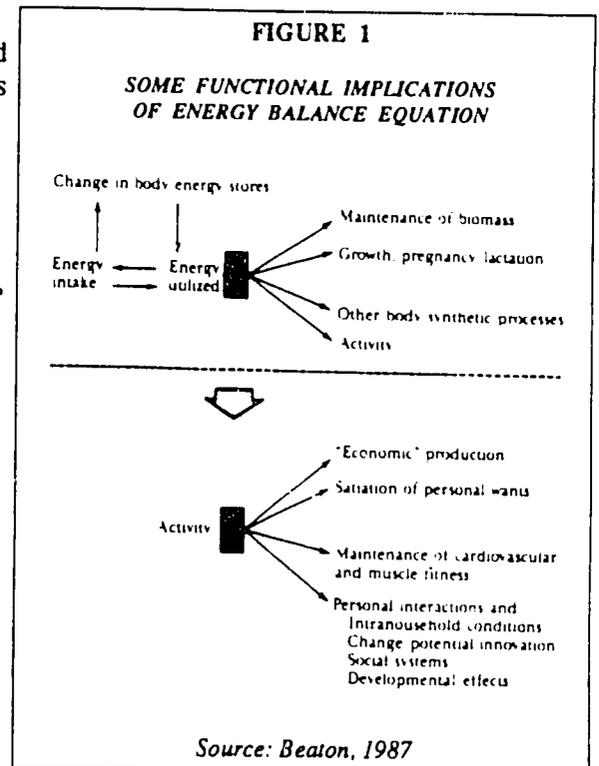


Figure 1 shows the linkages between energy intake, anthropometry, functional capacity and developmental effects.

B. Interaction with Infection and Child Survival - Malnutrition and infection are interrelated, with one exacerbating the other. This negative synergy results in the afflicted children becoming victim to the "downward spiral" of infection, growth failure and death (Scrimshaw et al, 1968; Puffer and Serrano, 1973). Several components of child mortality are unlikely to be reduced significantly in the near future without nutritional improvement: a substantial proportion of neonatal mortality, mortality due to ARI, and over half the diarrheal disease mortality (Chen et al, 1978; Kielmann and McCord, 1981).

As demonstrated in figure 2, the probability of death is expected to nearly double with each 10% drop in weight-for-age below the 80% level. Mortality for Acute Respiratory Infection (ARI) increases with severe malnutrition. Philippines data (figure 3) show that a severely malnourished child is almost 13 times more likely to die than children of normal nutritional status.

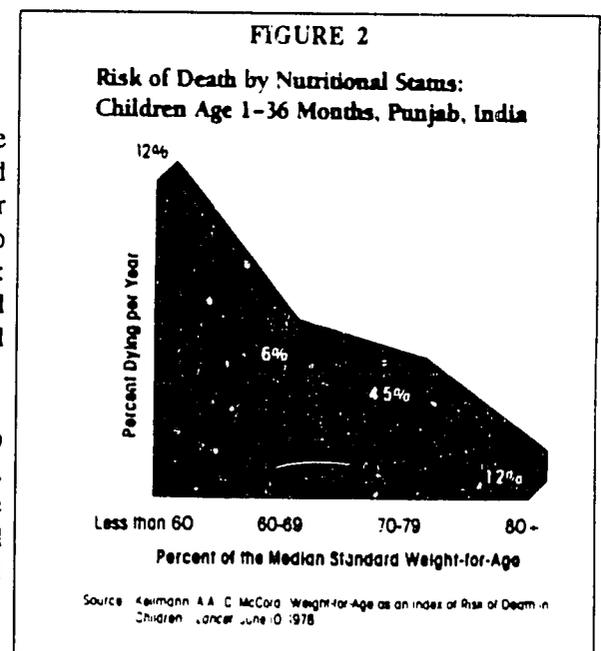


TABLE I
Effects of Breastfeeding on Fertility

Country (year of World Fertility Survey)	Mean duration of breast - feeding (months)	Mean duration of lactational amenorrhoea (months)	Current use of contra- ceptives (%)	Projected use of contraception to maintain current birth rates (%)
Bangladesh (1976)	30.5	21.7	9	52
Indonesia (1976)	25.4	18.1	26	57
Pakistan (1975)	21.4	14.7	5	39
Thailand (1975)	20.4	13.9	33	56
Philippines (1978)	16.1	10.2	36	52

Source: NRC/WHO, 1983

Specific nutrient deficiencies also have severe consequences. For example, in a recent study in Indonesia, children with ocular symptoms of vitamin A deficiency experienced twice the rate of ARI and four times the death rate of children without these symptoms (figure 4). Subclinical vitamin A deficiency has also been shown to increase morbidity rates significantly (West and Sommers, 1987).

Neonatal mortality comprises a large proportion of child mortality with maternal malnutrition (energy, iron and folate deficits) and low birth weight, as predisposing factors (Puffer, 1987; Kennedy and Alderman, 1987; Anderson, 1989).

Every year nutritional deficiencies are responsible for substantial dollar losses from reduced worker productivity, slowed development, reduced benefit from education, health-related costs (facilities, medicines, personnel) and human wastage.

C. Infant Feeding and Fertility - Suppression of ovulation associated with amenorrhea results from exclusive breastfeeding and represents an important child spacing mechanism in ANE countries (NRC/WHO, 1983). The unusually long birth intervals in some Asian countries are attributed to breastfeeding practices that are characterized by frequent nursing, few early supplements and long durations. Table I illustrates the effect of breastfeeding on fertility in terms of contraceptive use required to maintain birthrates if lactational amenorrhoea were reduced to three months.

FIGURE 3

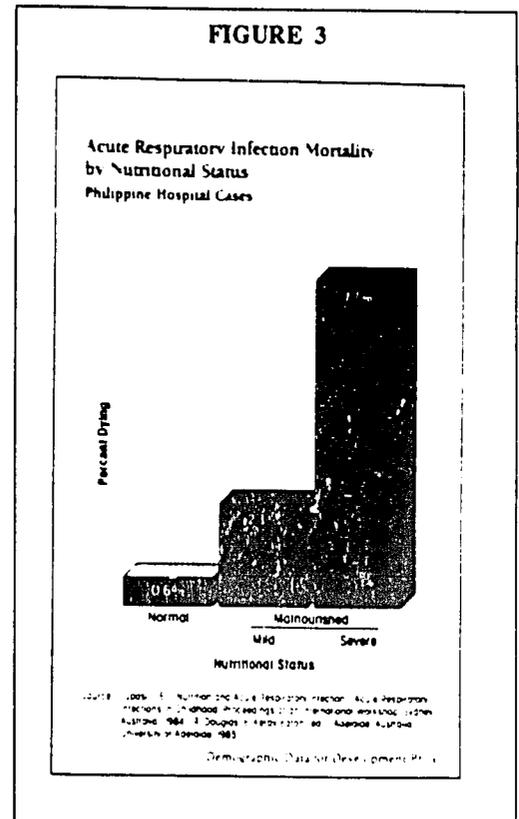
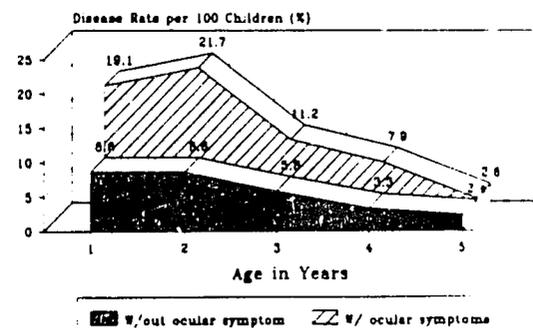


FIGURE 4

INCIDENCE OF ACUTE RESPIRATORY INFECTION AMONG CHILDREN WITH AND WITHOUT OCULAR SYMPTOMS OF VIT A DEFICIENCY* -Indonesia



Source: Sommer, Katz, Tarwotjo; 1984

II. MAGNITUDE AND NATURE OF PROBLEM

The ANE region is unique in the magnitude of the nutrition problem and its long history of progressive work in nutrition research and programs. Impressive gains have been made in the past twenty years in aggregate economic growth, agricultural production, expansion of health services and reductions in infant mortality rates; however, the number of malnourished children has continued to increase in the region as a whole.

While Asia and the Near East conjure up images of industrial wealth in countries like Japan and the Newly Industrialized Countries (NICs) and oil wealth, respectively, the countries in which A.I.D. is active are diverse in levels of development, cultural practices and food/nutrition problems. For programming purposes, these countries are grouped into three categories with similar attributes. Nutrition indicators for these categories are shown in Table II. Not surprisingly, the groups breakdown sub-regionally, i.e., I - South Asia (Subcontinent) plus Yemen; II - Southeast Asia (plus Sri Lanka); and III - Near East. Obviously, the countries of the regions are not homogeneous when it comes to nutritional status, but it may be useful to think of the three sub-regional groupings when considering and designing projects, even though inter-country differences exist within sub-regions.

TABLE II					
<u>Nutrition Indicators in USAID Assisted Countries of the ANE Region</u>					
Country	Child Malnutrition % < 2 SD Wt./Age (1)	Caloric Supply Per Capita (% < poverty line) (2) & (3)	Low Birth Weight (% < 2500 gm.) (2) & (7*)	Under Five Deaths % of Total '90-'95 '95-'00 (4)	Vit. A Deficiency (WHO) (6)
Group I. High Levels of Existing Malnutrition/Food Insecurity					
Bangladesh	61.1(Rural'82)	1927(44 '85)	28*	43	42 Significant
India	63.7(Regl.'87)	2238(33 '87)	30	30	25 Significant
Nepal	63.2('75)	2052	27*	49	46 Significant
Pakistan(5)	51.4(<80% '85)	2315(30 '79)	25	47	44 Unk./Likely
Yemen	61.2('79)	2318	9*	59	57 Unknown
Group II. Intermediate Levels of Malnutrition/Food Insecurity or High Risk of Decline					
Indonesia	10-15(<70%'86)	2579(34'84)	14	30	25 Significant
Philippines	32.6('82)	2372(52'85)	18	29	25 Significant
Sri Lanka	38.1('87)	2401	28	8	7 Significant
Thailand	25.8('87)	2495	12*	15	10 Not Signif.
Group III. Lower Levels of Malnutrition/Food Insecurity					
Egypt	16.6('78)	3342(34'84)	7	30	25 Not Signif.
Jordan	17.4(Rural'75)	2991	7	27	26 Not Signif.
Morocco	12.4 ('87)	2915(38'79)	9	43	39 Not Signif.
Tunisia	20.2('75)	2994(11'85)	7	16	13 N/A
Sources:	1. WHO, Anthropometric Indicators of Nutritional Status, 7/89 2. World Bank, World Development Report, 1989 3. World Bank, Country Studies for Poverty Task Force Report 4. Hill, K. and W. Henry Moseley, JHU/IIP, August, 1989 5. GOP, Pakistan National Nutrition Survey Final Report, 1988 6. WHO. Dr. E. M. DeMaeyer. January, 1988 7. UNICEF, 1990				

A. Food Production and Household Food Security

In terms of increases in food production since the mid 1970s, no region of the world can compare with the ANE region (figure 5). While the LAC and Africa regions were declining, ANE made impressive gains even after accounting for population growth. Daily calories per capita rose dramatically to almost 2300 by the mid 1980s (figure 6). Countries like India have been declared "self-sufficient" in food and have developed the institutional capacity to deal effectively and efficiently with droughts and floods. However, food insecurity and resulting malnutrition remains a major development issues in the region in the 1990s. As figure 7 shows, only Africa has a higher proportion of its population with severely inadequate diets in absolute terms.

Within and across countries, disparities in the health and food security of populations in ANE countries remained large (World Bank, 1988, 1989a, 1989b, Subbarao, 1989). Purchasing power too low to afford sufficient food in poor households was not benefited by economic or agricultural sector growth and the prices of food and other essential commodities rapidly increased. Countries undergoing structural adjustment are seeking ways to cushion the food insecure from further erosion in real income.

From Food Production and Supply Concerns to Food Security and Purchasing Power

As food supplies increased and malnutrition remained a major problem, it became apparent that production and even physical distribution were not the only constraints to improving nutrition in the ANE Region. Increasing per capita food supplies and calorie availability are misleading indicators of the food and nutrition situation. The ability of households to produce or purchase enough food at prevailing prices have emerged as key factors (Rogers, 1989; Reutlinger and Selowsky, 1983). Food policy objectives are better articulated in terms of "food security" at the household level rather than average per capita calorie availability or consumption. For example, the per capita calorie consumption in Sri Lanka remained static during 1980/81, when compared with 1969/70, while the number of food insecure households grew significantly (Table III).

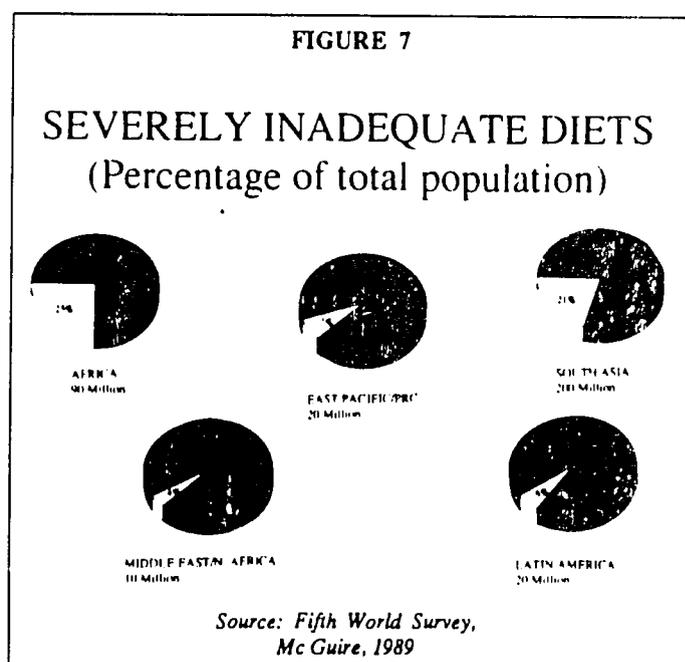
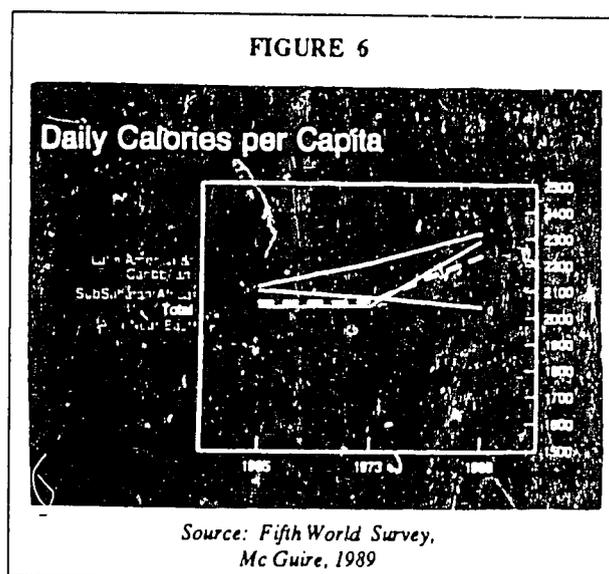
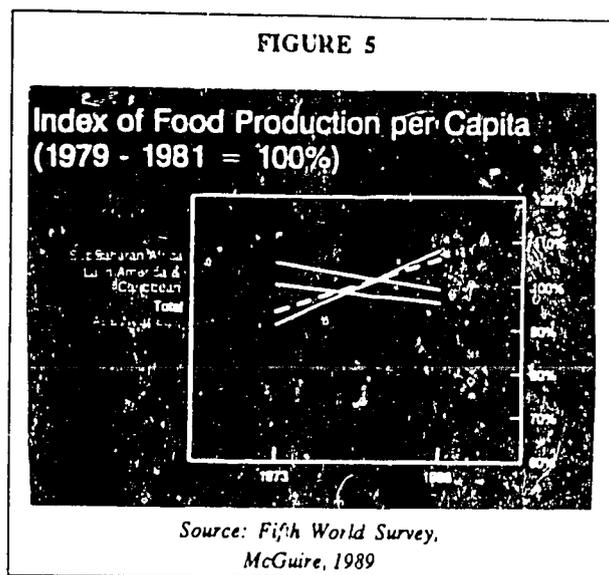


TABLE III

Percent of Households With Inadequate Calorie Intake, Sri Lanka

Sector	1969/70	1980/81	% Increase
Rural	32	43	34
Urban	30	50	67
Estate	20	33	65

Source: World Bank. Sri Lanka Nutrition Review. February, 1989.

In Pakistan, while agricultural production rose significantly during the period 1969-1984, households still had to spend a considerable proportion of their income on food (Table IV).

TABLE IV

Share of Expenditures for Food (%)

Income Class	1969		1979		1984	
	Rural	Urban	Rural	Urban	Rural	Urban
All	59	50	55	46	51	44
Low	62	57	58	55	55	52
Low Medium	57	54	55	51	53	48
High Medium	51	49	51	46	49	42
High	55	37	46	38	42	40

Source: Pakistan Household Income and Expense Survey, Goldman, 1988

Growing Concern That Food Supply Policies Have Overly De-emphasized Protein Sources and Secondary Crops

The "protein gap" hypothesis of the 1960s overestimated protein needs, and the most widespread/primary deficit nutritionally, was shown to be calories (Orr, 1972). However, protein, micronutrient and fats are essential for growth and functional capacity; their requirements increase under conditions of frequent disease and high work load (NAS/NRC, 1980). The "cereals" emphasis in agricultural research and technology has contributed to the declining quality of diets in the region, as area under cultivation has shifted away from protein and micronutrient-rich legumes, pulses and oilseeds in favor of rice and wheat. One result was that the prices of the main protein source were driven up, out of reach of the lower socioeconomic groups. Also undermined are "coarse grains" - sorghum and millet - consumed primarily by food insecure households and important sources of energy and other nutrients.

From Generalized Subsidies to Limited, Targeted Transfers of Food or Cash, Indexed to Food Prices or COL

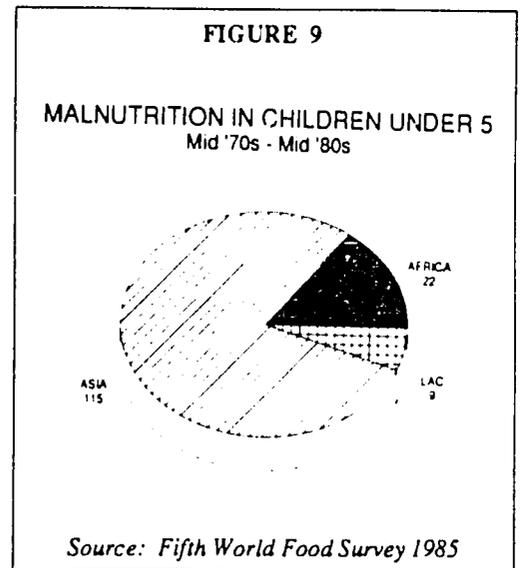
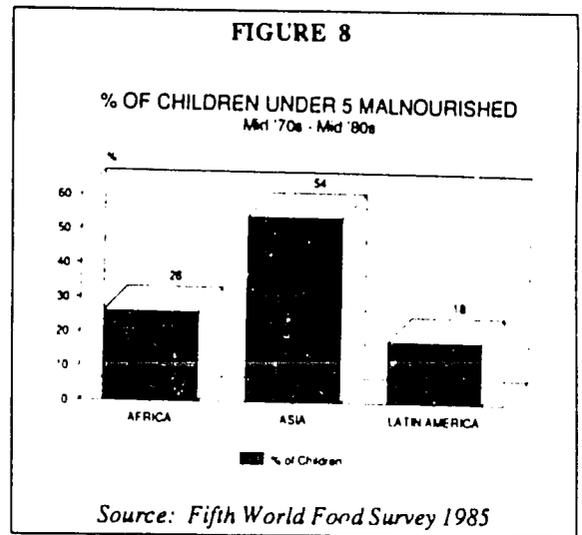
Generalized subsidies were not found to be cost-effective in improving food security because the poor did not benefit proportionately, and much of the subsidy went to relatively well-off segments of the population (Reutlinger and Selowsky, 1983; Kennedy and Alderman, 1987). In many programs, the real value of the subsidy eroded quickly, without adequate indexing. For some countries, economic difficulties made the large recurrent cost burden of food subsidies impossible. At the same time, program experience convincingly demonstrated that in some circumstances careful targeting can push down costs substantially (Berg, 1987).

Increasing Leverage of Food Policy as Rural Economies Shifted Away From Agriculture and Households Increasingly Purchased Rather Than Grew Their Own Food

The majority of food insecure households are net purchasers of food, therefore income and employment, along with food prices are key determinants of food security - including seasonal patterns. In the 1980s the role of agricultural income in the rural economy declined. In Pakistan, wages as a proportion of total rural income more than doubled from 1968 to 1984 (Goldman, 1988). Rural, off-farm income generating activities in manufacturing and services and small agricultural enterprises could be the most rapidly growing source of income for the food insecure.

Intrahousehold Factors Are Critical as Increases in Household Income Did Not Necessarily Translate Into Improved Child Nutrition

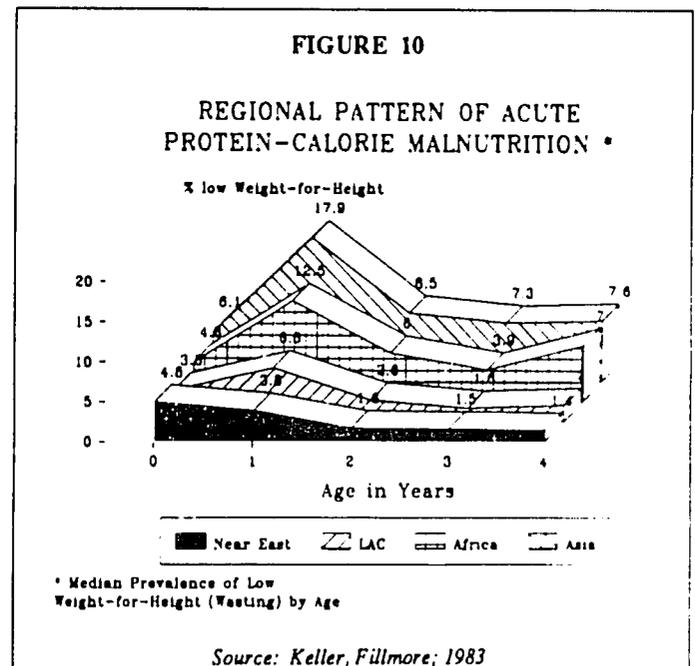
Pioneering work supported by A.I.D. during 1978-1989 demonstrated that increased income did not necessarily mean higher food expenditures/consumption in households, and food consumption did not consistently translate into better nutritional status (Rogers, 1988). Adelman and Cassain (1984) reported high rates of malnutrition in Yemen despite adequate food availability and purchasing power, attributable to: maternal malnutrition and illiteracy, high fertility rates and inadequate child spacing, low birth weight, inadequate infant feeding, and high rates of disease. Nutrition studies in Punjab, India, following the "green revolution" (CARE, 1976) and recent work on the impact of cash cropping on child nutrition (von Braun, 1989) demonstrated that cash cropping is not detrimental to child nutrition. In fact, economic resource constraints may be relieved by increases in household income. However, other constraints to improving malnutrition would also have to be addressed directly before significant improvements in child nutrition could be expected, at least in the near term. These include: child rearing patterns including infant feeding practices, health services, sanitation and hygiene, maternal health/nutrition, maternal energy expenditure and time constraints.



B. Nutrition and Health

When compared to other regions, ANE has a serious nutrition problem, both in relative as well as absolute terms. From the mid-1970s to mid-1980s, over half of the children under five in Asia were found to be malnourished. The percentage in Africa was 26% and in Latin America 18% (figure 8). In absolute numbers, Asia has an even more serious problem; an estimated 115 million malnourished under fives, more than 5 times the number in Africa and 12 times Latin America (figure 9).

Acute protein-calorie malnutrition (i.e., low weight-for-height or wasting) is highest in Asia by a considerable margin for age groups up to the age of three years (43% higher than Africa at one, 42% at two and 87% at three)(figure 10). Another indicator of nutritional status and a predictor of infant/child mortality is the incidence of LBWs (Low Birth Weight infants). Asia leads the world with 19.7%, 40% higher than the second ranked region, Africa. Figure 11 shows that LBWs babies had a more than four times higher risk of dying than an infant weighing between 3500 and 4000 grams.



Food insecurity and child malnutrition are related as can be seen from ANE data (figure 12). Although impressive gains have been made in agriculture production and per capita daily calories, the prevalence of preschool malnutrition has remained virtually constant for the last quarter century (figure 13).

As our understanding of etiological factors in preschool malnutrition improved (Wyon and Gordon, 1960; Grewal, 1973; Kielmann and McCord, 1981), an array of nutritional intervention and technologies were tried and proven effective (Austin et al, 1981; Berg, 1987; Eastman, 1987). However, national commitment and budgetary resources for nutrition did not keep pace with these developments in all countries. There appears to have been a lack of awareness and/ or willingness to address the nutrition problem. The cross-sectoral programming required for nutrition has remained a difficult problem.

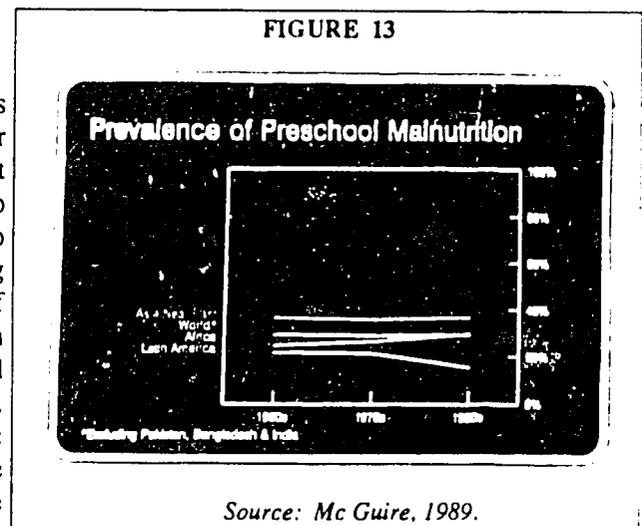
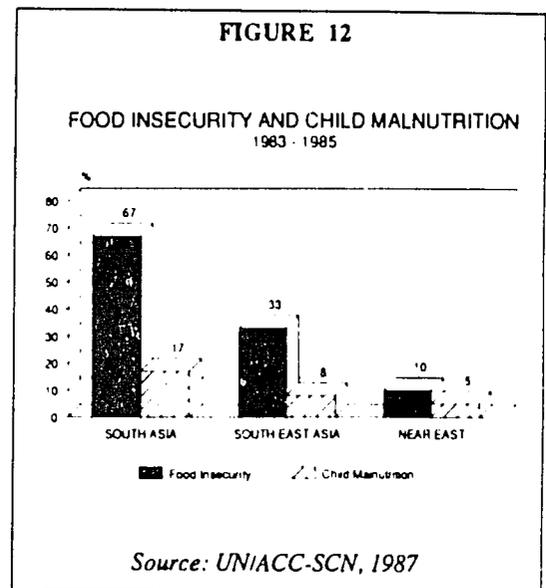
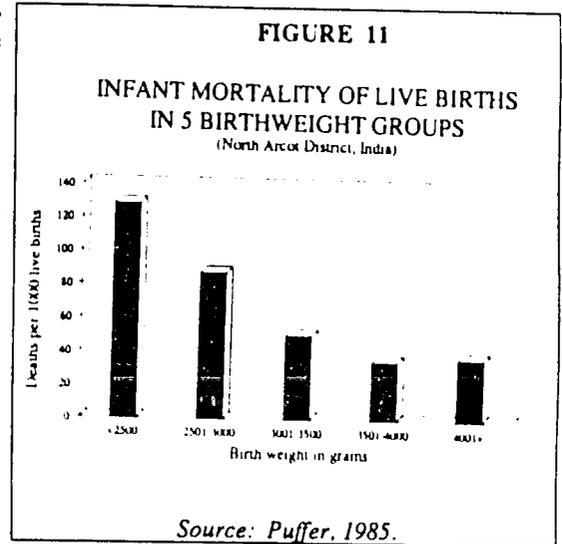
Design and Management Issues and Gaining Access to Women

In some countries of the region, the importance of addressing malnutrition did gain wider acceptance along with greater resources. India's ICDS program begun in 1975 in 33 blocks, now covers 2,000 of the country's 5,000 development blocks, having an estimated target population of 28 million children under 6 years and 6.6 million pregnant and nursing mothers; costing the central government alone US\$100 million in 1988-89 (excluding the costs of supplementary food). Indonesia's UPGK operates in 215,000 community-based health posts (posyandu) in 27 provinces, costing during 1984-89, US\$11 million in government funds (plus an additional US\$24.2 million from donors). The National Nutrition and Primary Health Care Program in Thailand witnessed the enhancement of the nutrition component with each successive Five Year Plan; contributions for nutrition activities rose from an annual level of \$1.7 million in 1982-86 to a projected \$4.4 million for the period 1992-2001. In Sri Lanka, total nutrition spending is estimated at US\$67 million annually (World Bank, 1989). Ninety-five percent of expenditures are accounted for by two targeted food interventions at the household level.

Important trade-offs were made in national programs; many expanded coverage at the cost of quality (Stephens et al, 1988; Heaver, 1989). With an adequate portfolio of proven nutrition interventions now available, evaluations and operations research identified implementation and management - including more use of private sector/social marketing approaches - as the needed focus of large-scale nutrition programs in the 1990s. Not unique to nutrition programs, the problem of reaching women (ideally, early in their reproductive life) - to strengthen their nutritional status, household economics and child rearing skills - continued to pose a formidable challenge in several ANE countries.

From Nutrition Education to Social Marketing and Nutrition Counselling

Flip-charts, cooking demonstrations, food models, and even mass media have been used for nutrition education for years, with limited or no success in changing practices or improving nutritional status. What was missing was a motivational approach built on specific constraints to changing specific behaviors. In the 1980s, several projects were able to demonstrate significant impact in a diversity of settings, including Bangladesh, India and Indonesia in the ANE Region, with the use of social marketing tools (figure 14). Indonesian villages not involved in the social marketing campaign had 82% more moderately malnourished children and 15% less children classified as nutritionally normal. Interventions were designed to modify specific behavior of specific groups of people with specific needs (Griffiths, 1988). To improve child feeding practices, audiences of mothers were segmented by the



age and health of the child and messages were targeted to those in need of information when they needed it. Impact was greatest when severe poverty did not constrain families from implementing new behaviors. Where conditions allowed or required, the behavior change component was combined with growth monitoring and sometimes with supplementary feeding. Interpersonal or one-on-one education by volunteers or program staff was indispensable in achieving impact, with mass media and print materials playing a critical supportive role (Indonesia projects; Poshak and Narangwal projects in India). Social marketing was also successfully used to promote new services such as vitamin A capsules, food coupons, and supplementary food.

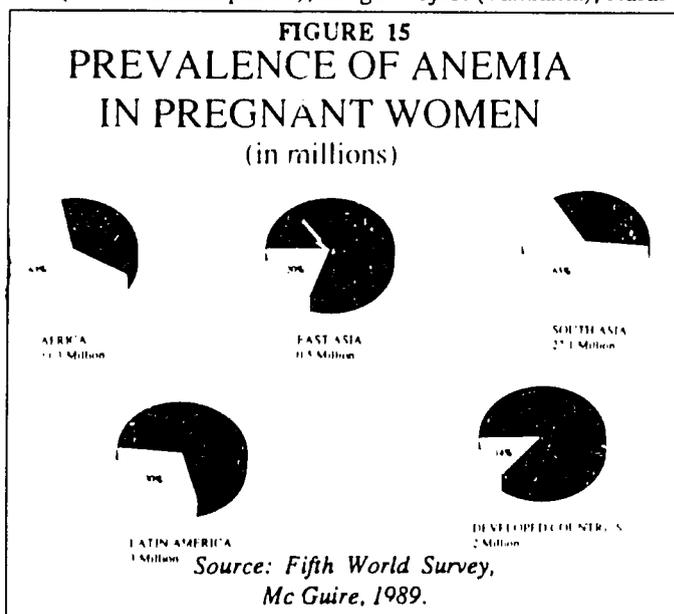
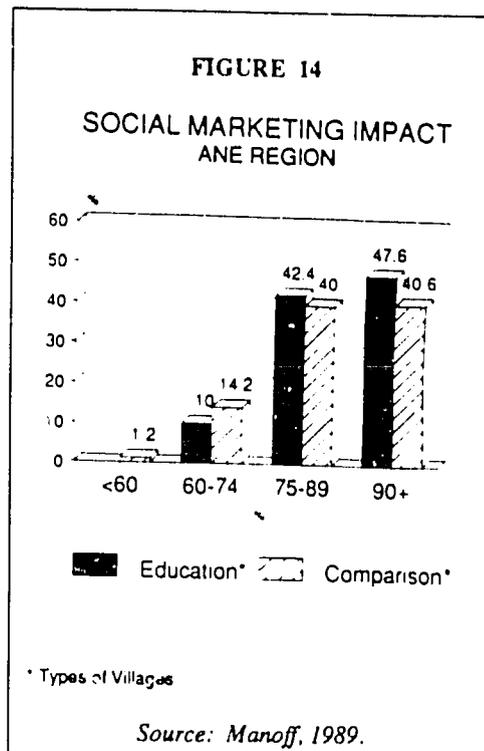
From Growth Monitoring to Growth Promotion and a Better Understanding of the Logistical Demands of Successful Growth Promotion

Growth monitoring offered the potential for a visible, concrete "nutrition technology" that could provide the desperately needed impetus for expanding nutrition services. Efforts to extend pilot programs ran up against serious cost and logistical constraints. Based on a review and discussion of growth monitoring activities such as UPGK (Indonesia), ICDS (India), and Tamil Nadu Project (India) as well as numerous smaller ones in Nepal, Thailand, Africa and Latin America, Gopalan and Chatterjee (1984) concluded that:

- the use of charting serial weight-for-age readings of young children can contribute to the promotion of child health and nutrition;
- many ongoing growth monitoring programs have been initiated at great cost (relative to national health budgets), without adequate preparation and training of health workers, and even when trained, without sufficient attention to monitoring and follow up;
- where the basic requisite structure for such an operation does not exist, frequent weight measurement and growth charts may not be sustainable or effective; and
- individual surveillance of all under-fives in a country with weighing and growth charts seems unrealistic and unnecessary. It would be appropriate, however, at clinics and sub-centers with special facilities, trained staff, follow-up services, and should be linked to a less cumbersome, community-based system for identifying the high risk.

Zinn and Drake (1988) recently analyzed "contextual factors" that determine the efficacy of growth monitoring using data from the following programs: UPGK (Indonesia), ICDS (India), ANEP (Dominican Republic), Iringa Project (Tanzania), Rural Primary Health Care Program (Thailand). They conclude:

- growth monitoring is not an easy activity to successfully implement, and if a sufficient level of community capacity does not exist (with or without program inputs) at the outset, the program is likely to fail;
- often it is the communities that need its services most that lack adequate capacity for growth monitoring; substantial increases in program inputs would be needed to improve these services in India's ICDS program, for example. However, in countries where the conditions in communities vary significantly, such as Indonesia, it may be possible to focus additional program resources more heavily in communities with the highest need and lower capacity to conduct successful growth monitoring;

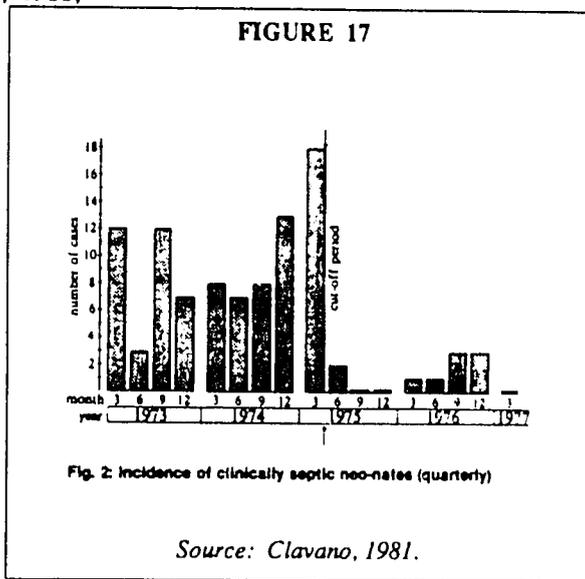
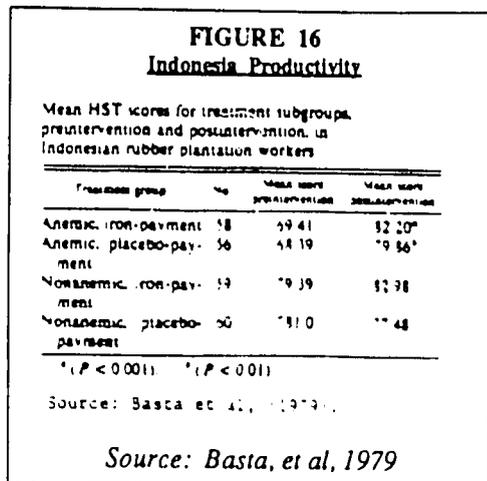


- the Iringa project succeeded despite harsh conditions, with growth monitoring a key factor in its success. The project was unique in the flexibility allowed in implementation at the community level, strong political will at all levels in and outside government, leadership, and external resources - proving the power of growth monitoring under the right circumstances.

Heightened Appreciation of the Role of Micronutrient Deficiencies and the Need to Address the Quality of Diets

Highly significant gains were made in the 1970s in our understanding of the public health and economic implications of micronutrient deficiencies, especially vitamin A deficiency (UN/ACC-SCN, 1986; WHO/UNICEF, 1987), anemia (DeMaeyer and Adiels-Tegman, 1985; Fairchild and Haas, 1989), and iodine deficiency (Hetzel, 1988). At the same time, technologies and interventions developed and applied in the context of large programs in developing countries, mainly in the ANE region, proved sufficiently cost-effective to make the eradication and control of these nutritional problems a good possibility (West and Sommers, 1988; INACG, 1988; Greenberg, 1987).

The prevalence of anemia in pregnant women in South Asia is the highest in the world in both relative and absolute terms (figure 15). Vitamin A and iron deficiency anemia are the most commonly found deficiency diseases. Studies in the past decade indicate that vitamin A deficiency predisposes to child mortality and morbidity; anemia is associated with maternal malnutrition, low birth weight, neonatal and maternal mortality, productivity (figure 16) and behavioral development. Iron deficiency anemia and hypovitaminosis A are still among major public health problems in countries and areas where the prevalence of protein-calorie malnutrition and severe vitamin A deficiency have been reduced. Recent studies indicate a synergistic relationship between iron and vitamin A deficiencies (Bloem et al, 1990), again suggesting the importance of nutrition interventions that are more comprehensive than "magic bullets" and take into account a wide range of underlying factors.



From "Breast is Best" Campaigns to Lactation Management and Community Support for Breastfeeding Promotion

In the 1970s, the erosion of breastfeeding and an increase in bottlefeeding was first observed and the public health significance of these phenomena became apparent. A study in Jordan found that bottle fed infants had a mortality rate more than five times the fully breast fed infants and twice the mixed (breast and bottle fed) infants (Harfouche, 1982). Such findings prompted a number of country programs to incorporate messages such as "Breast is Best", in their health and nutrition education activities including mass media campaigns. Evaluations revealed little or no impact - a very large proportion of mothers appeared to already know the benefits of breastfeeding even prior to the campaign.

Studies from developing and developed countries (Winikoff and Baer, 1980) indicated a pattern of inappropriate hospital practices being strongly related to unsuccessful lactation. A.I.D.'s multi-country Infant Feeding Patterns and Determinants studies (undertaken by O'Gara in Honduras and the Population Council in Indonesia, Thailand, Kenya and Colombia, 1979-984), subsequently revealed the widespread mismanagement of early lactation in the health services which is critical to the establishment of successful exclusive breastfeeding. Women's work, infant formula marketing and other factors were not as clearly implicated in the erosion of breastfeeding in this study. The work of Mata et al. (1978) in Costa Rica and Clavano in the Philippines (1982) clearly demonstrated the effectiveness of hospital interventions in improving lactation performance. Dramatic reductions in neonatal morbidity and mortality were achieved. A.I.D., under ST/N's Maternal and Infant Nutrition project, proceeded to identify a suitable potential U.S. institution that could be developed into an international center of training and expertise in lactation management for bringing about changes in hospital practices and policies. The San Diego-based WELLSTART began its activities in Indonesia in 1983, through a series of travelling seminars for the OB/GYN and pediatric community. A regional workshop held in Bali demonstrated that impressive gains have been made through health policy changes and retraining throughout Asia (Naylor et al., 1988).

The focus of breastfeeding programs may well shift to community level issues such as support groups/systems for nursing mothers and breastfeeding at the workplace, in the 1990s (figure 17).

The problem of infant feeding in the ANE region is more complex than inadequate breastfeeding (Baumslag and Putney, 1988; Schroeder et al., 1989). Supplements with low nutrient density and contamination, too early and late introduction of supplements, infrequent feedings, reducing feeding during illness, are equally important behaviors that contribute to growth failure and morbidity/mortality in childhood. Improper lactation also results in shorter amenorrhea and, in the absence of contraception, shorter birth intervals, which, in turn, exacerbate already high rates of malnutrition and infection.

That the decline in under five mortality rates in the low income countries may stagnate without taking the nutrition factor into account, is now well understood. Nutrition should be an integral part of primary health care and the Child Survival Strategy, but in programmatic terms, it has lagged far behind.

From Exclusive Emphasis on Immunizations and Oral Rehydration Therapy to Breastfeeding and Weaning as Key Child Survival Technologies

Improved analyses of the causes of mortality, quantitative estimates based on field studies of the risks of mortality associated with growth failure, and a more widespread understanding of the biological synergism between infection, malnutrition and childhood mortality led to the pursuit of a limited set of cost-effective nutrition interventions that could be managed by health systems as part of the child survival package (Feachem et al series, 1982-6; A.I.D. Nutrition Strategy for Child Survival, 1985; UNICEF's GOBI initiative, 1983). The availability of proven nutrition interventions, some disillusionment with the "twin engines", and commitment among host country counterparts to a broader vision of health in which nutrition featured prominently, facilitated this process.

Importance of Maternal Health and Nutrition

Experience from population and health programs accumulated, and sensitivity to women's issues acquired programmatic urgency. There has been a growing recognition that maternal health and nutrition could no longer be ignored. The donor community was pressed to balance the focus of child survival with women's health issues (World Bank/Mothercare Initiative, 1988; A.I.D./Maternal Health and Nutrition Project, 1989). The fact that much of infant mortality and young child malnutrition is rooted in maternal factors is beginning to broaden the "child" focus. Resources are now available to test and develop simple, cost-effective interventions in this area.

There are a number of aspects which must be considered when dealing with mothers' health/nutrition status. First, the nutrient intake and nutritional status of the young female population deserves attention. The distribution of food to household family members in many cultures negatively influences their nutritional and health status. Thus, when the undernourished women become pregnant, they produce malnourished or low birth weight babies who are susceptible to infection and have a much greater chance of becoming a fatality. Improper breastfeeding practices result in not only poor infant nutritional status, but also shorter intervals between births, which, in turn, has negative effects on the health of both the existing youngest child and the newborn. Too frequent births frequently also results in the "maternal depletion" syndrome, endangering the health of the mother as well as the infant. Although little has been done to address the maternal health question, interventions are required to respond to the adolescent female health/nutrition problems which underlie the high rates of maternal and young child mortality and morbidity.

Interventions are required to improve adolescent female nutritional status by developing nutrition educational campaigns to modify existing cultural norms which are identified as preventing women from becoming healthy and productive members of society. Special attention must be directed at the provision of quality antenatal services including nutrition counselling, nutritional supplementation (e.g., iron/folic acid) and full immunization (with tetanus toxoid). An important component of any effort to reduce the number of LBW infants in the region must include a vigorous promotive/ nutrition education effort, possibly employing innovative social marketing techniques.

C. Structural Considerations

With the possible exception of several large nutrition programs in South and Southeast Asia (i.e., Indonesia, Thailand, Tamil Nadu), successes of large-scale nutrition interventions under the auspices of the public sector are very difficult to identify. Research (e.g., Pyle, 1981; Hendrata, 1985) and experience has shown that the prevailing structures found in the Ministries of Health are typically not conducive to effective programming and service delivery at the community level. The centralized, hierarchical bureaucracies find it difficult to manage operations at the periphery and are unable or unwilling to decentralize operations effectively. Bureaucratic procedures often supersede the results orientation. In addition, a lack of effective accountability within the bureaucracy makes the management of local nutrition activities problematic.

While the public sector has experienced difficulties in delivering services to the vulnerable target population, the private sector has achieved some successes, albeit usually on a limited scale. Private initiatives include a variety of strategies. One of the most

common is the private voluntary organization (PVO) or non-governmental organization or NGO (e.g., a university) which have achieved remarkable results in a relatively short time (e.g., Gwatkin, Wilcox, Wray, 1980) through provision of community-based services (including growth monitoring, nutrition education, ante-natal care).

To improve the nutritional status of the vulnerable segments of society, evidence suggests that a combination of strategies and sectors must be utilized. The strengths of both the public and private sectors must be combined. How they will be combined will depend on the nature of the nutrition problems existing in a country and the institutional resources available. An example of how the efforts might be integrated is a nutrition social marketing/education campaign on proper infant and child feeding utilizing national public radio and television along with local PVO community efforts to develop and promote a local, home-prepared weaning food.

III. CURRENT A.I.D. NUTRITION ASSISTANCE

A.I.D. has historically played a key role in the development of nutrition institutions and programs throughout Asia and the Near East. National nutrition institutions in the Philippines, Indonesia, Egypt, Tunisia, Pakistan and Thailand have received grants and technical assistance since the 1960s. The national nutrition programs of Indonesia and India, receive substantial monetary or food aid from A.I.D., directly and through PVOs. More U.S. food aid is programmed in countries in the ANE region than any other part of the world.

Authority for A.I.D. action in nutrition comes from a number of Agency policies and strategies. The Asia and Near East Bureau draft strategies for the health and agriculture/rural development recognize the interrelationships of their activities with nutrition (A.I.D., 1989; A.I.D., 1990). In health, there are compelling biological synergism between malnutrition and disease that call for combined actions to reduce mortality and improve health status in a sustained way. In agriculture and rural development, the new Agency "focus" statement is endorsed with more emphasis on food security at the household level i.e. incomes and food consumption, rather than merely production and supply issues.

A large number of innovative programs were implemented and many rigorously evaluated during the past fifteen years in the ANE region. Annex II summarizes over a dozen of the more important nutrition efforts in the region. The knowledge gained and the success of these activities helped influence nutrition programs and policies globally. Yet most A.I.D. supported countries, many with large health and ARDN budgets, have not fully utilized this experience in their programs.

There is no systematic assessment of the nature, level, or quality of nutrition assistance provided by A.I.D. to ANE countries. However, evaluations and reviews of a few centrally and bilaterally funded projects suggest that key targets of opportunity were missed. While a number of pilot and demonstration-type activities were undertaken successfully, A.I.D. was unable to facilitate incorporation of nutrition components into longer term, ongoing, sectoral policy and program interventions in key sectors (Baker and Sanghvi, 1985; Sanghvi, 1985; BKKBN and CSF, 1986; Sanghvi et al, 1986; McKigney et al, 1988; Pyle, 1989).

During this period, A.I.D. faced severe resource constraints especially in nutrition. The limited number of direct hire nutrition positions in the regional bureau were phased out, leaving no resources to provide technical support to mission staff involved in HPN and ARD activities. Central programs - severely constrained by a small budget in the case of S&T/N - were limited to short term technical assistance, information dissemination, PVO grants (without provision for nutrition technical assistance), and research, with few resources available to respond to mission project needs.

One result was inadequate nutrition planning and project design reflected in bilateral health/child survival projects. In the past few years, estimated nutritional attributions equalled less than 10 percent of the combined health and child survival and only about 3% of the ARDN appropriation for the ANE region (Table V and figure 18). The amount programmed for nutrition fell by almost 27% between 1985 and 1990 without considering the effects of inflation (figure 19). It should be noted that the actual funding of nutrition activities and components is probably far less. These figures include attributions based on indirect nutrition effects, such as the impact of child spacing on nutritional status.

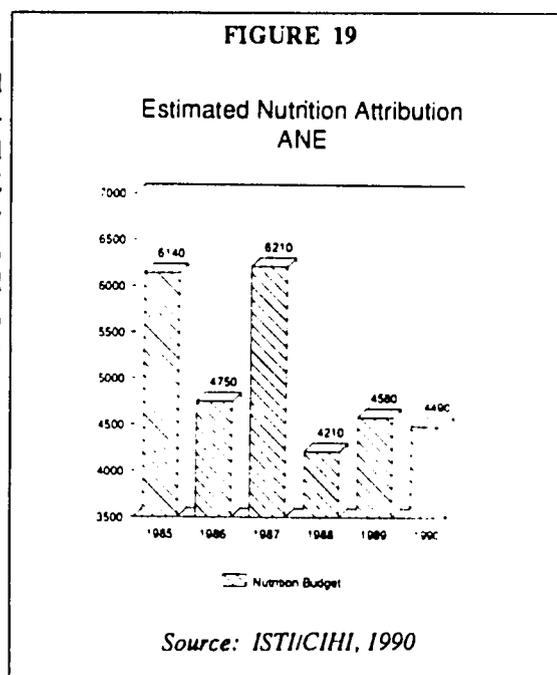
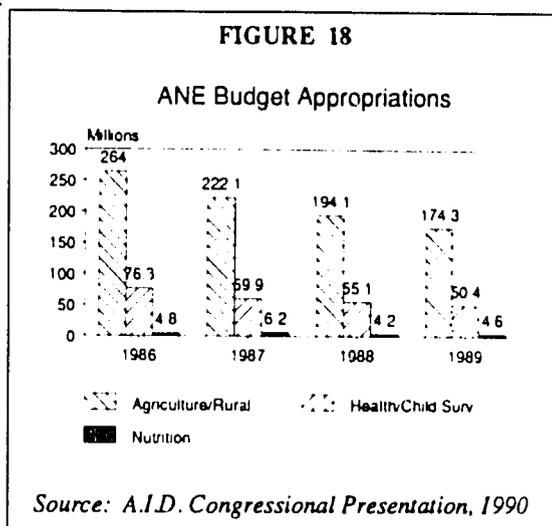


Table V.

Appropriations and Nutrition Budget: ANE Region

Fiscal Year	Agriculture Rural Development and Nutrition (1)	Health and Child Survival* (1)	Nutrition (estimated) (3)
1985(2)			6,144
1986	263,969	76,343	4,753
1987	222,101	59,921	6,213
1988	194,140	55,077	4,214
1989	174,267	50,437	4,583
1990(4)			4,492

* Excluding ESF \$ used for health and child survival activities.

Sources: 1. FY 1989 Congressional Presentation
 2. FY 1988 Congressional Presentation
 3. CIHI/ISTI Health Information System, 9/11/89
 4. FY 1990 Congressional Presentation

Annex III is a listing of ongoing projects which attribute a proportion of their FY 1988 and FY 1989 obligations to nutrition. In the course of collection of this information, the difficulty in ascertaining the significance of reported nutrition attributions became clear. In addition, S&T Bureau projects in nutrition and health provide significant assistance to countries in the ANE region, but these are not easily disaggregated by country. Work on food consumption and household food security in the ARD sector and Title II programs comprise the balance of the ANE nutrition portfolio. Reviews or tracking information on these activities were not available for consideration in this paper.

IV. STRATEGY FOR NUTRITION IN THE '90s

A. Foundation

The precepts on which this regional strategy is proposed consist of:

- the Bureau is committed to addressing the problems of food insecurity/ consumption and malnutrition because they constrain economic development and prevent the achievement of child survival goals, and because they are important indicators of the success of development across sectors;
- the Bureau has access to the needed resources and technologies required to make a significant contribution to this problem;
- severe limitations of A.I.D. staff and funds require that careful choices be made and every opportunity taken to leverage these resources through other donor coordination, generating host country commitment, and private sector and community participation.

Many characteristics of A.I.D. programming in ANE countries lend themselves to making a substantial contribution to nutritional status improvement. Among them are:

- long term experience in public health, food aid and nutrition activities, and partnership programs with key centers of excellence in the region;
- an institutional presence in the countries;
- potential for flexibility, appropriateness and timeliness in the provision of technical and other resources through an array of assistance instruments and through ready access to U.S.-based, ANE-experienced, technical experts.

While supporting counterpart country nutrition policies and interests, the strategy for an effective nutrition component of an overall health-population-nutrition strategy must meet the following criteria:

- contribute to the decline of child mortality rates and/or malnutrition in the country;
- be consistent with Agency policy and Congressional directives;
- emphasize areas where A.I.D. has the comparative advantage either potentially or proven through past experience;

B. Goal

The Goal of the ANE Nutrition strategy is to eliminate severe malnutrition and reduce moderate malnutrition by half in the region among children under five years of age in A.I.D.-assisted and countries of the region. The priority target groups under the strategy are young children and women of reproductive age. The goal would be accomplished through strengthening the capacity of A.I.D. and host countries in nutrition programming. Due to cost-effectiveness, A.I.D. management and sustainability considerations, priority will be given to well designed nutrition components in child survival, health, macroeconomic policy, rural development and agriculture (including structural adjustment), population, food aid, education, and food policy programs. From time to time, free standing nutrition projects may be appropriate. Special emphasis will be placed on targeting services to those most in need, especially in A.I.D.'s Child Survival countries. This approach will not succeed unless HPN and Agricultural Development Officers and mission economists are given adequate skills and incentives to expand their nutrition and food consumption activities.

C. Activities

The potential number of activities that could be appropriately recommended to address nutrition related issues in the ANE Region is very large. However, limited financial and human resources requires that the strategy be limited, focusing on those activities which are affordable, have been proven effective, require minimum management by A.I.D. personnel and have a good chance of being sustained.

There are a number of potential sources of technical assistance to support nutrition and nutrition-related initiatives as presented in Table VI. However, due to the severely limited S&T/N budget, mission buy-ins are required for in-country activities. Some central funds are available for operations research.

The proposed activities are summarized in Table VI below to provide a regional perspective on constraints and targets. The targets for nutrition stated in this strategy apply only at the Regional Bureau level. The proposed activities fall into two categories:

1. priority areas in which interventions have proven effective in reducing malnutrition, morbidity and mortality are:
 - a. infant feeding practices
 - b. micronutrients (iron, folate, vitamin A)
 - c. low birth weight and women's health and nutrition
2. cross-cutting themes which concern the status and effectiveness of nutrition activities across interventions and sectors.
 - a. management and training
 - b. private sector and agri-business
 - c. operations research
 - d. social marketing

TABLE VI

TECHNICAL ASSISTANCE RESOURCES FOR NUTRITION ACTIVITIES	Child Survival Fellowship Program (CSAP - 936-5951) S&T/H	Technical Advisors in AIDS and Child Survival (936-5970) S&T/H	Food and Nutrition Monitoring (936-5110) S&T/N	Nutrition Education and Social Marketing (936-5113) S&T/N	Food Technology for Development (936-5114) S&T/N	Combating Iron Deficiency (936-5115) S&T/N	Vitamin A for Health (936-5116) S&T/N	Women and Infant Nutrition (936-5117) S&T/N	Maternal & Neonatal Health & Nutrition (936-5966) S&T/H	Nutrition in Agriculture/IOC (931-0262) S&T/N	Nutrition in Health/IOC (931-0262) S&T/N	PRICOR (936-5920)	Health & Nutrition RSSA/OIH (0249)	
	Project Duration (as of 1/90)	1985 1994	1988 1992	1989 1993	1987 1992	1988 1992	1987 1991	1988 1992	1989 1994	1988 1993	1976 --	1976 --	1981 1989	1984 1991
Priority Areas														
A. Intervention														
Infant Feeding									x					
Low Birth Weight									x	x				
Micronutrients														
Vitamin A							x							x
Anemia						x				x				
Other/Short term assistance										x	x			x
B. Cross-cutting														
Management/Training														
AID technical support	x	x												
Counterpart/Programs	x	x												
Private-sector														
Social marketing				x										
Food technology					x									
Operations research			x				x	x	x			x	x	

- NOTES (1) Buy-in mechanisms are in place for most of these centrally managed projects
 (2) Most S&T/N projects require mission buy-ins for field support activities other than operations research
 (3) FVA Bureau projects support PVO activities in nutrition

1. Interventions a) Infant Feeding Practices <i>Problems/Programming Constraints</i>	<i>Targets/Recommendations</i>
<ul style="list-style-type: none"> - poor quality/ineffective nutrition education programs and low coverage of priority target groups; - nutrition education messages often don't address real problems; 	<p><i>(All CS Projects - Group I, II and III Countries).</i></p> <ul style="list-style-type: none"> - apply social marketing approach to nutrition education efforts; - expand coverage to 80% mothers of under threes; - incorporate modules and methodology developed by A.I.D. assistance (e.g., Indonesia - see Project Summaries);
<ul style="list-style-type: none"> - policies and practices within the health sector that discourage appropriate infant feeding, especially lactation; - lack of awareness and support for individual components making up proper breastfeeding, both within and outside health sector; 	<p><i>(All Group I, II and III Countries)</i></p> <ul style="list-style-type: none"> - training and technical assistance in lactation management for leading health practitioners, policy makers and trainers (e.g., Indonesia, Thailand, Philippines - see project summaries);
<ul style="list-style-type: none"> - appropriate strategies to support women in better infant feeding/child care not well developed/adapted to developing country conditions; - title II foods not successfully targeted to pregnant/lactating women and children under three years old; 	<p><i>(Priority to Group I and II countries)</i></p> <ul style="list-style-type: none"> - more formative research; - conduct operations research in the areas such as: - efficacy of interventions to reduce early growth faltering; - seasonal/ongoing household resources/time constraints that women face and practical approaches to infant feeding; - ways to increase participation and access by women to health services and nutrition.
<ul style="list-style-type: none"> - inadequate availability and promotion of low cost high quality convenience weaning foods; 	<p><i>(In Group III Countries)</i></p> <ul style="list-style-type: none"> - develop and test private sector initiatives;

Detailed Discussion:

Griffiths, 1988
Baumslag & Putney, 1988
Naylor et al, 1988
HOVIPREP, 1984
Orr, 1972

Technical Assistance Resources:

Women and Infant Project
(including Wellstart)
Nutrition Communications Project

b) Micronutrients <i>Problem/Programming Constraints</i>	<i>Targets/Recommendations</i>
I. <u>Vitamin A Deficiency</u> - prevalence data not available;	<i>(In Group I, II and III Countries -where data not available)</i> - vitamin A deficiency studies in Pakistan, Burma, Yemen and Sri Lanka;
- low coverage of high risk groups;	<i>(In Group I and II Countries where vitamin A is a public health problem)</i> - funding of vitamin A fortification, supplementation and social marketing activities to achieve 80% coverage in high prevalence areas of children under 6 years of age;
- activities not adequately integrated into Health and CS programs;	<i>(In Group I and some II Countries where vitamin A is a public health problem - e.g. Bangladesh, India, Indonesia, Nepal, Philippines)</i> - train key counterpart and PVO personnel; - improve cost-effectiveness and management of programs through expanded trials with low dose (10,000 - 20,000 IU) supplements and better assessment techniques;
II. <u>Anemia</u> - Prevalence data not available;	<i>(In Group I, II and III countries)</i> - iron deficiency anemia prevalence studies in countries where no data are available;
- supplementation protocol and strategies not well developed;	<i>(In Group I Countries)</i> - establish epidemiology of anemia; - expand coverage with supplementation and social marketing for anemia control;
III. <u>Delivery</u> - limited infrastructure for delivering micronutrients.	<i>(In Group I, II and III Countries)</i> - fortification technologies for Iron and vitamin A developed, tested and expanded; - private sector initiatives such as product development and retail sales of "tonics"/ multivitamin supplements;

Detailed Discussions:

West and Sommers, 1987
 Eastman, 1987
 Storms and Quinley, 1988
 INACG Monograph Series
 IVACG Monograph Series

Technical Assistance Resources:

MotherCare Project
 Vitamin A Field Support Project
 Combatting Iron Deficiency Project
 Food Technology for Development

<p>c) <u>Low Birth Weight & Women's Nutrition</u></p> <p><i>Problem/Programming Constraints</i></p>	<p><i>Targets/Recommendations</i></p>
<ul style="list-style-type: none"> - knowledge of epidemiology of low birth weight and malnutrition in women; 	<p>(In Group I Countries)</p> <ul style="list-style-type: none"> - conduct study/carry out survey; - develop cost-effective information systems to track patterns of LBW and women's nutrition problems;
<ul style="list-style-type: none"> - cost-effective, feasible interventions packages not available; 	<ul style="list-style-type: none"> - operational research on intervention packages;
<ul style="list-style-type: none"> - low coverage of existing nutrition activities intended for pregnant and nursing women in PL 480 Title II, social marketing/nutrition education/communications. Access to women of reproductive age. [See section b.II on anemia] 	<ul style="list-style-type: none"> - identify and test alternate channels especially in Pakistan, Yemen, and Bangladesh; - operational research on reasons for low coverage in existing programs and creative ways to increase participation and impact.

Detailed Discussions:

Ashworth and Feachem, 1985
 Anderson, 1989
 Gwatkin et al, 1980

Technical Assistance Resources:

Women and Infants Project
 MotherCare Project
 Combating Iron Deficiency Project

<p>2. Cross-cutting Themes</p> <p>a) Management and Training</p> <p><i>Problems/Programming Constraints</i></p>	<p><i>Targets/Recommendations</i></p>
<p><u>I. Gaps in AID's Capacity to Program Effectively:</u></p> <ul style="list-style-type: none"> - coordination (sectors, mission/AID Washington, Bureaus, offices within Bureaus); - design and technical backstopping; - development, articulation and advocacy of cohesive nutrition strategy/approach that cuts across sectors; - inability to track nutrition and nutrition-related activities; - funding. 	<p><i>(All Group I, II and III Countries)</i></p> <ul style="list-style-type: none"> - full-time technical backstop for nutrition and HHFS ANE/TR; - full-time, field based sub-regional backstop for Group I countries; - full-time local hires in each mission of Group I-III countries; - HPN & ARD officers systematically and regularly trained in nutrition programming relevant to their sub-regions/programs; - funding: 20% of annual ARDN budget allocated to nutrition/consumption activities; 30% of annual Health and Child Survival funds allocated to nutrition-related activities; - information system to track nature and level of nutrition and HHFS programs and projects developed and maintained in ANE; - develop technical assistance contract to assist ANE nutrition effort (e.g., training, design, evaluation, OR, TA, database);
<p><u>II. Host Country Capacity</u></p> <ul style="list-style-type: none"> - inadequate capacity in policy analysis, especially HHFS and nutrition in child mortality; - program design and management approaches outdated; - missed targets of opportunity to add nutrition/HHFS concerns in food systems policy formation; - inadequate public resources allocated to HHFS and nutrition; - lack of nutrition knowledge among medical and paramedical staffs; - lack of appropriate nutrition in pre- and in-service training curricula of medical/paramedical staff and fieldworkers; 	<ul style="list-style-type: none"> - identify and support appropriate nutrition policy awareness/advocacy/coordination entity that can be effective across sectors; - support TA oriented to building in-country capacity within implementing agencies, in: <ul style="list-style-type: none"> o policy analysis of HHFS o nutrition components of CS o application of new management approaches to nutrition services delivery programs. - expand public-private collaboration; - streamline delivery of nutrition services and enhance synergisms through "clustering" services, such as: <ul style="list-style-type: none"> o maternal health + postpartum family planning + maternal nutrition + initiation of lactation; o weaning practices + diarrheal disease control; o primary school education + nutrition education; o credit, extension services for increasing earnings by women + household economics and family practices; - provide technical assistance to upgrade nutrition curricula for physicians and paramedicals, giving priority to Group I countries; - support in-service nutrition training for health workers having contact with priority target populations.

<p>b) <u>Private Sector</u></p> <p><i>Problems/Programming Constraints</i></p>	<p><i>Targets/Recommendations</i></p>
<ul style="list-style-type: none"> - public sector has limited capacity to deliver and sustain nutrition activities; - the impact of commercial/private sector nutrition efforts constrained by limited coverage of those at greatest risk; - limited income generation potential for women under emerging agricultural/rural development approaches; 	<p><i>(In all Groups, especially Group III and II countries)</i></p> <ul style="list-style-type: none"> - expand social marketing efforts through public/private collaboration; - low cost food technology to produce convenience weaning and formulated foods for pregnant and lactating women; - determine feasibility and economic viability of private sector efforts in expanding the delivery of micronutrients; - support agricultural and non-agricultural enterprises that increase women's income and provide credit, inputs, extension services.
<p>c) <u>Operations Research</u></p> <ul style="list-style-type: none"> - vitally important nutrition-related questions in prevention/ 	<p><i>(Priority to Group I Countries)</i></p> <ul style="list-style-type: none"> - develop a list of priority research topics tied to interventions outlined in Section III.D.1; - OR studies designed and carried out with objective of improving effectiveness of nutrition projects.

Table VII indicates which of the activities discussed above are most appropriate for the country groupings. This is only meant to be illustrative and should not be taken as exclusive.

Country Groupings	Interventions			Cross-Cutting Themes		
	Infant Feeding	Low Birth Weight Women's Nutrition	Micro-nutrients	Management/ Training	Private Sector	Operations Research
<u>Group I</u>						
Bangladesh						
India						
Nepal	✓	✓	✓	✓		✓
Pakistan						
Yemen						
<u>Group II</u>						
Indonesia						
Philippines	✓	✓	✓	✓	✓	✓
Sri Lanka						
Thailand						
<u>Group III</u>						
Egypt						
Jordan	✓			✓	✓	
Morocco						
Tunisia						

ANNEX I

GLOSSARY OF TERMS

A.I.D.	Agency for International Development
ANE	Asia & Near East
ANEP	Applied Nutrition Education Project
ANE/TR/ARD	Asia & Near East/Technical Resources/ Agriculture and Rural Development
ANE/TR/HPN	Asia & Near East/Technical Resources/Health, Population, Nutrition
ARDN	Agriculture, Rural Development Nutrition
CARE	Cooperative for American Relief Everywhere
GOBI	Growth monitoring, Oral rehydration, Breastfeeding, Immunization
HHFS	HouseHold Food Security
ICDS	Integrated Child Development Services
INACG	International Nutritional Anemia Consultative Group
IVACG	International Vitamin A Consultative Group
NAS	National Academy of Science
NIC	Newly Industrialized Country
NRC	Nutrition Research Council
S&T/N	Science and Technology/Nutrition
UPGK	Family Health Improvement Program
WHO	World Health Organization

ANNEX II

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ANNEX III

PROJECT SUMMARIES

During the past two decades, several nutrition programs and studies were undertaken in countries of the ANE region. Those for which evaluation results are available, are summarized in this section. In most programs USAID assistance played a vital role, directly or indirectly.

I. INFANT FEEDING

1. IMPROVING WEANING PRACTICES IN BANGLADESH
2. WORLD BANK-ASSISTED NUTRITION COMMUNICATION AND BEHAVIOR CHANGE IN INDONESIA
3. USAID-ASSISTED WEANING PROJECT IN INDONESIA
4. WELLSTART: LACTATION MANAGEMENT TRAINING AND TECHNICAL ASSISTANCE

II. LOW BIRTH WEIGHT

5. USAID-ASSISTED ICDS PROJECT, INDIA

III. MICRONUTRIENT

6. SOCIAL MARKETING OF VITAMIN A IN W. SUMATRA

IV. INTEGRATED PROGRAMMING

7. NARANGWAL PROJECT, INDIA
8. THAILAND PUBLIC HEALTH AND NUTRITION PROGRAM

V. NUTRITION EDUCATION

9. MOROCCO FOOD AID AND NUTRITION EDUCATION PROJECT

VI. FORMULATED FOOD

10. THRIPOSHA PROJECT, SRILANKA

VII. SUPPLEMENTARY FEEDING

11. PROJECT POSHAK, INDIA

VIII. GROWTH MONITORING

12. TAMIL NADU INTEGRATED NUTRITION PROJECT, INDIA
13. KB-GIZI: INTEGRATED FAMILY PLANNING, NUTRITION AND HEALTH PROGRAM OF INDONESIA

IX. SURVEILLANCE

14. THE INDONESIAN FOOD AND NUTRITION SURVEILLANCE SYSTEM

PROJECT SUMMARY # 1

IMPROVING WEANING PRACTICES IN BANGLADESH

Between April 1987 and November 1987, Bangladesh Rural Advancement Committee's (BRAC) Child Survival Program, with USAID assistance, tested the growth impact of nutrition education messages designed to improve weaning practices in 5-14 month old rural low-income children, in Manikganj District. The education approach consisted of paid village workers teaching volunteer mothers (through demonstration and follow-up visits) how to prepare and feed weaning age infants; the volunteer mothers then taught community mothers in the same way. A total of 71 treatment children were compared with 66 matched controls at the end of the education intervention and six months after its termination in March 1988. The following results were observed:

- o energy and protein intakes increased significantly in the treatment group following nutrition education; the treatment group consumed an average of 75 kcals and 2.2 grams of protein more than the control group;
- o however, despite a very well implemented and supervised education program, the energy gap remained large at 25 percent of maintenance requirements; the protein gap is estimated at 40 percent (this includes a multiplier of 1.5 for infection);
- o these intakes in the treatment group seemed adequate to prevent further growth deterioration (at enrollment, program children were at an average, 2 standard deviations below NCHS standards) but not sufficient to allow the children to catch up with standards;
- o the average weight gain in the treatment group over the 5-6 month observation period was .24 kg/month or 8.0 grams /day versus only .17 kg/month or 5.7 grams/day for controls.

Costs:

Implementors: BRAC, Tufts University.

PROJECT SUMMARY # 2

WORLD BANK-ASSISTED NUTRITION COMMUNICATION AND BEHAVIOR CHANGE IN INDONESIA

From 1977 to 1981, the Government of Indonesia with World Bank assistance designed and implemented a nutrition education/social marketing program in five areas, covering a population of 225,000 (37,000 beneficiaries). Activities included a thorough design phase including surveys, marketing-type informal research, demonstrations and trials, followed by a campaign that covered training of 2000 kaders, action posters, radio spots in dialogue format and built-in evaluation from the outset. One year after the full implementation of the project, the percentage of children falling in various weight for age categories in program and comparison villages is shown below:

% of Standard Weight for Age	Children in Nutrition Education Villages	Children in Comparison Villages
Less than 60	0.0	1.2
60-74	10.0	18.2
75-89	42.4	40.0
90 or more	47.6	40.6

Compared to non-project children who were similar at baseline:

- o the mean weight of project children in their second year of life was a significant one-half to one kilogram higher;
- o forty percent of the children were growing more rapidly;
- o the proportion of moderate and severely malnourished children was half in the project children;
- o mothers and children were consuming a significantly greater variety and quantity of foods.

Costs: To cover a population of 100,000, initial costs are estimated at approximately \$65,000 per annum (in 1983), and \$35,000 per annum once the program is fully operational. The National Family Nutrition Improvement Program (UPGK) costs \$91,000 for the same size population.

Implementors: Directorate of Nutrition, MOH, Manoff International, World Bank.

PROJECT SUMMARY # 3

USAID-ASSISTED WEANING PROJECT IN INDONESIA

Starting in November 1985, the Government of Indonesia with USAID assistance undertook a pilot program in the provinces of East Java and Nusa Tenggara to examine the impact of enhanced communications on improving feeding practices of children ages 0-24 months, in the national nutrition program UPGK. The evaluation consisted of two cross-sectional (before and after) surveys conducted on project and comparison groups almost a year after the program began (Manoff Group Inc., 1989) and demonstrated:

- o improved knowledge of mothers' and kaders' child feeding practices particularly concerning breastfeeding, age at introduction of complementary foods, and appropriate mixes for weaning, as well as improved child feeding practices in these areas;
- o higher caloric adequacy in the diets of 6-9 and 25 months and older program children;
- o significantly higher weight-for-age and height-for-age of children in the program area;
- o greatest impact resulted from messages that were precisely stated and included a "product" with a special name;
- o face to face communication with mothers was critical and providing kaders counseling materials, precise messages, and supervision was very important.

Costs:

Implementors: BKKBN, USAID, The Manoff Group.

PROJECT SUMMARY # 4

WELLSTART: LACTATION MANAGEMENT TRAINING AND TECHNICAL ASSISTANCE

In 1983, A.I.D. funded the development of a center of excellence - WELLSTART, San Diego - to provide training and technical assistance to health practitioners and policy makers. Training is given to teams of hospital and clinic staff involved in deliveries and postpartum care for the purpose of improving the establishment of lactation and initiating exclusive breastfeeding in hospital and supervised births. Studies funded by A.I.D., W.H.O. and others had earlier shown the association of inadequate breastfeeding with hospital births, and documented the widespread mismanagement of lactation in health services. Among the teams from 50 teaching hospitals in 22 countries trained during 1983-1989, follow-up reports from Indonesia, Philippines and Thailand (Naylor, et al, 1989) indicate that:

- o in the 15 hospitals studied, routine bottle-feeding of breast-fed infants dropped from 79 percent to 14 percent after training;
- o In Indonesia, morbidity decreased by 86.9 percent during the six months following the initiation of the lactation management approach, and infant mortality from infectious diseases decreased by 63.6 percent;
- o in one hospitals in the Philippines, which delivers between 80 and 100 babies daily, cost savings of over \$100,000 yearly have been realized.

Costs:

Implementors: Teaching Hospitals in Indonesia, Philippines, Thailand and WELLSTART/San Diego.

PROJECT SUMMARY # 5

USAID-ASSISTED ICDS PROJECT, INDIA

The Integrated Child Development Scheme (ICDS) of the Government of India, begun in 1975, provides preschool education, food supplements, nutrition education and health services throughout the country using a network of preschool centers (anganwadis). Children under the age of six years and pregnant and nursing women are the beneficiaries. Since 1983, USAID assists the states of Gujarat and Maharashtra in 3,844 villages of two districts, to refine and supplement the ICDS program and improve its effectiveness. Studies and evaluations conducted in these districts (Anderson, 1989) have shown that:

- o None of the pregnant women studied achieved standard weight for height by the end of pregnancy. Weight gain during pregnancy averaged 6 kg., one-half of the recommended. Arm-circumference of 22.5 cm. was an accurate identifier of high risk women, i.e. those weighing less than 40 kg. (maternal weight below 40 kg. is a good predictor of risk of low birth weight);
- o Ninety-three percent of the pregnant women in the third trimester in study villages had hemoglobin concentrations less than international standards for anemia in pregnancy;
- o Only about 25 percent of the eligible women in the study received food supplements during 1986-87;
- o The prevalence of low weight-for-age in neonates (under 1 month old) was 24 percent lower in the supplemented group of women. Participation during the second as well as the third trimester doubled the weight difference (380 gm. vs 190 gm. greater than the unsupplemented group). Iron and folate supplements also doubled the weight increase over infants of women with neither food nor nutrient supplements;
- o The relative risk of low birth weight is significantly higher in women weighing less than 40 kg. The risk of moderate and severe malnutrition in one to three year olds was also two to three times higher, demonstrating the impact of maternal malnutrition well beyond early infancy;
- o A large proportion of women entered and exited from pregnancy with substantial weight deficits, even when supplemented. Because maternal weight status appears to have a significant and long standing impact on child malnutrition, nutrition of adolescent girls should receive higher priority.

Costs:

Implementors: Ministry of Human Resource Development, State Governments of Gujarat and Maharashtra, University of Baroda, USAID, JSI.

PROJECT SUMMARY # 6

SOCIAL MARKETING OF VITAMIN A IN WEST SUMATRA

In October 1987, the Government of Indonesia, with USAID assistance, launched a social marketing campaign to raise vitamin A capsule (VAC) coverage and increase the consumption of dark green leafy vegetables (DGLVs) in the Pariaman district of West Sumatra. The VAC campaign included training and motivation of kaders, radio, and banners. The DGLV message was conveyed through radio, posters, plastic shopping bags for vegetables, and counselling materials and posters for health personnel. An evaluation study conducted in 1989 showed the following compared to baseline:

- o VAC coverage increased initially from 20 percent to 68 percent, then dropped back to 58 percent (attributed to a high kader drop-out rate);
- o consumption of DGLVs among pregnant and nursing women more than doubled (24-hour recall), and increased more than 60% in the 5-60 months age group;
- o the cost of expanding the program to West Sumatra is estimated to be: \$0.28 per mother or child who increases DGLV consumption to sufficient levels, and \$0.05 per VAC delivered.

Costs:

Implementors: Directorate of Nutrition, MOH, Helen Keller International, The Manoff Group.

PROJECT SUMMARY # 7

NARANGWAL PROJECT, INDIA

Based on the landmark Khanna/India and Guatemala studies of the interactions of nutrition and infection, the Narangwal study estimated the cost-effectiveness of combining health care with nutrition interventions on mortality, morbidity, growth, and development of children under three years of age. Nutrition services consisted of growth surveillance (weight and height), selective feeding (children below 70 percent of Harvard standards) and nutrition education in groups and home visits.

Approximately 1,000 children in 10 study villages were followed longitudinally from 1969 to 1973. Results (Kielmann, et al, 1981) showed that:

- c three variables had major additive effects in accounting for better growth: nutrition intervention, caste and sex. A high caste male from a nutrition care village averaged 2.5 kg more in weight and 6.0 cm in height at 36 months than a low caste female from a control village;
- o children receiving the supplementary feeding component showed significantly lower 1-3 year mortality (difference of 7.6 per 1000) and significantly better 0-3 year growth (height); perinatal mortality was significantly lower (43.3 fewer deaths per 1000 live and stillbirths) compared with controls;
- o from 15 to 25 percent of children (depending upon season, sex and caste) remained below 70 percent of Harvard standards for two consecutive months, despite nutrition coverage.

Costs:

Implementors: John Hopkins University, Indian Council of Medical Research, the Punjab Directorate.

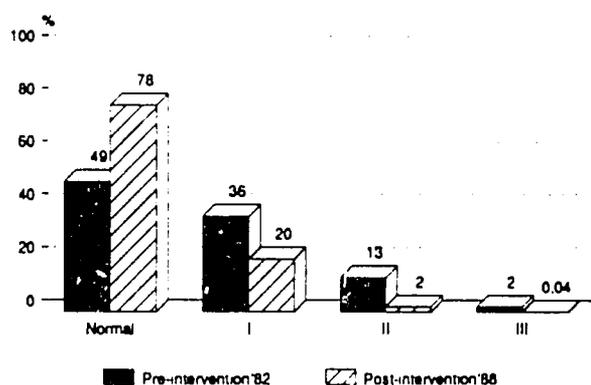
PROJECT SUMMARY # 8

THAILAND NATIONAL NUTRITION AND PRIMARY HEALTH CARE PROGRAM

Since 1982, nutrition activities are conducted as part of the national primary health care system focused in rural areas and urban slums. Activities include: growth monitoring and nutrition surveillance, food coupons for children with third degree malnutrition, nutrition training of community volunteers, and community nutrition education. Children with second and third degree malnutrition (weight-for-age) are weighed monthly and measured for height. Those with less than 90 percent reference height receive food coupons, medical care and nutrition education. All others are weighed quarterly and mothers receive nutrition education. Volunteers conduct growth monitoring activities after a 2-5 day training program conducted by program staff. Thailand has experienced remarkable economic prosperity in the past decade and evaluation of nutrition interventions is not available. However, data from growth monitoring activities (USAID, 1989) show:

- o coverage of 98.4 percent of villages and 84.8 percent of children under five with nutrition activities;
- o increase in the proportion of well-nourished children from 49 percent to 78 percent during the period 1982 to 1988.

PERCENTAGE OF CHILDREN IN GROWTH MONITORING PROGRAM



Costs: National budget for nutrition activities has increased from US\$1.7 million in 1982-86 to a projected US\$4.4 million for 1992-2001.

Implementors: Ministries of Public Health, Agriculture and Cooperation, Education and Interior; University Bureau.

PROJECT SUMMARY # 9

MOROCCO FOOD AID AND NUTRITION EDUCATION PROJECT

In April 1975, Catholic Relief Services introduced nutrition education courses in its 300 food distribution centers. As part of the PL 480 Title II program, families certified to be below the poverty level were eligible to receive approximately 45 kilograms per child under three (3 rations per family), annually.

The nutrition education component funded the recruiting of some 500 "monitrices" from villages with social education centers to be trained as teachers, and 30 supervisors. The educational curriculum was especially geared to the needs of low income women and included: infant feeding, sanitation, personal hygiene, treatment of childhood diseases. Activities consisted of monthly classes of 20 to 50 minutes each, weighing of children, and food collection in exchange for a 2 Dirham (\$0.54 in 1980). Results of the 1980 evaluation (Gilmore et al, 1980) showed that:

- o the program reached an estimated 11 percent of the families below the poverty line nationally;
- o the food equalled an income supplement of from 4 to 24 percent of the \$50 to \$260 per capita incomes of recipient families;
- o 32 percent of the children below 5 years of age entering the program were malnourished (<80% expected weight for age), the combined effects of food and nutrition education appears to have lowered this number to 11 percent in children who had been participating for about 3 years. Food without nutrition education did not appear to change the percentage of malnourished.
- o nutrition education program mothers showed higher nutrition knowledge scores and improved weaning practices; they demonstrated an understanding of growth charts.

Costs:

Implementors: Ministry of Social Affairs, CRS.

PROJECT SUMMARY # 10

THRIPOSHA PROJECT, SRI LANKA

Starting in 1972, CARE and GOSL, implemented a nationwide program to improve the nutritional status of preschool children, pregnant and nursing women through the distribution of a packaged, formulated food, "Thriposha" through health centers, in combination with nutrition education (growth monitoring is conducted three monthly) and basic health care. The food formulation allows substitution of donated commodities (PL 480 Title II WSB and/or CSM) with locally grown cereals/soybeans. Low-cost Extrusion Cooking (LEC) technology is used for preparing the supplement. Coverage expanded from 75,000 in 1973 to 632,000 in 1983. An evaluation of program impact based on records of 1799 children at 42 urban and rural sites (Drake, et al, 1982), showed that:

- o the proportion of children weighing less than 70 percent of the standard was lowest in children who had participated the longest in the program, in all age groups. Of children 12-24 months old who had participated for 1-6 months, 37.6 percent were malnourished compared with 26.4 percent malnutrition among children who had been participants for over a year;
- o the impact was likely due to the combined package of services which included immunizations and health care, nutrition education, and the food supplement.

Beginning in 1980, Thriposha was commercially marketed as a weaning food. A survey in 1984 showed that commercial Thriposha was consumed in significant quantity and lower income groups were among the purchasers (Hornstein, 1985).

Costs: Cost per child is estimated (in 1976) at US\$4.46 annually for administration and US\$6.68 for food.

Implementors: Government of Sri Lanka, CARE.

PROJECT SUMMARY # 11

PROJECT POSHAK, INDIA

From 1971 to 1975, CARE in collaboration with the Government of India, undertook a feasibility program to increase the coverage and quality of food distribution programs aimed at children 6 - 36 months of age. Monthly distribution of a processed weaning food (PL 480 Title II ICSM) from health centers in rural areas was accompanied by nutrition education and preventive health care. Thirteen thousand children and 2500 pregnant and nursing women were enrolled in 514 villages of 12 districts in Madhya Pradesh state. Evaluations and studies (Gopaldas et al, 1975) showed the following:

- o calorie and protein intakes of children under 18 months of age and nutritional status did not improve significantly, possible factors: strong traditional beliefs about infant feeding, diarrhea and other diseases were common, women were frequently engaged in agricultural work;
- o participation and coverage of pregnant and nursing women remained negligible;
- o improvements occurred in nutritional status of older children, nutrition knowledge and skills of health center staff, utilization of family planning services offered through health services;
- o families did not continue feeding special supplements to young children from their after the donated food was phased out despite nutrition education using local recipes;
- o the quality of the program varied tremendously from health center to health center.

Costs: Cost per child per year was estimated at US\$3.40 for administration and US\$11.60 for food in 1976.

Implementors: GOI, Government of Madhya Pradesh, CARE.

PROJECT SUMMARY # 12

TAMIL NADU INTEGRATED NUTRITION PROJECT

From 1980 to 1987, the Government of Tamil Nadu, with World Bank assistance implemented a program of a highly selective (age and velocity of weight gain among children), targeted supplementary feeding for malnourished children 6 to 36 months of age, and high risk pregnant and nursing mothers. Strong emphasis was placed on growth monitoring, social marketing of nutrition messages, comprehensive health services and careful tracking of information. A community nutrition worker was recruited, trained and deployed in each of 9,000 communities, as well as instructors, supervisors and nutrition officers to support this system. Rural areas of six districts with the largest caloric deficits in the state were selected with a target population of 8,250,000. Of the beneficiary population of 900,000 who received health and nutrition services, 450,000 children were weighed and 120,000 were fed (27%). Of the mothers, 34,000 were fed. Results of the evaluation showed that:

- o Participation in growth monitoring was kept over 90 percent. Of those who received supplements, 65 percent achieved adequate growth velocity in 90 days of supplemental feeding, and a further 15 percent in 120 days;
- o Serious and severe malnutrition (below 70 percent median weight-for-age of Indian standards) dropped from 19 at baseline to 12 percent two years later, compared with an increase from 16 at baseline to 30 percent, in comparable non-program areas. Among the one to three year olds, there was 40 percent less serious and severe malnutrition at mid project evaluation in the pilot area. By the end of the project, preliminary estimates showed a 50 percent or greater decline in the malnourished aged seven months to five years old;
- o An estimated 76,000 or more children would be prevented from moderate malnutrition and 12,400 fewer would die over a four-year period, if the project were expanded statewide, at a cost of \$1,482 per death averted per year.

Costs: Estimated costs of expansion per 100,000 persons are \$102,000 per annum (includes \$30,000 for food) in 1985. The cost per child weighed and screened is estimated at \$7.02 annually in 1985. The cost of overcoming malnutrition through a statewide expansion would average \$33 to \$126 per child depending upon severity of the case (compared with nutrition rehabilitation centers in Haiti estimated to cost \$3,600 per child and in Guatemala \$5,300 per child).

Implementors: Directorates of Social Welfare and Health/GOTN, Dept. Evaluation and Applied Research/GOTN.

PROJECT SUMMARY # 13

KB-GIZI: INTEGRATED FAMILY PLANNING, NUTRITION AND HEALTH PROGRAM OF INDONESIA

In 1979, the Government of Indonesia initiated an enhanced Family Nutrition Improvement Program (UPGK) in the province of Bali and ten Regencies in East Java. The basic package consists of monthly weighings of children under five; provision of nutrition and family planning information and education to mothers including food demonstrations; distribution of vitamin A capsules, ort and iron supplements for pregnant and lactating women; referral of severely malnourished children to health center staff, education on home gardens, and family planning services. Trained village nutrition volunteers (kader) manage these activities at the village weighing post which is the focal point.

An evaluation of the first five years of program implementation in East Java and Bali (BKKBN, Indonesian Universities and Community Systems Foundation, 1986) showed that:

- o In both provinces the purpose of growth monitoring is well known among 90 percent of mothers of eligible children, about 70 percent attended at least once, and approximately 50 percent had growth charts. There was a stronger tendency for mothers to bring children aged 12 to 30 months, rather than children aged 0 to 12 or 30 to 60 months;
- o Mothers' participation in weighing post activities improved when supplementary feeding was provided at the post, especially in villages where participation was low;
- o Mothers did not correctly recall program messages concerning the feeding of colostrum, age at introduction of solids, and frequency of feeding solids;
- o Attendance at weighing posts was closely related to knowledge of at least one dietary source of vitamin A and consumption of vitamin A capsules, especially in East Java;
- o In East Java there was a significant relationship between mothers having ever attended the weighing post and weight for age of the youngest child (12 to 30 months);
- o Mothers education was a significant determinant of knowledge of good infant feeding practices. Wealth and mothers education were important determinants of nutritional status.

Costs:

Implementors: National Family Planning Coordinating Board of Indonesia (BKKBN).

PROJECT SUMMARY #14

THE INDONESIAN FOOD AND NUTRITION SURVEILLANCE SYSTEM

Since 1978, the government of Indonesia, with USAID and World Bank assistance, has been developing nutritional surveillance activities that are unique in their comprehensiveness and effectiveness. The system has three main components: the Timely Warning and Intervention System (TWIS) to address recurrent consumption shortages in selected districts; surveillance for national planning and policy formation; and provincial/district level, planning-oriented surveillance. A review of the system in 1987 (Marks and Haas, 1987) showed that:

- o TWIS is now operational in 28 districts of 9 provinces prone to food consumption crises, and evaluations of the Central Lombok TWIS suggests that the system has contributed to preventing crises since it has been operational;
- o two types of indicators are used in TWIS: those that predict the drop in consumption (agricultural information, such as land area planted and crop yields to project employment and income impacts in food insecure households), and staple food consumption in a sample of "marginal" households;
- o procedures for data management and linkage with decisions vary from area to area;
- o interventions used to prevent the crises have varied according to the cause and timing. Examples: when planting has failed, seeds were provided or assistance given to start secondary crops (corn, soybeans, sorghum); when a shortfall in rice and associated employment has seemed imminent, emergency public works projects have been planned and implemented in affected areas, and the timing and location of developmental projects changed to benefit the affected areas; when consumption shortage occurred, food credits have been distributed to vulnerable households, and where needed, rice sold locally at the standard price;
- o a limiting factor at this time is limited capacity at provincial/district level and among national planners to conduct the studies and analyses needed for optimal use of information from the system.

Costs:

Implementors: BAPPENAS (National Planning and Development Agency), NIHRD, MOH, CRDN (Center for Research and Development in Nutrition), Bogor Agricultural Institute, Cornell University.

ANNEX IV

USAID HEALTH INFORMATION SYSTEM
 CENTER FOR INTERNATIONAL HEALTH INFORMATION
 PROJECTS IN ASIA NEAR EAST WITH A NUTRITION COMPONENT
 FROM THE HEALTH PROJECTS DATABASE - 490

PROJECT#	TITLE	YRS	END	PAID	IMPLEMENTING AGENCY	TYPE OF ACTIVITY *	PROJECT PURPOSE
** AN							
* ANE Regional							
8880355	Regional Technical Services in Vitamin A	87	90	09/30/91	CIH, HHI, U. of Michigan, Govt of Thailand, AED	TA SM PV CP OF RS IT	Help with Vitamin A programs
8811010	Improving Feeding Practices	85			Manoff International	HR OR	Improve feeding practices of working-age children, training programs for nurses
* Afghanistan							
8060201	FWD Co-Financing	86	91	03/17/92	IMC, Free Med.	IC HR TA	Assist PVOs in health training, hospitals, clinics, and nutrition, agricultural production, resettlement activities
* Bangladesh							
8880050	Family Planning Services	81	86	03/30/82	RSI	BF RS MM HR SM PV TA HR MM DC	Establish local OPR production facilities, launch OPR community programs, provide technical assistance
8881050	Family Planning Services	81	86	09/30/92	RSI	BF RS MM HR SM PV TA HR MM DC	Establish local OPR production facilities, launch OPR community programs, provide technical assistance
8880078	Urban Volunteer Program	86	87	03/30/91	ICDDR,B, JHU	TA IF VT HR MM CP PV DC BF SM OR	Deliver and evaluate a low-cost package of PHC services for women and children
8880078	Urban Volunteer Program	86	87	03/30/91	ICDDR,B, JHU	TA IF VT HR MM CP PV DC BF SM OF	Deliver and evaluate a low-cost package of PHC services for women and children
8880700	Grant to UNICEF	85	85	/ /	IRC/ICDDR,B	DC TA	Diarrheal control and nutrition activities in its Child Alive program
8810045	HHS/USP Vitamin A Grant	87	87	03/30/90	HHS	VT HR TA	Distribution of Vitamin A supplements, food fortification, home gardens
8810045	HHS/Nutrition Ed. Mass Comm./Soc. Marketing Project	88		02/28/91	HHS	VT RS OR PV CP MM IF	To assist with vitamin A and nutrition education activities
8810010	Improvement of Maternal and Infant Diet Project			/ /	ICRW		Supports research on relationship between maternal energy intake and nutritional quality/quantity of breast milk.

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 FROM THE HEALTH PROJECTS DATABASE - 490

PROJECT#	TITLE	BEG	END	FAIS	IMPLEMENTING AGENCY	TYPE OF ACTIVITY	PROJECT PURPOSE
9990505	Child Survival Grant to WFO	85	85	09/30/81	WFO	HE	Help expand CS activities and projects
9990506	Child Survival Grant to HKI	85	85	08/29/88	HKI	SM BF TA PV CP MM HR OR RS VT	Distribute Vitamin A capsules to 3 million children under age five
9990508	Child Survival Grant to HKI	85	85	08/29/88	HKI	SM BF TA PV CP MM HR OR RS VT	Distribute Vitamin A capsules to 3 million children under age five
9990508	Child Survival Grant to WFO	87	87	12/31/90	WFO	VT SM BF HR PV CP HE	Develop child survival programs in 5 service centers
* Burma							
4820004	Primary Health Care II	93	95	09/30/89	West. Consort.	ID HE HR	To promote CS programs including IPT and nutrition education
* Egypt							
2590157	Control of Diarrheal Diseases	81	87	08/30/90	Johns Hopkins	SM BF ID MM HR CP RS PV CP CC	Reduce child mortality from diarrhea by making rehydration services available through national program
2590200	Child Survival	85	90	08/30/88	Atlanta University	SM RS TA HR ID CP MM PV HE	To reduce mortality and mortality rates in infants, children, and women of childbearing age
* India							
3860476	Integrated Child Development Services	83	85	09/30/90	CARE	CP PV SM OR MM	Integration of Title II child feeding with nutrition education, maternal/child health services.
3860476	Integrated Child Development Services	83	85	09/30/90	CARE	CP PV SM OR MM	Integration of Title II child feeding with nutrition education, maternal/child health services.
3860476	Integrated Child Development Services			09/30/90	CARE	CP PV SM OR MM	Integration of Title II child feeding with nutrition education, maternal/child health services.
3860510	Private & Voluntary Organizations for Health II	87	88	09/30/95	MULTIPLE	HE	Assist local PVO sector expand health and population target themes
3860511	Private & Voluntary Organizations for Health II	87	88	09/30/95	BCI	HE	Assist local PVO sector expand health and population target themes

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PROJECTS IN ASIA/NEAR EAST WITH A NUTRITION COMPONENT
FROM THE HEALTH PROJECTS DATABASE (HPD)

PROJ#	TITLE	BEI	ENC	PAOD	IMPLEMENTING AGENT	TYPE OF ACTIVITY	PROJECT PURPOSE
9365951	CSAP Support (Johns Hopkins University)	87	89	03/15/90	ICHI	PV CP TA DC GM HF	Providing broad range of technical assistance to CSAP/India and to the West Bengal State Health Dept. to promote child survival activities.
9361832	PV BF Child Survival Grant to CARE	87	87	03/31/90	CARE	HE BF GM RB SR PV CP	Promotes diarrheal diseases control, nutrition programs, and immunizations for children under age 5.
* Indonesia							
4971278	Health Training, Research and Development	78	85	03/30/88	AED, MOH	TA DC ID MM HE HF CP PV BF	Strengthen public health planning, research, establish effective management information systems.
4970305	Village Family Planning/Mother-Child Welfare	80	88	03/30/90	ICHI	BF GM ID MM HE HR DR BM TA	Use village family planning system for improving nutrition of young children and their mothers.
4970325	Comprehensive Health Improvement Program	81	85	03/30/89	MOH	GM PV CP VT HF IF DC BF HE TA MM	Accelerate and intensive upgrading of health sector service delivery systems of 1 outlying island provinces.
4970328	SPB/PVO Co-Financing II	82	86	03/30/88	CSE	BF TA DR CP HR PV GM	Provide TA, support, and evaluation train VHWs in Title II Program.
9310045	HKI:PVO Vitamin A Intervention Program	88	88	09/01/89	HKI	VT DR HR PV DC BF SM TA	Help with Vitamin A programs
9310045	HKI:87 Vitamin A Grant	87	87	09/29/90	HKI	TA MM VT HR RS	Distribute Vitamin A supplements, food fortification, home gardening.
9311010	Improvement of Maternal and Infant Diet Project	/	/	/	ICRW		Supports research identifying factors responsible for compliance of women with nutritional supplementation programs during pregnancy. To work with local organizations to assess weaning practices, develop communication strategies, to improve practices, and test preparation in the home.
9311010	Improvement of Maternal and Infant Diet Project	/	/	/	Manoff International		

USAID HEALTH INFORMATION SYSTEM
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 PROJECTS IN ASIA NEAR EAST WITH A NUTRITION COMPONENT
 FROM THE HEALTH PROJECTS DATABASE (HPO)

PROJECT	TITLE	BEG	END	PAID	IMPLEMENTING AGENT	TYPE OF ACTIVITY	PROJECT PURPOSE
901100	Improvement of Maternal and Infant Diet Project				Wellstart	HR	Supports lactation management training programs for health professionals.
901101B	Communication for Child Survival-HEALTHCOM	87	90	07/19/89	AED	BF HE TA MM RS PV OP SM	Find ways of using communication channels to support child survival interventions
9055300	Primary Health Care Operations Research (PRICOR II)	87	89	09/30/89	Center for Human Services, USC	HR RS SM TA OS OS	To analyze health service delivery and effectiveness of promotional activities
9055351	OSAP Support (Johns Hopkins University)				JHU		To assist with child survival activities.
9055351	OSAP Support (American Medical Association)	86	89	08/27/89	AMA	BF HE SM OP HR PV OP	To assist with child survival activities.
9055369	Technologies for Primary Health Care II (PRITECH II)	88	91	09/30/89	MSH	TA HR RS PV BF	To assist with CPT programs
9380502	FY 85 Child Survival Grant to SCF	85	85	08/31/89	SCF	OP HR OS OS BF HE TA VT SM	Promote child survival interventions such as CPT, immunizations, and neonatal health activities
9080510	FY 86 Child Survival Grant to SCF	86	86	08/30/89	SCF	OP	To further CPT activities programs
9080529	FY 87 Child Survival Grant to AORA	87	87	08/30/89	AORA	SM HE HR PV OP TA DC	Train health workers/nurses to teach mothers nutritional practices, CPT, and immunization
9780271	Primary Health Care Nursing Development <i>- CRS + SCF coming under this</i>	86	87	06/30/92	PRAGMA, Johns Short	BR OR ID HR RS PV OP DC HE	Help meet critical need for more & better trained nurses, midwives to address the preventive health care needs of the Jordanian public
901101B	Communication for Child Survival-HEALTHCOM	87	90	06/19/89	AED	PV OP OR RS BF MM	Find ways of using communication channels to support child survival interventions
6080171	Family Planning Support III	86	86	09/30/81	MSH	PV OP OS OS MM HE HR TA BF	Family planning and MCH Programs undertaken in 18 provinces & 3 urban areas
6080171	Family Planning Support III	84	88	09/30/81	MSH	PV OP OS OS MM HE HR TA BF	Family planning and MCH Programs undertaken in 18 provinces & 3 urban areas (conducting AICE activities 100% of funds.

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USAID HEALTH INFORMATION SYSTEM
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 PROJECTS IN ASIA/NEAR EAST WITH A NUTRITION COMPONENT
 FROM THE HEALTH PROJECTS DATABASE -PC-

PROJECT	TITLE	888 890 892	IMPLEMENTING AGENT	TYPE OF ACTIVITY	PROJECT PURPOSE
* Nepal					
8291528	FY 87 Child Survival Grant to RFA	87	07/01/81 RFA	TA BF HE SM HF RG PV IF	Expand CB programs including ORT and immunizations through village health workers and traditional health attendants.
8291508	FY 87 Child Survival Grant to RFA	87	07/01/81 RFA	BF HR TA RG SM HE SM PV CP DD	Provide ORT and high risk birth management services to promote child survival activities.
* Pakistan					
8910475	Primary Health Care	82	03/30/89 MOH	CP MM ID TA HP TT CP BF PV	OS objectives are being addressed through community campaigns, emphasizing ORT
8910475	Primary Health Care	82	03/31/89 MOH	OR MM ID TA HP TT CP BF PV	OS objectives are being addressed through community campaigns, emphasizing ORT
8080808	Child Survival Grant to SANGU	85	07/01/89 SANGU	HE HF DD BF SM IF	Intensify ORT, IMM activities in ongoing PNC outbreak programs
8281528	FY 87 Child Survival Grant to AOPA	87	09/30/90 AOPA	BF SM TA VT SM HE HF IF	Support OS 1 train VHWA/TBAs in ORT and communication
8281501	FY 87 Child Survival Grant to Aga Khan	87	08/30/80 AGA KHAN	PV CP BF SM HF HE IF	Provide child survival services in rural northern areas, including ORT, immunizations, nutrition education, and high risk birth management.
* Papua New Guinea					
8311018	Communication for Child Survival-HEALTHCOM	88	06/19/88 AED	TA PV RG DD MM IF	Find ways of using communication channels to support child survival interventions
* Philippines					
4820367	OPB:PVO Co-Financing II	84	09/30/92 Multiple	HE SM PV CP DD TA HF	Support continuing PNC activity & expand current activities.
4821371	Primary Health Care Financing	80	12/31/89 AED, John Snow, MCH, WHO/NFPD, OPB, CDC,	BF DD CP PV CP TA DD MM HF	Reduce high fertility, infant and young child mortality, esp. ORT
8310045	OPB:PVO Vitamin A Intervention Program	88	12/31/88 WHO	BF VT HF PV CP SM RG DD TA	Help with Vitamin A program

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 FROM THE HEALTH PROJECTS DATABASE (HPO)

PROJ#	TITLE	BBG	END	FAOD	IMPLEMENTING AGENT	TYPE OF ACTIVITY	PROJECT PURPOSE
8811018	Communication for Child Survival-HEALTHCOM	87	88	07/01/88	AED	BF HE MM PM HR RB OF	Find ways of using communication channels to support child survival interventions
8888820	Primary Health Care Operations Research (PRICOR II)	87	89	10/31/88	Center for Human Services, USC	GM HR OC TA OR	To analyse health service delivery and effectiveness of promotional activities
8888881	OSAP Support (Johns Hopkins University)	87		08/28/88	JHU	OR SF HR GM VT PV OF OC	Project supports evaluation of public/private sectors of child survival activities in metropolitan Cebu.
* Sri Lanka							
8880181	OSAP/WHO Co-Financing	78	88	08/28/88		CF -E HR ID PV IF	Assist indigenous and US FVOs in collaborative activities to assist poor
* Thailand							
8811045	OSAP/WHO Co-Financing	87	87	09/30/88	CRS	VT	Distribution of Vitamin A supplements, food fortification, home gardening
8888800	Primary Health Care Operations Research (PRICOR II)	88	88	08/31/88	Center for Human Services, USC	TA OR OC HR GM	To analyse health service delivery and effectiveness of promotional activities
8888881	OSAP Support (American Medical Association)	88		08/27/88	AMA	HE SF HR TA PV OF	To support child survival activities.
8888882	Applied Diarrheal Disease Research (ADDR)	88		01/18/88	HCDC	HE	To assist with diarrheal diseases control activities including weaning education for control of diarrheal diseases
8888883	Applied Diarrheal Disease Research (ADDR)	88		04/11/87	HCDC	HE	Clinical epidemiology of acute diarrheal diseases in children under age two in urban Chonburi, Thailand including maternal/child health practices
* Tunisia							
8840001	Family Planning and Population Development	85	87	06/30/88	RONCO	TA MM HR OR SM PV RB SF OR BF	Assist in family planning in Tunisia
8840002	Family Planning and Population Development	85	87	06/30/88	RONCO	TA MM HR OR SM PV RB SF OF BF	Assist in family planning in Tunisia

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 PROJECTS IN ASIA/NEAR EAST WITH A NUTRITION COMPONENT
 FROM THE HEALTH PROJECTS DATABASE 1980

NO.	TITLE	YRS	END	START	IMPLEMENTING AGENT	TYPE OF ACTIVITY	PROJECT PURPOSE
	Yemen						
81185	Tihava Primary Health Care	80	87	12/01/80	MSH	VT TA CD HF CP GM GM CP IF ST	Extend health care services to rural populations including efforts to control malaria and tuberculosis
81181	Accelerated Cooperation for Child Survival	88	91	09/30/80	John Snow, AED	BF GM VT CP FI TA HF HE IF CD **	Directed toward major health problems of infant and maternal mortality, and morbidity
81182	Accelerated Cooperation for Child Survival	88	91	12/30/80	John Snow, AED	BF GM VT CP PV TA HF HE IF CD **	Directed toward major health problems of infant and maternal mortality, and morbidity
81227	Technologies for Primary Health Care (TPEACH)	87		12/00/80	John Snow	GM TA HF HE	To support innovation activities

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DATA NOTES

Projects are identified for the Health Projects Database (HPD) through the Congressional Presentation and the Annual Budget Submissions. The primary source for coding activities is the annual Health and Child Survival Questionnaire. Various other A.I.D. and project documents are also used for coding.

*The abbreviations for nutrition activities used on this table are:

BF	Breast feeding	GM	Growth monitoring
IF	Infant feeding	VT	Vitamin A

Other abbreviations:

BR	Biomedical research	CP	Community participation
DC	Data collection/analysis	FE	Feasibility studies
HE	Health education	HR	Human resource development
ID	Infrastructure development	MM	Mass media & communication
CR	Operations research	PV	Private sector involvement
RS	Other research	SM	Social marketing
TA	Technical assistance	TT	Technology Transfer

The projects on this table which do not have specific nutrition activities listed have been coded for general nutrition activities.