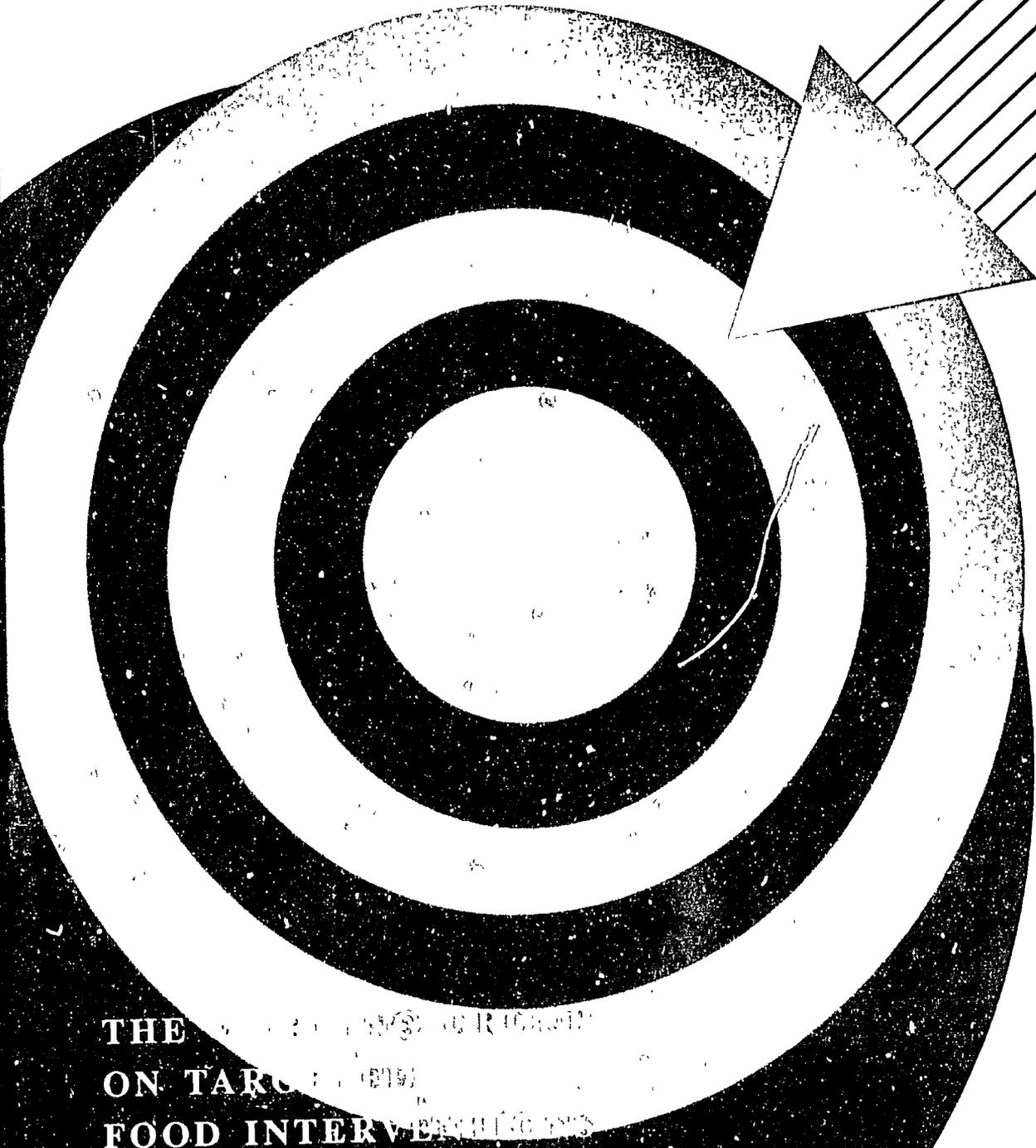
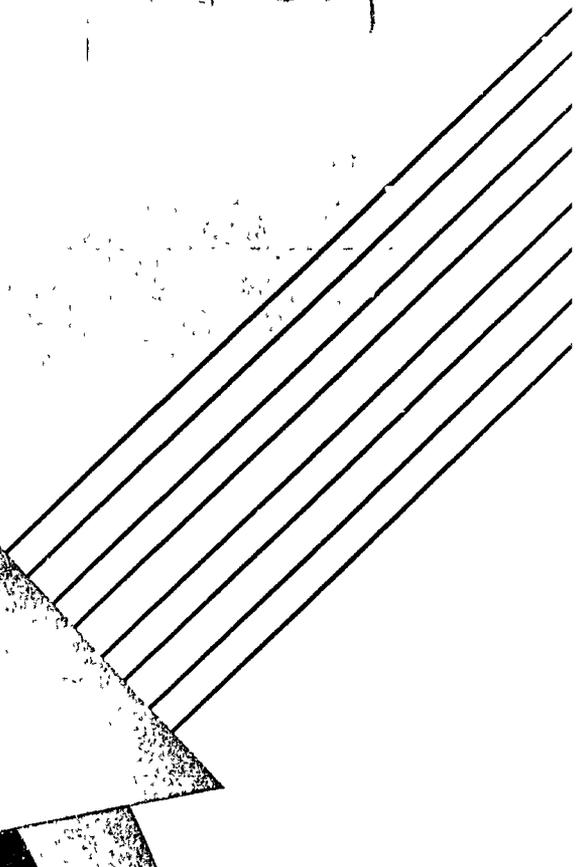


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# OPTIONS FOR TARGETING FOOD INTERVENTIONS IN BANGLADESH



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- IFPRI
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- BRAC
- CARE
- FPMU
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THE ...  
ON TARGET ...  
FOOD INTERVENTIONS

# **OPTIONS FOR TARGETING FOOD INTERVENTIONS IN BANGLADESH**

a report prepared by

004201

## **The Working Group on Targeted Food Interventions**

Chair:

International Food Policy Research Institute (IFPRI)

Members:

Academy for Planning and Development

Bangladesh Rural Advancement Committee (BRAC)

CARE

Food Planning and Monitoring Unit (FPMU)

Institute of Nutrition and Food Science (INFS)

USAID/Bangladesh

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# Acronyms

BIDS	Bangladesh Institute of Development Studies
BRAC	Bangladesh Rural Advancement Committee
CFE	Cash for Education
CFW	Cash for Work
EP	Essential Priorities
FFE	Food for Education
FFW	Food for Work
FPMU	Food Planning and Monitoring Unit, Ministry of Food
HKI	Helen Keller International
ICDDR,B	International Center for Diarrheal Disease Research, Bangladesh
IFPRI	International Food Policy Research Institute
INFS	Institute of Nutrition and Food Science
LSD	Local Supply Depot
MPC	Marginal Propensity to Consume
OMS	Open Market Sales
OP	Other Priorities
PFDS	Public Food Distribution System
RMP	Rural Maintenance Program
RR	Rural Rationing
SR	Statutory Rationing
UNICEF	United Nations International Children's Emergency Fund
VGD	Vulnerable Group Development Program
WFP	World Food Programme

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# Foreword

In December 1991, the Government of Bangladesh suspended Palli (Rural) Rationing, one of the largest channels in the Public Food Distribution System (PFDS). Before its demise, Rural Rationing distributed 20% of all public foodgrains and over 50% of all publicly disbursed rice. Ultimately, the high fiscal cost of the ration subsidy (\$60 million in 1990/91) and heavy leakage to the nonpoor motivated its formal abolition in May of 1992.

The abolition of Rural Rationing knocked the PFDS out of balance. It closed off the principal outlet for domestically procured rice at a time when a high procurement price had attracted a "Himalayan mountain" of rice, about 800,000 metric tons. In the short run, the Ministry of Food located a temporary outlet for this excess rice - they persuaded donors to substitute rice for wheat during the 1992/93 food for work season. In the long run, they face two challenges. First, they must equilibrate the system, either by lowering procurement, and probably procurement price, or by expanding outlets to turn over the large public rice stocks. Second, the Ministry is concerned about food security of the 6.1 million dispossessed cardholders who were formerly entitled to subsidized rural rations.

The question they now pose is: "How can government more effectively target food subsidies for the poor?" To answer this question, the Ministry of Food asked IFPRI to conduct a systematic review of alternatives to Rural Rationing.

To undertake this review, we assembled a group of technicians from institutions interested in food policy. They represent a wide range of policy and operational experience. This "Working Group on Targeted Food Interventions" includes the following members:

Chair:	Steven Haggblade, IFPRI
Secretary:	Akhter U. Ahmed, IFPRI
Members:	Mohammed Abdullah, INFS
	Salehuddin Ahmed, BRAC
	Craig Anderson, USAID
	Nuimuddin Chowdhury, IFPRI
	Tawfiq-e-Elahi Chowdhury, Academy for Planning and Development
	Naser Farid, FPMU
	Shirley Pryor, USAID
	Syed Ataur Rahman, FPMU
	Nick Ritchie, CARE

We on the Working Group have interpreted our mandate broadly. We considered not only rural undernutrition, but also that of the urban poor. We likewise reviewed a complete spectrum of program options, including not only existing programs in Bangladesh but also interesting alternatives from around the world. Although food resources - food aid and domestically procured surplus food stocks - are those most widely available for poverty alleviation programs in Bangladesh, we did not limit ourselves to options for programming food. Instead, we considered options for programming both food and cash resources. So in all cases where interpretation was required, we have cast our net broadly.

This report summarizes our proceedings and principal findings. As a group, we emerge from this exercise excited by the clear potential to improve effectiveness of targeted food interventions in Bangladesh. In some cases, this merely requires expansion of existing, well-functioning programs. In others, we have identified interesting variants or even completely new programs that we believe merit piloting.

We stand willing and available to elaborate our analysis and conclusions. We have found the interaction among members of the Working Group to be both stimulating and rewarding. And we hope this report will spark interest and experimentation by other institutions as well. Ultimately, we aspire to translate this effort into a more effective focus of interventions on behalf of the poor.

Steven Haggblade, IFPRI  
Working Group Chairman  
February 1993

## **POST SCRIPT**

The Working Group hearings took place during June, July and August of 1992, according to the schedule described in Appendix A. Since then, we have circulated our findings to an array of professionals through a sequence of two draft reports appearing in September 1992 and February 1993. We are pleased that these early drafts of the report have stimulated widespread discussion as well as introduction of Government's new Food for Education program. Though final publication has been delayed for a variety of reasons, we believe the analytical material produced by the Working Group remains a valuable reference for practitioners and policy makers interested in improving the effectiveness of government's targeted programs.

Steven Haggblade, IFPRI  
April 1994

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# Acknowledgements

In designing the Working Group agenda, we benefited from important support by Raisuddin Ahmed, Howarth Bouis, Joachim von Braun, Menno Mulder-Sibanda, and Shubh Kumar. Joachim von Braun made the participation of Bouis and Kumar possible by providing outside funding to supplement our scarce project resources.

Many other professionals kindly offered technical expertise on specific Working Group topics. We are grateful to the following specialists for sharing with us the benefit of their wisdom: Aminul Alam, BRAC; A.H. Md. Shamsul Alam, Directorate of Supply, Distribution and Marketing, DG Food; Hriday Ranjan Bishi, Directorate of Relief and Rehabilitation; Martin Bloem, Helen Keller International; Gaston Eyben, WFP; Omar Haider Chowdhury, BIDS; Forrest Cookson, Nathan Associates; Ahmed Faruk, INFS; Andres de Francisco, ICDDR,B; Philip Gowers, World Bank; Khondoker Shahidul Haque, WFP; Rezaul Hassan, CARE; Richard Heaver, World Bank; Jonathan Hodgdon, CARE; Masood Hyder, WFP; Riti Ibrahim, BBS; A.S.M. Jahangir, USAID; Urban Jonsson, UNICEF; Golam Kabir, USAID; A.F.M. Iqbal Kabir, Save the Children Fund (UK); Ibrahim Khalil, USAID; A.Z.M. Hossain Khan, Directorate of Relief and Rehabilitation; Afia Khatun, Directorate of Relief and Rehabilitation; Sikender H. Khan, WFP; S. R. Khan, WFP; Tom Krift, Save the Children Fund (USA); M.A. Majid Molla, Bangladesh Bank (retired); Philip O'Brien, UNICEF; Marian Read, WFP; Pamela Rittemeier, UNICEF; Md. A. Saleque, BRAC; Mizan Siddiqui, Aga Khan Child Health Project; and Herbert Smith, USAID.

Given the wide range of experience represented here, it is perhaps not surprising that, on occasions, we entertained conflicting views from among the presentations received. So, while acknowledging their contributions, we do not necessarily wish to implicate any of these professionals in our findings.

They, as well as our Working Group members, donated their valuable time free of charge. Given the many demands on their time and talents, their substantial input makes this review low cost but, at the same time, extremely high value.

For their clarity and expertise, we are exceedingly grateful. Only with generous input from this large supporting cast were we able to navigate such wide waters so quickly and effectively.

Steven Haggblade, IFPRI  
Working Group Chairman

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# Executive Summary

Half of all households in Bangladesh cannot afford an adequate diet. In the long run, these poor families require increased employment and incomes to ensure adequate food intake. Consequently, any long-run solution to undernutrition will require widespread, labor-using economic growth.

In the interim, targeted safety net programs may provide needed relief. But the need overwhelms available resources. To ensure nutritional adequacy for undernourished households would require roughly \$2.6 billion per year, 10% more than annual government revenue and 30% in excess of yearly foreign aid inflows. These requirements dwarf the \$110 million in annual food subsidies currently allocated through government's existing monetized ration channels. Given limited resources, government and donors must carefully target short-run relief to the people, locations and seasons where they will achieve greatest impact.

The purpose of this report is to systematically review the most cost-effective ways of targeting short-run relief. In doing so, it considers two broad categories of interventions. First are those that increase household income. They then let households decide what foods to purchase and how to divide it among family members. Second are interventions that try to influence household caring behavior. These efforts target vulnerable individuals within the household and behavior that affects the quality and distribution of food consumed.

## EXISTING PROGRAMS

### Targeting income to poor households

The overwhelming majority of interventions in Bangladesh direct income supplements to vulnerable households. The largest of these programs include Food for Work (FFW), the recently discontinued Rural Rationing (RR) program, Vulnerable Group Development (VGD), and the Rural Maintenance Program (RMP). Together, even after the abolition of Rural Rationing, these programs operate at a cost of about \$250 million per year.

Two of these income-transfer programs, FFW and RMP, deliver income in return "for work" performed. In contrast, the ration channels deliver income subsidies "for free," while VGD delivers free grain each month in return "for training" and for other development activities.

*By region.* In spite of widespread regional differences in nutritional status, the Vulnerable Group Development (VGD) program is currently the only major program attempting to target at-risk regions. Even they are only partially successful, in large part because it appears politically difficult to institute a strong regional focus.

*By season.* Food for Work (FFW) earthworks, the major "for work" program in Bangladesh, operates primarily during the dry season. About 40% of FFW income payments occur during the first lean season, in March and April. The smaller "cash for work" program, RMP, operates at the same level year-round, as do VGD, FFW afforestation activities and the ration channels.

Only the Ministry of Food's Open Market Sales (OMS) program operates specifically in both of Bangladesh's lean seasons, the first in March/April, the second in September/October. OMS dampens seasonal price spikes by selling public grain when market prices surpass pre-set trigger prices. Thus, OMS is not a targeted program, but rather a general program available to all consumers of wheat and rice.

## **Targeting caring behavior and vulnerable individuals**

Surprisingly few programs in Bangladesh target vulnerable individuals within poor households or attempt to improve the caring behavior so important in determining intra-household distribution and the quality of food consumed. A handful of organizations run rehabilitation centers and maternal child health programs for pregnant women and preschool children. Others offer nutrition education, growth monitoring and income generation. Yet few provide direct food supplementation for those household members who normally receive lowest priority in household food allocations. The largest programs targeted at vulnerable individuals include the Ministry of Health's (MOH) general-purpose health extension network and the joint MOH/UNICEF universal vitamin-A capsule distribution for preschool children. Altogether, current programs focused on caring behavior and vulnerable individuals expend only about \$20 to \$30 million per year. With its additional \$10 to \$15 million per year, the World Bank nutrition project currently under design will help redress the current imbalance.

The country's large family planning program, as an important byproduct, also influences vulnerable groups - pregnant and lactating women, infants and preschool children. To the extent they promote breast feeding, family planning efforts directly improve the health of infants and preschool children. Breast feeding also influences birth spacing and thereby improves nutritional status of mothers. It also increases the birthweight and survival prospects of subsequent children. Annual expenditures on family planning total as much as \$100 million per year in Bangladesh.

## PROGRAM PERFORMANCE

Because the current array of interventions in Bangladesh focus overwhelmingly on transferring income to vulnerable households, it is possible to directly compare their cost-effectiveness in doing so. Table i summarizes performance by calculating the cost each program incurs in delivering taka 1 in income to a vulnerable household.

**Table i—Cost-effectiveness of alternative targeted food interventions in Bangladesh**

Program	Cost of supplying 1 taka of income to a vulnerable household*	Development Impact? **
<b>Existing</b>		
Ration channels	6.6 - 360	no
Food for Work	1.8 - 2.4	yes
Vulnerable Group Development	1.4 - 1.5	yes
Rural Maintenance Program	1.2	yes
<b>Potential</b>		
food stamps	1.7	no
"cash for work"		
- construction	1.7	yes
- easily supervised	1.3	yes
cash transfers	1.35	no

Notes: \* Cost includes the 1 taka income transfer plus costs of administration and leakage. Calculations value grain at the landed cost of imported wheat rather than at the government ration price.

\*\* A "development impact" is defined as any additional, lasting effect a project is meant to have beyond the income transferred to beneficiaries or workers.

Source: Appendix Tables B.1 and B.2.

**RMP and VGD.** Among existing programs, the Rural Maintenance Program (RMP) and Vulnerable Group Development (VGD) transfer income to poor households at least cost. RMP, a "cash for work" scheme, supplies taka 1 in income at a cost of taka 1.2. VGD, a "food for training" program, does so at a cost of taka 1.4 to 1.5. It is important to recognize that this calculation evaluates both RMP and VGD purely as a vehicle for targeting income relief. Development impact and costs are unaccounted for in these relief-effectiveness calculations.

**Ration channels.** In contrast, the ration channels have proven least effective at directing income to vulnerable households. They operate with enormous rates of system leakage - 70% to 95%. And like other commodity-based channels, the ration system bears the high cost of physical commodity handling. Because leakage lowers income benefits to poor households and commodity handling raises costs, the ration channels require taka 6.6 to 360 to transfer taka 1 to a target household.

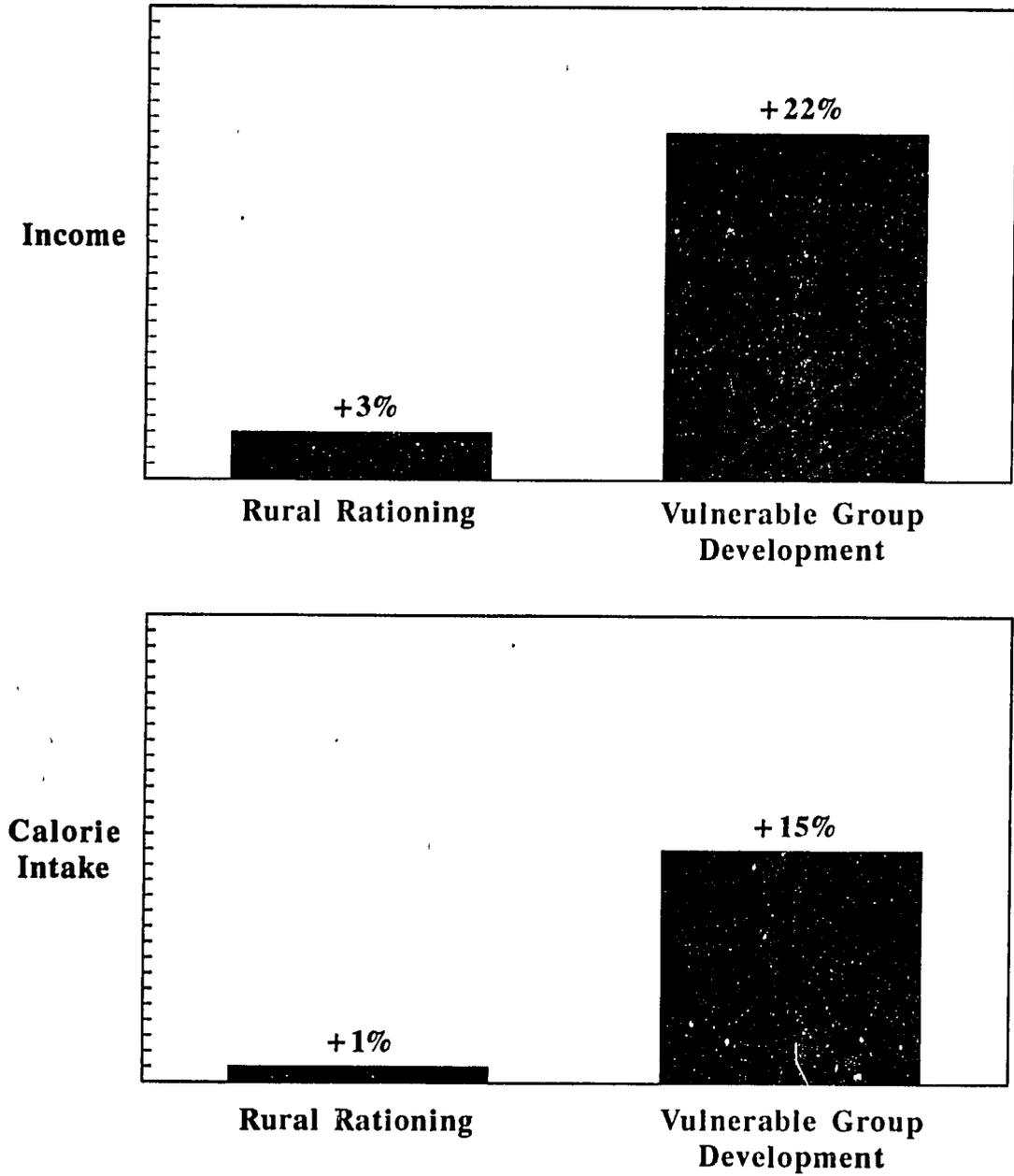
**FFW.** The intermediate performer is Food for Work (FFW). Because of moderate system leakage - of 30% to 35% - and because it, like the ration channels, bears the cost of commodity handling, FFW transfers taka 1 to a poor household at a cost of taka 1.8 to 2.4. As with RMP and VGD, the development costs and impact of FFW are unaccounted for in these calculations.

A principal conclusion of this review is that food is a cumbersome resource, while cash is more flexible and less costly to manage. Food transfers immediately raise program costs by 25% because of the internal transport and handling costs of these bulky commodities. So, in general, cash-based programs deliver income relief at lowest cost. Cash transfers or "cash for work" programs can build on the technology pioneered in the Rural Maintenance Program (RMP). Based on RMP's experience, these cash-based programs can probably deliver entitlement to poor households at the lowest cost of all, taka 1.2 to 1.3 for each taka received by a poor household.

To realize these cost savings and to enhance programming flexibility, this report advocates expanded monetization of small amounts of additional food aid. These funds will introduce more flexibility in food aid programming and enable experimentation with pilot programs such as those suggested in this report. But large-scale expansion of monetization will require prior review of mechanisms, price effects and their consequences on foodgrain production, consumption, and trade.

Recent analysis suggests that effectively targeted programs, such as VGD, can significantly affect both income and household food consumption (Figure i). Yet ineffectively targeted programs, such as the ration channels, do not.

**Figure i—Impact of two targeted programs  
(Increase due to program)**



Source: See Appendix Table B3.

## RECOMMENDATIONS

This report remains agnostic about the absolute magnitude of resources to be marshalled for combatting undernutrition. Short-term relief is a worthy objective. But it is one that must compete against many other highly valued programs such as agricultural research, farm input supply, primary school education, physical infrastructure, industrial promotion, and national defense. Tradeoffs among these programs require value judgments and debate. They are not technical questions. So allocation of Bangladesh's very scarce resources among these competing options can only be made in a political arena.

Given a specific allocation, either for income targeting or for programs aimed at improving caring behavior, the following recommendations identify the most interesting programming options within each group.

### Targeted income transfers: existing, "on-the-shelf" programs

1. *No new monetized ration channels.* Resources available for poor households can be far more effectively delivered through other programs - new or existing relief channels, related pilot programs, or programs targeted at caring behavior.

2. *Expand government-funded RMP-like or VGD-like safety net programs.* In the short run, if government wishes to expand targeted safety net programs, expansion or replication of RMP and VGD offer the quickest proven means of delivering additional resources to low-income households. Where cash is available, RMP-like "cash for work" programs offer the most effective income transfer mechanism (1.3 taka). Where food must be programmed, VGD offers the most effective outlet (1.4 to 1.5 taka).

To demonstrate the gain in targeting efficiency, consider the \$60 million in food subsidy government previously spent through Rural Rationing. If channeled through an RMP-like "cash for work" program, those resources would increase vulnerable household income by \$46 million. Through VGD, similar resources would generate \$40-\$43 million for target households, and through FFW \$25-33 million. Yet with the same resources, Rural Rationing directed only \$9 million to its intended beneficiaries.

If expanded on a large scale with government funding, it may be desirable to change the program names to clearly distinguish them from donor-funded programs. This would also offer government, if they wish, the latitude to operate these VGD-like or RMP-like programs purely as safety nets. Currently, because of their development objectives, the existing VGD and RMP programs are more costly than they need be purely for purposes of safety netting.

**3. Expand Open Market Sales (OMS).** Open Market Sales enjoys clear potential for targeting distressed regions during the second lean season, in September-October. But to perform more effectively, OMS will likely require some modifications: a) guaranteed supply of OMS grain in remote areas; b) open access to OMS grain, not just through authorized dealers; c) advertizing of OMS availability; and d) sale by auction to lower cost and avoid discouraging private storage.

### **Targeted income transfers: pilot programs**

**4. Modified "for work" programs.** "Cash for work" can reduce program costs by about 25% over food-based public works schemes by avoiding commodity handling costs. A further switch, from construction to more easily supervised maintenance activities, reduces scope for leakage and thus offers prospects for increasing benefits by 30 to 35%.

Yet expansion of many "for work" programs is constrained by a shortage of capacity to manage labor-intensive public works. It is also restricted by a dearth of productive activities that undernourished, unskilled poor people can perform. To at least partially address the management constraint, we suggest experimenting with geographic targeting of new "cash for work" or "food for work" programs in urban slums and in secondary urban centers. We also propose more intensive targeting of distressed rural regions such as the flood-prone zones bordering Bangladesh's major rivers. Interesting "for work" activities with potential for expansion include: canal digging and drainage in low-lying areas; urban environmental clean-up; social forestry; latrine construction; fish-tank excavation; and construction and maintenance of primary schools.

**5. "Food (or cash) for education".** As a pilot activity, we propose experimentation with a modified VGD-like program that ties vulnerable household income supplements to primary school enrollment of their children. The goal of this program would be to increase primary school attendance by children from low-income households. In the medium run, it will allow poor families access to job opportunities unattainable under current circumstances. The FFE (or CFE) income supplement may be operated with or without a school feeding component. While the FFE (or CFE) ration aims to increase school attendance, the optional school feeding component would aim to improve classroom performance.

We believe it will be important to include both government and private schools in any pilot efforts. We also note that expansion on a large scale will require collateral focus on facilities, teacher salaries, curriculum and supplies.

**6. Cash transfers for the destitute.** For the bottom two to three percent of the population, government may wish to consider income supplements via cash transfers through banks or post offices. Such entitlement would have to be scrupulously targeted to the hard core physically and mentally handicapped and those with other disabilities. Payments would

probably need to be of limited duration, as with the VGD's two-year limit on ration entitlement.

### **Caring behavior and targeting vulnerable individuals: new programs**

**7. Iron supplementation.** Iron supplementation for pregnant women offers substantial nutritional payoff at very low cost. It should claim highest priority among targeted nutrition interventions. For that reason, UNICEF and MOH have already agreed to institute such a program.

**8. Maternal child health supplementation.** In view of the extreme nutritional vulnerability of pregnant and lactating women, infants, and preschool children, we recommend piloting supplementation programs that would include the following elements: regular check-ups; iron supplementation; post-natal monitoring; growth monitoring and immunization of children; screening of the most undernourished women and children; and possibly, for the very poor, food supplementation through food stamps. In piloting efforts in Bangladesh, nutrition specialists advocate integrated, community-based programs modeled on the widely touted Iringa Project in Tanzania. The FFE pilot suggested above might provide a novel forum to focus a portion of these efforts in Bangladesh.

In sum, a range of exciting opportunities exist for combatting malnutrition. An optimal mix will probably involve some combination of income targeting and attention to caring behavior.

Many times before, Bangladesh has led the development community - with the Comilla Project, the Grameen Bank, BRAC and others. Perhaps yet another great wave of creativity will emerge from among the options proposed here for combatting malnutrition.

# 1

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## Overview

### OBJECTIVE

Perhaps the starkest, most startling consequence of poverty in Bangladesh is that fully half the country's population cannot afford an adequate diet.

Undernutrition is both a consequence and a cause of underdevelopment. A malnourished population contributes less effectively to economic development than a properly fed, physically strong and active population. Consequently, Bangladesh is very likely paying a high price for its widespread malnutrition and the resulting low productivity of her labor force. Efforts to ensure food security in Bangladesh represent a good investment in human capital, one that can effectively contribute to a healthy, growing economy.

National food security is defined here as continuous access by all people to a supply of food adequate to maintain an active and healthy life. Availability of an adequate aggregate food supply is one essential element of food security, although there is no necessary connection between food security and food self-sufficiency. The other essential element in food security is access. Access implies that individuals have sufficient purchasing power to acquire the food they need. While Bangladesh stands on the verge of attaining self-sufficiency in foodgrain production (Goletti and Ahmed 1990), millions of her population lack the purchasing power necessary to procure enough food. Instead, they remain underfed.

Economic growth offers a long-run solution to the problem of food insecurity. It creates employment for the poor, raises their real incomes and increases their purchasing power. But economic growth is a slow process.

In the interim, a well-managed and appropriately targeted safety net program can provide temporary relief by improving food access by the poor. The purpose of this report is to systematically review the most cost-effective ways of targeting that short-run relief.

## **MAGNITUDE OF FOOD INSECURITY**

A recent study, by Ahmed, Khan and Sampath (1991), has estimated the magnitude of the food consumption shortfall in Bangladesh. Using a food-based definition of poverty, and data from 1985/86, it measures the shortfall in daily caloric intake by population members below the poverty line. After adjusting for age and sex composition of the population, it estimates a weighted average per capita daily minimum caloric requirement of 2,021 kcal for rural areas and 2,075 kcal for urban areas.

The present study builds on this earlier work to estimate the aggregate caloric shortfall for Bangladesh in 1992. To do so, it begins with the current population of 110 million and uses the same caloric gap estimates for each percentile of population under the poverty line (Figure 1). The resulting estimate places the aggregate caloric deficit of Bangladesh's poor at the equivalent 1.72 million metric tons of rice. To fill the gap with rice, at an average retail price of taka 10.78 per kilogram, would require taka 18,536 million, or US\$ 475 million. Of course, poor households consume foods other than rice, most of which are more expensive sources of calories. Rice supplies calories at a cost of 3.1 taka per thousand calories. In contrast, the standard mix of foods eaten by poor families costs 5.4 taka per thousand calories. So filling the caloric gap with the mix of foods normally consumed by poor households would cost correspondingly more, about taka 32,318 million or US\$ 828 million.

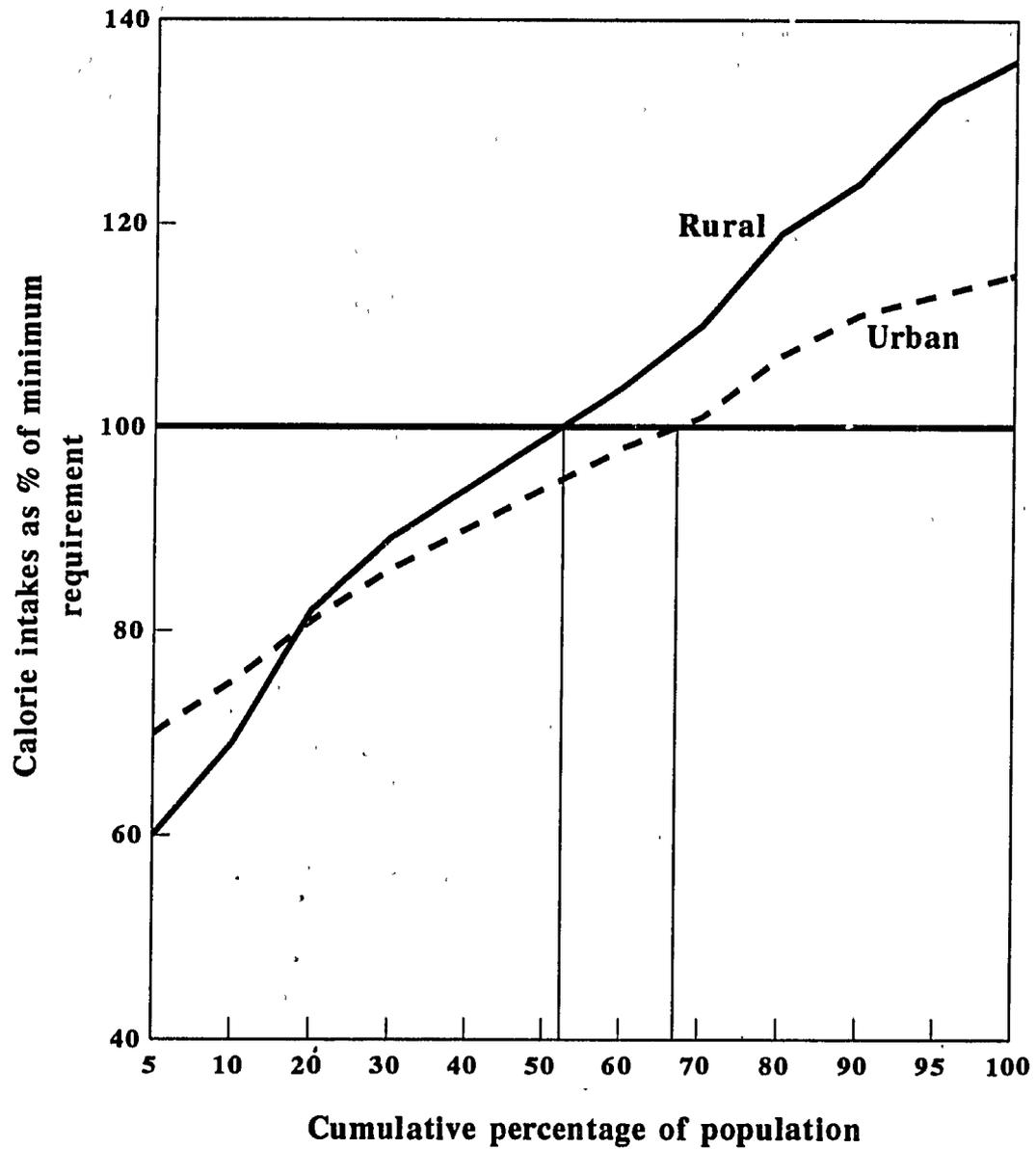
## **MAGNITUDE OF RESOURCES REQUIRED**

Since households spend only a portion of their increased income on food, they will require even more than \$828 million in income to increase consumption by this magnitude. Economists refer to the proportion of additional income spent on food as the marginal propensity to consume (MPC) food. The MPC for food is typically low for the rich and high for the poor.

Based on a 1991/92 household consumption survey, IFPRI staff have recently estimated poor households' MPC for food at 0.63. This implies that the poor will spend 63 percent of increased income on food. Given an MPC of 0.63, government will need to transfer taka 1.59 additional income to a poor household in order to increase food expenditure by one taka. So an income transfer of taka 51,299 million, or \$1.3 billion, will be required to increase caloric intake among those who lack sufficient purchasing power.

Even this enormous sum, \$1.3 billion per year, is too little. It assumes perfect targeting. It presumes that a program manager can identify the very poorest households in the country and give them exactly the income supplement they need, then identify the second poorest and give them a little less, and so on. Clearly this is not possible. In reality, given imperfect targeting, it will probably cost twice as much to ensure adequate nutrition for all. This more realistic figure, \$2.6 billion per year, looms 30% higher than annual aid flows to

**Figure 1—Shortfall in calorie intakes: 1985/86**



Source: See Appendix Table B4.

Bangladesh and about 10% above annual government revenues. Even if it could be redirected to the needy, the \$110 million government currently spends on food subsidies to the nonvulnerable - urban dwellers, the army, police, and other preferred groups - represents only a fraction of the resources required to address the needs of the poor.

## **THE NEED FOR TARGETING**

Clearly, the need overwhelms available resources. Government will have to make hard choices. Above all, they must carefully target nutritional supplements where they achieve maximum impact. And they must deliver support cost-effectively.

A well-targeted intervention increases the real income and food consumption of a target group without providing those benefits to non-needy members of the population. Hence, successful targeting requires minimizing leakage to nontarget households. Leakage increases costs and reduces cost-effectiveness of targeted intervention.

While careful targeting to the most needy will reduce the fiscal cost of transferring income, it may increase the cost per beneficiary, because a sharp targeting entails considerably more administrative costs and managerial skills. Hence, cost-effective programs must find a balance between cost of leakage and cost of targeting. Section 4 of this report evaluates existing income-transfer programs and measures their effectiveness in making this tradeoff. Before proceeding with that review, it is necessary to ask who it is these programs should be trying to target.

# 2

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## What is the Target?

### VULNERABLE HOUSEHOLDS: THE MOVING TARGET

Identifying vulnerable households is a challenge given their considerable income mobility over time. The recent BIDS study, "Re-Thinking Rural Poverty," highlights large movements both in and out of poverty (Rahman and Hossain, 1992). Natural crises accounted for about one-third of this movement, while life-cycle and structural factors account for the remaining two-thirds. This suggests that, even in the presence of widespread poverty, means testing or other screening criteria will need to be updated periodically to ensure appropriate targeting over time.

### VULNERABLE GROUPS WITHIN THE HOUSEHOLD

Within households, some population groups are at greater nutritional risk than others. Starting from a total 1991/92 population of 110 million, Table 1 identifies and measures the size of each vulnerable group.

*Infants.* Infants in Bangladesh die at a rate of 110 per thousand live births, a mortality rate of 11%. Of those who survive, 35% to 50% are born below the threshold birthweight of 2,500 grams. Taking both indicators together, 45 to 60% of infants are at risk.

*Preschool children.* Based on the prevalence of stunting, 70% of Bangladesh's preschool children are at nutritional risk.

*School-age children.* Forty to fifty percent of school-age children do not receive the minimum calories they require. Because of a strong social preference for boys, girls receive consistently less food than do boys.

*Pregnant and lactating women.* Slightly over 60% of all pregnant and lactating women consume an insufficient supply of calories.

*Women.* Among adult women, slightly more than half do not enjoy enough to eat.

*Men.* Even though men are the most favored of all population groups, a full 45% do not have access to minimum caloric requirements.

Clearly, undernutrition is widespread in Bangladesh. Amidst this pervasive hunger, we conclude - as do most nutritionists - that preschool children, infants, and pregnant and lactating women are the population groups facing the most acute nutritional risks (Figure 2).

## WHO ARE THEY?

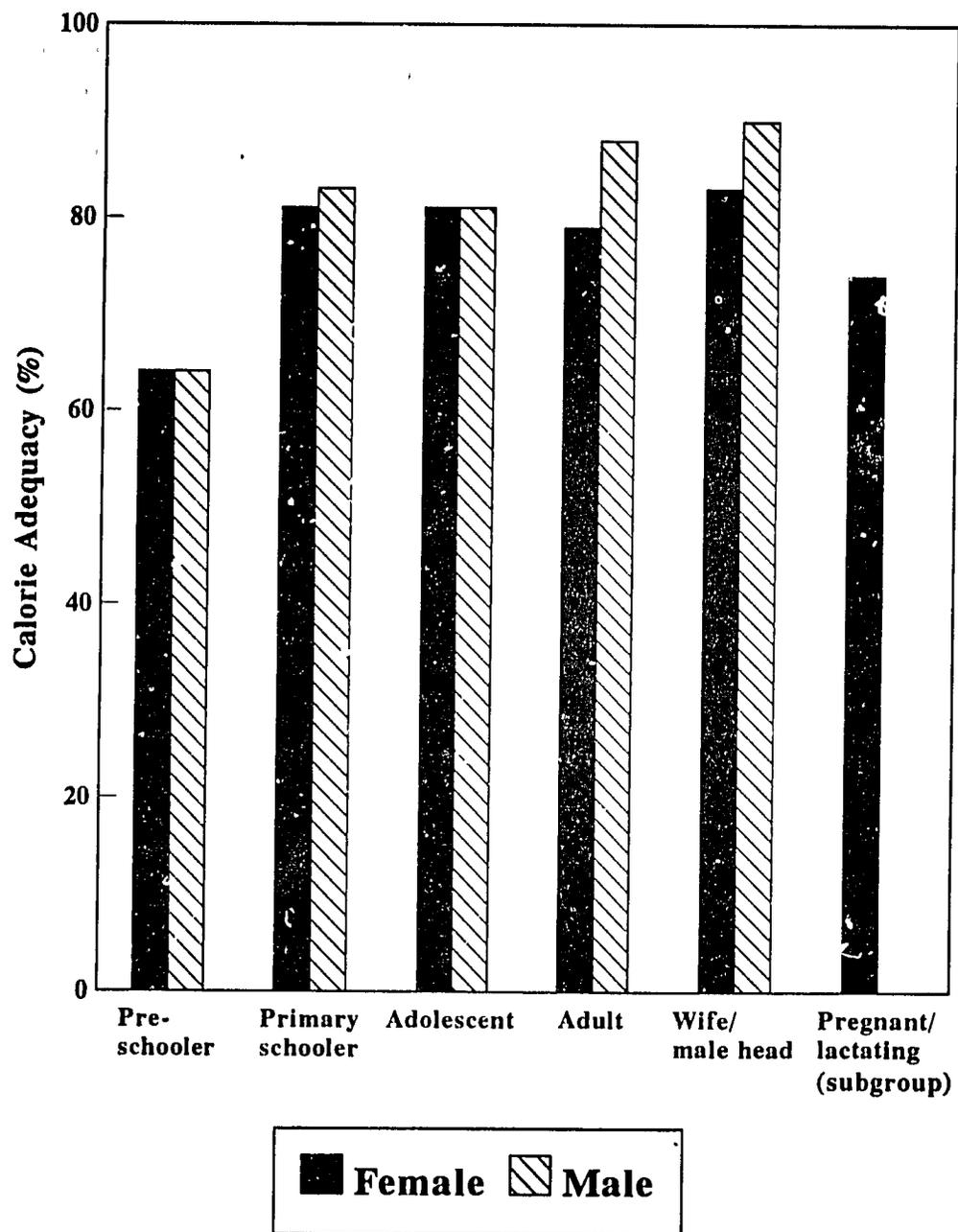
Among these vulnerable groups, urban slum dwellers and rural landless confront the greatest hardships.

**Table 1— Population groups at high nutritional risk**

Vulnerable Population Groups	Estimated Population Size, 1991/92 (.....thousand.....)	At Risk Population Size	At Risk Population Share (percent)	Risk
Infants	3,608	397 <u>1,804</u> 2,201	11 <u>50</u> 61%	Mortality Low birth weight
Preschool children:				
Boys	7,541	5,279	70%	Stunting
Girls	7,539	5,277	70%	Stunting
School-age children:				
Boys	16,927	7,360	43%	Calorie shortfall
Girls	15,696	8,299	53%	
Women:				
Pregnant & lactating	7,608	4,666	61%	"
Household head	903	472	52%	"
Other	19,891	10,860	52%	"
Men	30,287	13,750	45%	"
<b>Total</b>	<b>110,000</b>	<b>58,164</b>	<b>53%</b>	

Source: Appendix Table B.5.

**Figure 2—Intrahousehold calorie adequacy  
(Intake/requirement)**



Source: Adapted from Ahmed, Akhter U. 1993a.

The urban poor, over 60% of all urban residents, number 8 million. Because low incomes and poor sanitation converge regularly in urban slums, urban malnutrition is especially acute. Nutrition surveillance data suggest that undernutrition among children is more acute among urban slum dwellers than in rural areas (Helen Keller International 1990).

Even in rural areas, 50% of the population is undernourished. As Figure 1 shows, the gap between requirements and actual consumption is large. So hunger is acute among the rural poor. The distressed rural population, primarily landless, number 51 million.

Occupational groups at particular risk include day laborers, fishermen, and boat pullers (Abdullah 1992; Helen Keller International 1990).

## **REGIONS**

Geographic targeting allows program managers to limit interventions to specific, distressed areas of the country. Employment opportunities, the incidence of natural calamities, agricultural technology, infrastructural development, disease, sanitation and food prices all vary enormously across regions.

A recent study by Chowdhury (1992) measures regional differences of as much as 70% in food intake (Table 2). This wide disparity arises because of wide regional differences in both income and prices. Sanitation and the prevalence of disease likewise vary - especially in urban areas - because of water quality, the incidence of air pollution, and access to medical facilities.

Incorporating all these concerns, Figure 3 shows the locations of distressed thanas in Bangladesh. Flood-prone areas - particularly zones affected by land erosion along the major river banks - and urban slums appear to be the most nutritionally distressed areas of the country.

## **SEASONS**

It may be possible to target interventions during seasons when nutritional stress is particularly high. Operating a program only during the lean seasons lowers program costs considerably, provided start-up and shut-down is not too costly.

In Bangladesh, food intake varies 10 to 20% from lean to plentiful months (Chowdhury 1992; Ahmed 1993b). Fluctuations in both food prices and incomes drive this seasonal variation. Prices peak in March-April and in September-October (Figure 4). Absence of employment before the Aman harvest (Clay 1981) makes the second lean season especially acute, particularly for the rural landless who depend on wage labor for

their income. Twenty years ago, employment opportunities also diminished considerably in the dry season months of January and February. But today, with the advent of widespread Boro cultivation, employment and wage incomes remain robust early in the year. Income seasonality, of course, varies by occupation. Fishermen are among those most vulnerable to seasonal variation in income (Abdullah 1992).

Poor sanitation and increased incidence of disease aggravate health status of the poor in both of the lean seasons. Poor water quality emerges as a problem in March through April, just before the monsoon rains begin. This aggravates incidence of diarrhea at that time. Prevalence of diarrhea resurges in September and October.

The coincidence of all these forces yields two principal lean seasons in Bangladesh, the first in March-April and the second, more severe lean season in September-October (Chen et al. 1979; Chowdhury 1992; Rahman 1992). Nutritional stress reaches its peak in these months.

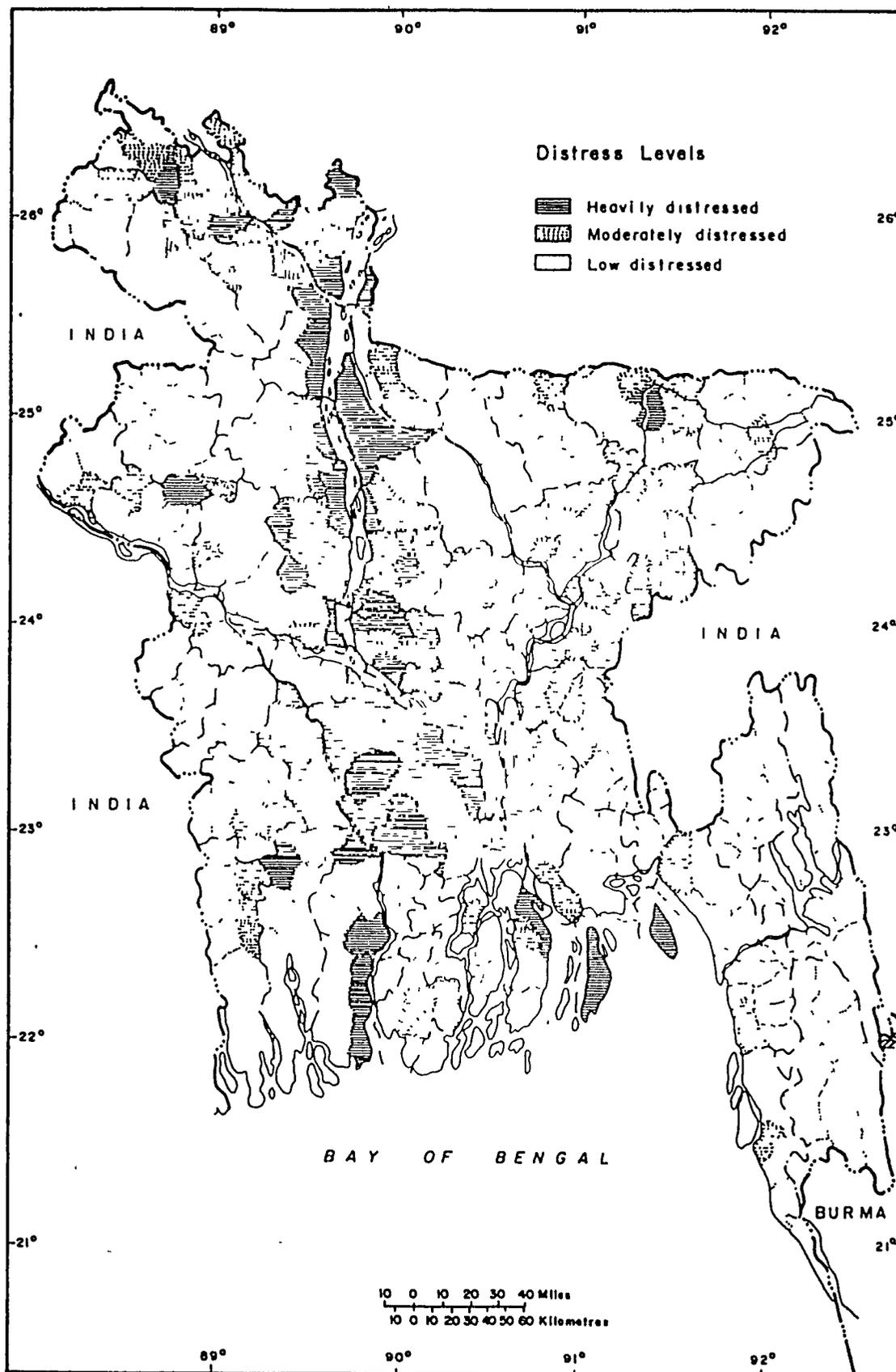
**Table 2—Regional variation in calorie intake during the lean season\***

District	Village	Calorie Intake (Kcal/person/day)
Patia	Sasang	2,562
Cox's Bazar	Noapara	2,472
Kushtia	Noapara	2,359
Kishoregonj	Mandarkandi	2,068
Sherpur	Majakanda	2,001
Comilla	Bhabanipur	1,917
Barisal	Patkathi	1,900
Natore	Udbaria	1,674
Pachagar	Ghotbor	1,665
Munshiganj	Sontoshpara	1,626
Maulavibazar	Dakshindaspara	1,613
Bogra	Darikamari	1,554
Magura	Baraichara	1,532
Joypurhat	Hanailbamboo	1,508
<b>Average</b>		<b>1,889</b>

Source: Adapted from Chowdhury, O.H., 1992. "Nutritional Dimensions of Poverty". Paper presented at the National Workshop on Rural Poverty, Bangladesh Institute of Development Studies, Dhaka. March 12-13, 1992.

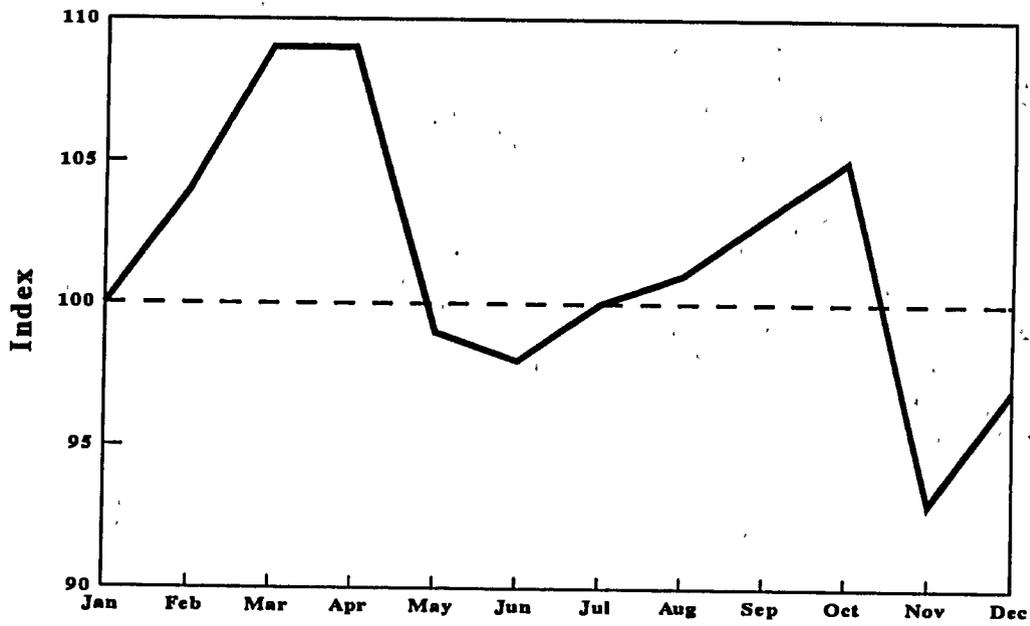
\* All data were collected between mid July and the end of September, 1990.

Figure 3 - Thana Distress Levels, 1991



Source : World Food Programme.

**Figure 4—Seasonal index of rice prices: 1989-91**



Note: Average national wholesale prices detrended then indexed setting Jan=100 for the years 1989-91.

Source: Directorate of Agricultural Marketing.

## COMMODITIES THAT TARGET THE POOR

Another effective tool for targeting relief is to select and subsidize a food that is consumed by the poor but not preferred by wealthy. Knowledge of food consumption patterns of the poor and the non-poor is essential to commodity targeting. An ideal self-targeting food is one that constitutes a greater share of expenditure among poor people than among the wealthy<sup>1</sup> and provides a significant share of calories in the diets of the poorest households. Such commodities are, however, difficult to find.

In 1978, the Ministry of Food, together with USAID ran an experiment in which they distributed sorghum through ration shops at a subsidized price. Although quantities were small, the program did effectively target the poor. In the lean season, 70% of eligible poor households purchased sorghum, but only 2% of the wealthy did so (Karim and Levinson 1980). But because Bangladeshi farmers do not grow sorghum, and because of large leakages in the rationing distribution system, the organizers discontinued this experiment.

Maize is another good candidate for a self-targeting food (Karim 1992). But it is not widely available and its potential in an intervention program will require both research and promotion.

Wheat is the classic self-targeting food in Bangladesh. Virtually all wheat distributed through the Public Food Distribution System (PFDS) comes from abroad, supplied by donor food aid. Donors advocate wheat distribution on the grounds that it is self-targeting. Indeed, all consumption surveys up through the early 1990's have shown wheat to have a negative income elasticity of demand (Ahmed and Hossain 1990; Ahmed and Shams 1993). Moreover, a recent study finds that wheat is the cheapest source of calories, protein and iron among all food items consumed in rural Bangladesh (Ahmed 1993b).

Preliminary analysis of data from 1988/89 corroborate wheat's negative income elasticity of demand in rural areas but indicate that it may have become positive in urban areas (Goletti and Boroumand 1992). This suggests that while wheat is still self-targeting in rural areas, it may no longer target the poor effectively in urban centers.

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<sup>1</sup>Economists refer to these commodities as having a negative income elasticity of demand. That is, as income rises, expenditure on that commodity falls.

# 3

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## What do the Food-Insecure Need?

### ACCESS TO FOOD

To overcome malnutrition in poor households requires enhanced food availability. Over half of all households in Bangladesh simply cannot afford enough food to eat. No matter how they divide up their food entitlement, no matter how thoughtful the caring behavior, these households will suffer from malnutrition unless their purchasing power increases.

Any program that raises household income will increase food availability for the household. In the short-run, a targeted income transfer can effectively increase real incomes of the food-insecure. In the long-run, food security for all households will require economic growth centered around labor-using, employment-creating technologies. Only by raising both employment and wage rates will it be possible to raise income for the rural landless and the urban slum dwellers that form the core of the vulnerable groups in Bangladesh.

### CARING BEHAVIOR

Access to food, although necessary, is not sufficient to eradicate malnutrition. Increased household food availability may simply result in better nutritional status for the male breadwinner (Figure 2). Studies in Bangladesh indicate that malnutrition remains a problem for vulnerable individuals even within relatively well-off households (Chowdhury 1989; Naved and Kumar 1993). These studies show systematic diversion of food away from girls and pregnant women. Desire for small babies and easy deliveries couples with the belief that "hot" foods such as fish and meat are not desirable for pregnant women, already very "hot" by virtue of their pregnancy. These beliefs divert calories, protein and iron away from pregnant women at exactly the moment when their requirements are highest. To improve intra-household nutritional imbalances, some modification of current caring behavior will be required.

Caring behavior determines how food is allocated among household members. It also governs the quality, frequency and composition of food consumed. Because behavior

is determined by a complex combination of cultural beliefs, reproductive and occupational pressures, any change in current caring behavior will require a thorough understanding of decision-making and constraints faced by poor households.

Programs that aim to influence intra-household distribution of food as well as the quality of food consumed by each family member include:

- a) micronutrient supplementation;
- b) nutrition and health education;
- c) growth monitoring; and
- d) direct vulnerable group feeding programs.

## **SANITATION AND DISEASE PREVENTIONS**

For decades, epidemiologists have studied the complex interactions among malnutrition, disease and sanitation (Chen 1983). They agree that malnutrition weakens body resistance and predisposes vulnerable groups to infection. In turn, disease and poor sanitation contribute to malnutrition by diminishing the body's ability to access the food it consumes. In this vicious circle, the interactions are clear. It is much more difficult to distinguish cause from effect.

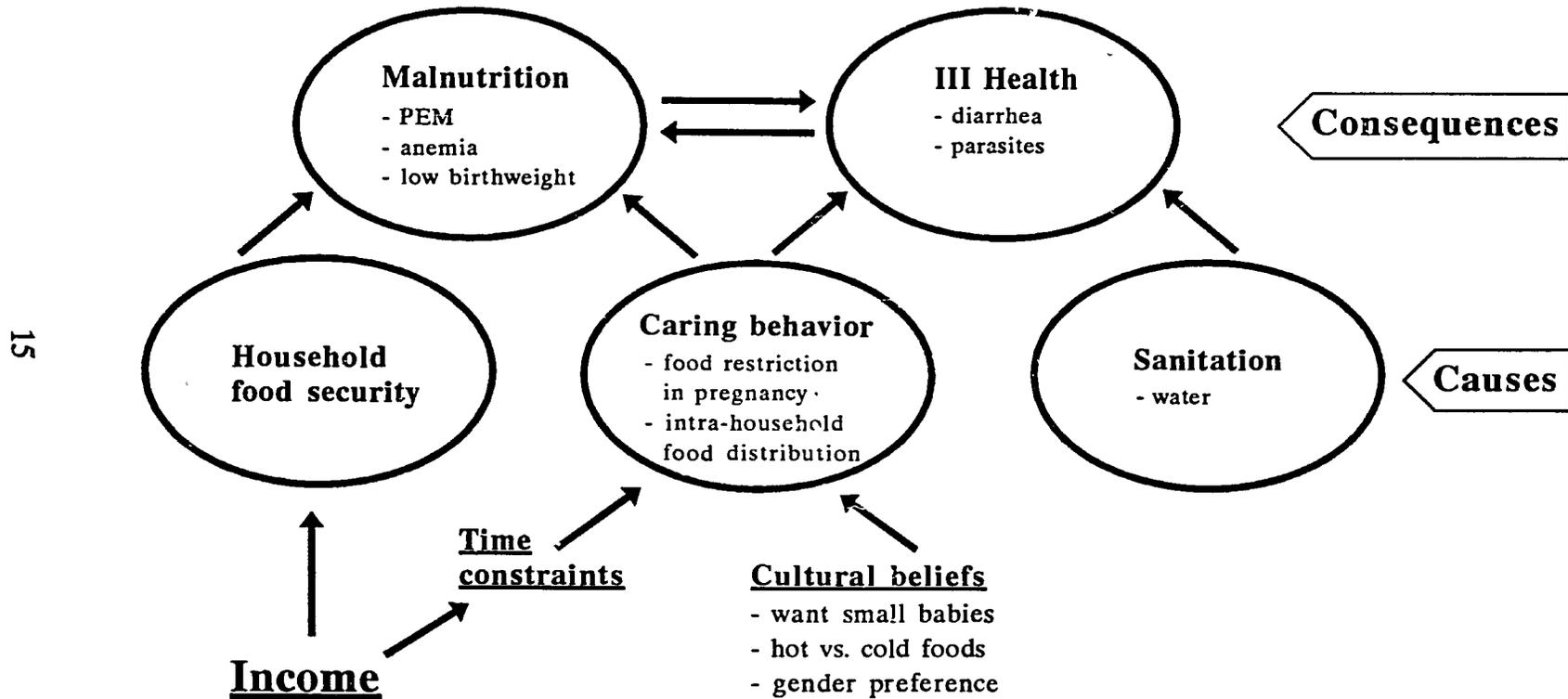
In a recent attempt to sort out these causal flows, Briend (1990) suggests that while malnutrition may predispose children to diarrhea, it is not clear whether diarrhea is a major cause of malnutrition. This conclusion is supported by other studies that were unable to identify the nutritional impact of sanitation measures (Stanton 1988, Hasan 1989). But many researchers contest Briend's conclusions. Consequently, the discussion about what comes first - malnutrition or disease - is far from finished.

## **INTERACTIONS**

For pregnant and lactating women, and infants, Figure 5 summarizes the network of interactions among food, caring behavior and sanitation. Broadly similar, the flows for other vulnerable groups are diagrammed in Appendix Figures C.1-C.3.

As these figures show, malnutrition results from a complex interaction among access to food, caring behavior and sanitation. While adequate income and access to food is necessary in assuring adequate nutrition, it is not always sufficient. Deficiencies in caring behavior and sanitation result in malnutrition even in families of moderate income. So government and others must invest in programs that offer some combination of all three: access to food, improved caring behavior, and better sanitation.

**Figure 5—Causes of malnutrition among pregnant and lactating women, and infants**



Source: Adapted from UNICEF (1990).

# 4

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## Program Assessments

### OPTIONS

#### Program goals

Programs aimed at undernutrition most commonly fall into two broad categories (Table 3).<sup>2</sup> First are those that increase household income. They then let households decide what foods to purchase and how to divide it among family members. These programs aim to increase household food security. Second are interventions that try to influence caring behavior of the household. These efforts target vulnerable individuals within the household or the quality of food consumed.

*Increasing household food security.* The current array of interventions in Bangladesh fall overwhelmingly into the first category. They aim to increase target households' income, thereby improving their overall access to food. The largest targeted programs in Bangladesh - Food for Work (FFW), Vulnerable Group Development (VGD), and Rural Maintenance Program (RMP) - all deliver income supplements to poor households. Together, even after the abolition of Rural Rationing, these programs operate with annual budgets of roughly \$250 million per year.

*Improving caring behavior.* In the second category, programs aimed at targeting vulnerable individuals are less prominent and enjoy far less funding. Apart from the general-purpose nutrition education offered by Ministry of Health, these programs include only a handful of rehabilitation centers and supplemental feeding centers for pregnant and lactating women and preschool children. The largest targeted intervention in this category is the universal vitamin A capsule distribution, aimed at preventing blindness in preschool children. In all, these programs spend on the order of \$20 to \$30 million per year, about one-tenth the amount targeted for income support to poor households.<sup>3</sup>

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<sup>2</sup>A third category of interventions, those focusing on sanitation, influence undernutrition indirectly (Figure 5). Through their influence on the prevalence of disease, sanitation programs can play a role in improving malnutrition. Because this role is indirect and because of the complex epidemiological issues involved, we defer a review of sanitation programs to other fora.

<sup>3</sup>The World Bank funded nutrition project currently being designed will help redress this imbalance, with annual funding in the range of \$10 to \$15 million.

**Table 3—A categorization of programs aimed at improving nutritional status of the poor**

Program Goals			
I. - III. Target Level 1 - 8. Programs	A. Increasing Household Food Security	B. Improving Caring Behavior	
		Intra-household Food Distribution	Food Quality
(.....Target groups.....)			
<b>I. Individuals</b>			
1. Micronutrient supplementation			
a. vitamin A			infants, children
b. iodine			all HH members
c. iron			pregnant women
2. Nutrition education		PLW, infants, children	all HH members
3. Supplementary feeding			
a. on-site feeding			
- maternal child health		PL women,infants,PC	
- rehabilitation centers		PL women,infants,PC	PLwomen,infants,PC
- school feeding		school children	PL women,infants,PC
b. take-home supplements		infants,PC	
- weaning foods			infants,PC
4. Growth monitoring		infants,PC	infants,PC
<b>II. Households</b>			
4. Targeted income transfers			
- ration schemes	poor households		
- VGD	"		
- food stamps	"		
- cash via banks	"		
5. Labor-intensive work			
- FFW	"		
- RMP	"		
6. Credit			
<b>III. Country or Community</b>			
7. general price subsidies			
a. seasonally or geographically targeted			
- OMS	all households		
8. Labor-using economic growth	wage-earning households		

PL = Pregnant + Lactating  
 PLW = Pregnant + Lactating Women  
 PC = Preschool children.

## **Unit targeted**

*Household.* As Table 3 indicates, most nutrition interventions in Bangladesh focus at the household level. To target poor households, these programs aim to identify those with lowest income, either by administrative review - as in RR, VGD and RMP - or by self-selection through low-paying manual labor which only the very poor are willing to perform - as in FFW and RMP.

Seasonal and regional targeting of household income supplements is uncommon in Bangladesh. The former Rural Rationing program, Vulnerable Group Development (VGD) and the Rural Maintenance Program (RMP) operate nation-wide and year-round. Food for Work (FFW) does operate seasonally, during the dry season and makes 40% of its payments occur during the March-April lean season (Figure 6). But the bulk of FFW involves earth moving - road construction, canals, tanks and embankments - and thus cannot operate during the rainy September-October lean season.

Although regional differences in nutritional status are more marked than seasonal variations, VGD is the only program that attempts to target vulnerable regions. While they do operate nation-wide, VGD increases their distributions in distress regions. Heavily distressed thana's receive a per capita resource allocation eight times higher than the average. Many informed observers believe it is politically impossible to target distress regions exclusively.

*Individual.* Programs that target individuals typically focus on vulnerable individuals within poor households. The most vulnerable groups include preschool children and pregnant and lactating women.

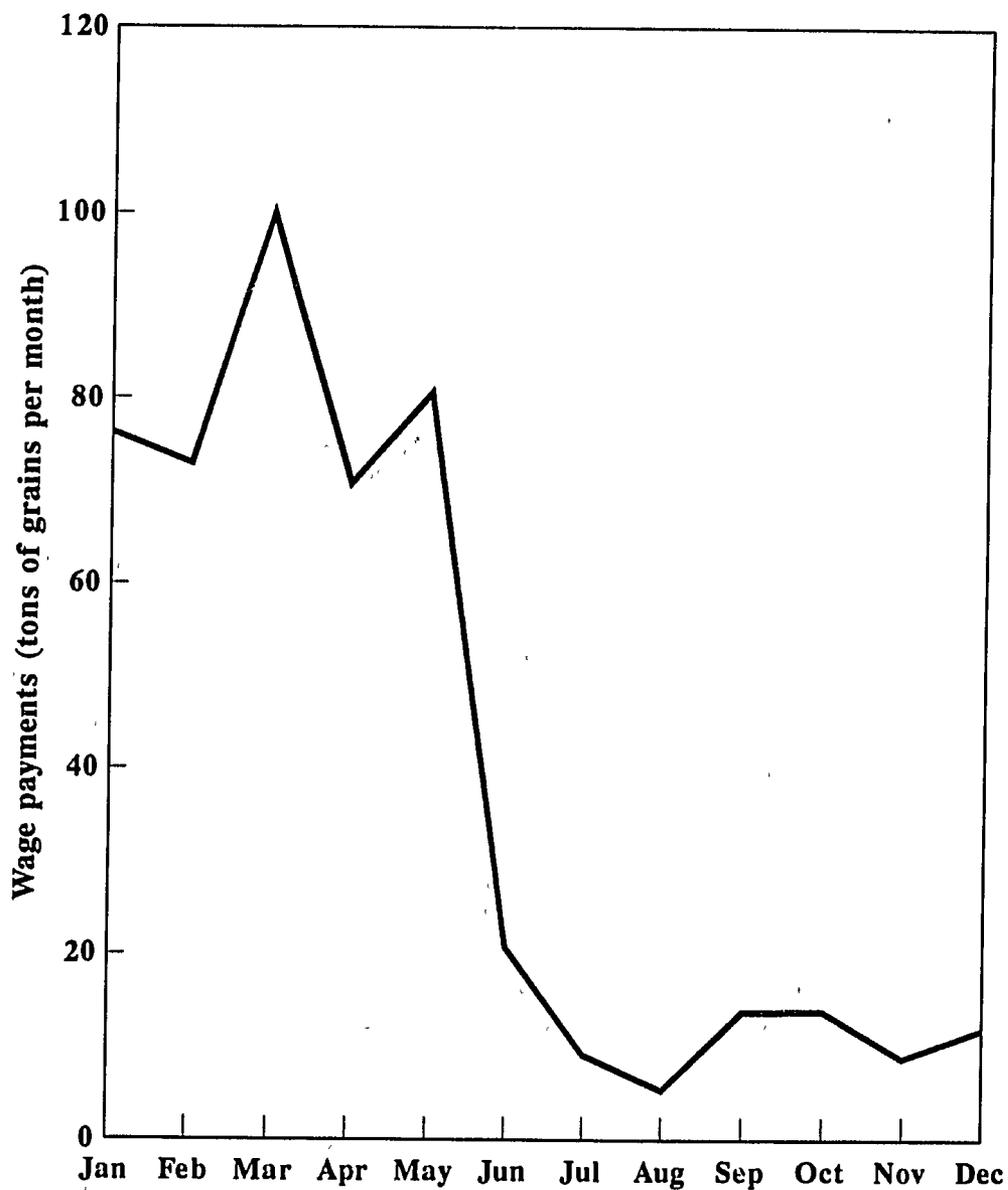
*Community.* General price subsidies are the most common form of community-level intervention. In Bangladesh, the Ministry of Food's Open Market Sales (OMS) program does this by releasing public grain stocks when prices exceed pre-determined price levels. By triggering sales, OMS increases supply during the lean season and thus dampens seasonal price spikes.

## **Programs reviewed**

For several reasons, the following review focuses primarily on targeted income transfer programs. First, these programs offer a direct substitute for Rural Rationing, the income transfer program whose demise precipitated this review. Our primary mandate was, in fact, to review alternatives to Rural Rationing. So we have focused on alternative income transfer schemes.

Second, the income transfer programs currently dominate donor and government funding. So in the interests of efficiency, it seems sensible to examine which of these operate most effectively and which features determine their success. Third, and closely

**Figure 6—Seasonality in food for work schemes: 1991**  
(Monthly foodgrain offtake)



Source: See Appendix Table B8.

related, is that a wide range of secondary data exists on these income transfer programs. So it is possible, without collecting primary data, to reach some firm conclusions. Fourth, because these programs all aim to increase income of vulnerable households, it is possible to directly compare the cost at which they deliver this entitlement to their target group.

Because caring behavior directly affects vulnerable group malnutrition (Figure 5), we also briefly summarize current programming in that area. But the limited amount of activity and secondary data on these programs makes rigorous evaluation difficult. The current limited volume of activity does not imply a lack of importance. Quite the contrary, it suggests a major imbalance in current programming that decision makers must bear in mind in allocating future funds.

## **INCOME TRANSFER PROGRAM DESCRIPTIONS**

### **"For work" programs**

Table 4 describes the main features of Bangladesh's dominant targeted income transfer programs. Two of these programs require work in return for their disbursements. Food for Work (FFW) distributes wheat as wage payment to workers in labor-intensive public works programs. CARE and Ministry of Relief's smaller project, the Rural Maintenance Program (RMP), similarly targets people who are willing to work at onerous, low-paying manual labor. In addition to the willingness to work requirement, CARE screens administratively to ensure that only destitute women are employed.

Although both operate as "for work" programs, FFW and RMP differ in many ways. In the first place, the form of payment distinguishes FFW from RMP. While FFW pays out wages primarily in wheat<sup>4</sup>, RMP pays cash. And, in an interesting innovation, they disburse the cash through direct transfers to the women's group bank accounts. By avoiding the physical handling of foodgrains, RMP substantially reduces project costs as well as system leakage. Banks offer other advantages as well. They facilitate introduction of a savings element into the RMP program.<sup>5</sup> And through their accounts, the participants gain credibility with local banks, this for a group that would normally never have the standing to gain access to formal financial institutions.

RMP and FFW also undertake very different work activities. Where FFW engages mostly in construction and earth-moving, RMP engages in road maintenance. Because

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<sup>4</sup>In normal years, FFW pays out wages in wheat. However, in the 1992/93 season, Government distributed primarily rice in order to dispose off surplus government stocks. Many food aid donors agreed to this one-time rice-for-wheat swap in order to make this rice stock disposal possible.

<sup>5</sup>The VGD program also has a savings element. In order to receive her monthly wheat entitlement, each card-holder is required to save Tk. 25 per month in a bank account in her own name.

**Table 4—Targeted income program descriptions, 1991/92**

Program	Annual operating Costs	Description	Commodity Delivered	Who Delivers?	No. of Beneficiaries	Target HH Identification
	(\$ million)				(Thousands)	
Food for Work	180	labor-intensive public works	wheat	government ( PIC )	4,000	self selection willingness to work
Rural Rationing*	60	ration card entitled grain purchase at 25% subsidy	rice	private traders	6,100	local committee
21 Vulnerable Group Development	50	monthly ration in return for training	wheat	government ( PIO )	456	local committee
Rural Maintenance Program	20	"cash for work" destitute women do rural road maintenance	cash	banks	62	local committee + willingness to work

\* Annual figure is for 1990/91. Program discontinued in December 1991.

Source: Appendix Tables B6 and B7; Ahmed, Akhter U. 1992.

Abbreviations

PIC: Project Implementation Committee = union level committee set up to manage food for work implementation  
 PIO: Project Implementation Officer, Ministry of Relief, posted at thana level  
 WFP: World Food Programme.

over-reporting of construction work results in major leakages in FFW, this difference accounts for a large share of the co-advantage enjoyed by RMP.

### **"For free" programs**

The ration channels, such as Rural Rationing (RR) and their urban counterpart, Statutory Rationing (SR), simply distribute ration cards to targeted households for free. These cards allow the households to purchase subsidized grain from authorized private dealers. In the Rural Rationing (RR) program, before its demise, household cardholders were entitled to purchase 4.5 kilograms of rice per week at 25% below the market price.

### **"For training" programs**

Like Rural Rationing, the Vulnerable Group Development (VGD) program selects beneficiaries by administrative review, using a committee of knowledgeable local officials. As in RR, VGD issues a card to identify the eligible beneficiaries.

Unlike Rural Rationing, VGD staff physically distribute free wheat to the beneficiaries. They deliver 31.25 kilograms of wheat<sup>6</sup> per month, once a month, at the Union Parishad Office. Rural rationing instead distributed through sanctioned private traders.

Although VGD does issue some of their ration purely for free, to destitute women and through orphanages, they face increasing pressure from donors to generate some sustainable impact in return for the ration distribution. To ensure that the receipt of food has an impact beyond the period food is received, a complementary package of development services was introduced on a pilot basis in 1988. This package includes functional skills in literacy and numeracy, health and nutrition training, market-oriented income earning skills, group formation, legal awareness, savings and access to credit. So, unlike Rural Rationing, which required no input from its ration card recipients, VGD increasingly operates a "food for training" program.

## **INCOME TRANSFER: COST EFFECTIVENESS**

### **Calculating conventions**

The major targeted programs in Bangladesh provide safety nets to low income households by transferring income to them. How effective is each when evaluated purely as a safety net program? That is, what does it cost each to identify and deliver income to targeted households?

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<sup>6</sup>In 1992/93, they temporarily distributed rice instead of wheat.

In making this calculation, we adopt several conventions. First, we value all resources at market cost. Most importantly, this means that we value food aid at world prices. That is, we presume that government - some government, at least - must pay for these commodities. In doing so, our calculations indicate what it would cost the Government of Bangladesh to operate each safety net program from its own resources.

Second, we assume the beneficiaries' cost of participating in each program is zero. This is admittedly a simplifying assumption, but one that does not depart far from reality in a classic labor-surplus economy like Bangladesh. The most important implication of this assumption is that we overstate the effectiveness of all of the "for work" programs. Since these target the able-bodied poor who might have alternative opportunities in the absence of FFW or RMP, we should technically calculate the net gain in household income, the "for work" income minus what they would have otherwise earned. But this calculation is difficult to make even with primary data, and our rapid review relied entirely on secondary information. So we make a virtue out of necessity by noting that the opportunities foregone are likely to be very low.<sup>7</sup>

Third, we exclude any estimate of development impact from these calculations. Because Rural Rationing aimed solely to provide a social safety net, we evaluate the other programs as substitute relief vehicles (Box 1). To make this comparison, we deduct any commodity costs clearly associated with the development objectives; the cost of culverts and other construction materials, for example, are excluded from the FFW calculations. For the VGD program, costs of NGO staff, training materials, and other development costs are similarly excluded from these calculations.

Fourth, all calculations evaluate increases in income, not the resulting impact on food consumption. Consumption data across programs are not yet available<sup>8</sup>. The income measure will rank programs correctly, if the propensity to consume food is the same across recipients and for all forms of payment (see Box 2).

Finally, in projecting the cost-effectiveness of potential new programs - such as expanded "cash for work" or food stamp programs - we have evaluated a plausible range of cost and leakage estimates. Adopting the principle of conservatism, all text discussion reports the worst-case statistics for these potential pilot programs. The full sensitivity analysis is available in Appendix Table B.2.

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<sup>7</sup>Ravillion's (1992) studies from India suggest that the "for work" programs displace small amounts of still-lower-paying work, probably 25% of the "for work" program wages. If that were true in Bangladesh, we should count only 75% of the "for work" wages as the net increase in household income due to these programs.

<sup>8</sup>IFPRI recently completed the analysis of food consumption and nutritional effects of VGD program (see Box 2). In addition, IFPRI has completed a field survey on food consumption and nutritional effects of RMP and FFW programs, and data analysis is under way.

## **Box 1—What about development?**

Ration channels make no pretense of providing anything other than income relief. Yet all other targeted income programs do aim to combine relief and development objectives. Certainly the "for work" or "for training" programs offer something more than income safety nets. Indeed they face fierce donor pressure to do so.

Because our calculations (Figure 7) ignore any impact beyond that of income safety netting for the poor, government authorities comparing programs will have to combine these relief-effectiveness calculations with a subjective assessment of development impact in making their budgeting decisions. We have avoided this expanded debate because our objective was simply to identify the most effective means of safety netting. Rural rationing was a pure safety netting program. Our mandate was to explore alternative safety nets.

In omitting the development question, we make two observations. First, relief is, in many ways, development. Although it is not popular to admit this in donor circles, undernourished people are less productive, they retain less of what they learn and are far more vulnerable to disease than those who are healthy. To the extent that income supplements improve nutrition, they are development programs. They improve productivity of people, they improve attentiveness and retention in schools, and they lower the human and curative costs of debilitating illness.

Second, the development impact of these targeted programs is frequently debated - in part because implicit definitions of "development" vary so widely. All the experts we interviewed did agree that the benefits of "for work" programs were large. Indeed, IFPRI's own work has documented the important impact of rural infrastructure on incomes, wage rates and modernization of agriculture (Ahmed and Hossain 1990).

But some experts note that the costs of "for work" programs are large as well. Possible environmental damage, potential dislocation of foodgrain markets - both producer prices, incentives to import at world prices and to store grain through the lean season - and possible corruption of local government institutions must be considered as major potential costs of these programs. So, yes, the benefits are big. But the costs are potentially large as well. We leave it to others to sort out the net impact of "for work" programs. Given our mandate, we simply note that "for work" and "for training" programs aim to generate sustainable benefits in addition to the safety net they provide to low-income households.

## **Conclusions**

Given these conventions, Figure 7 indicates, for each program, the cost of supplying 1 taka of income to a targeted low-income household. The costs in this calculation include the cost of identifying beneficiaries, cost of the income transfer itself, and the administrative cost of delivering commodities or cash to the beneficiaries. The benefits include only the income actually received by targeted households. Consequently, any pilferage or misdirected payment to non-eligible households represents system loss which is deducted from income benefit.

## **Box 2—From income to food consumption: who's preferences matter?**

When a poor family in Bangladesh earns an additional 100 taka in income, they spend 63 taka on food. Will they spend more if a program delivers foodgrains or foodstamps instead of cash? If so, this would make non-cash programs more effective nutrition support programs than they are currently perceived to be and at least partially offset their higher operating costs and leakages.

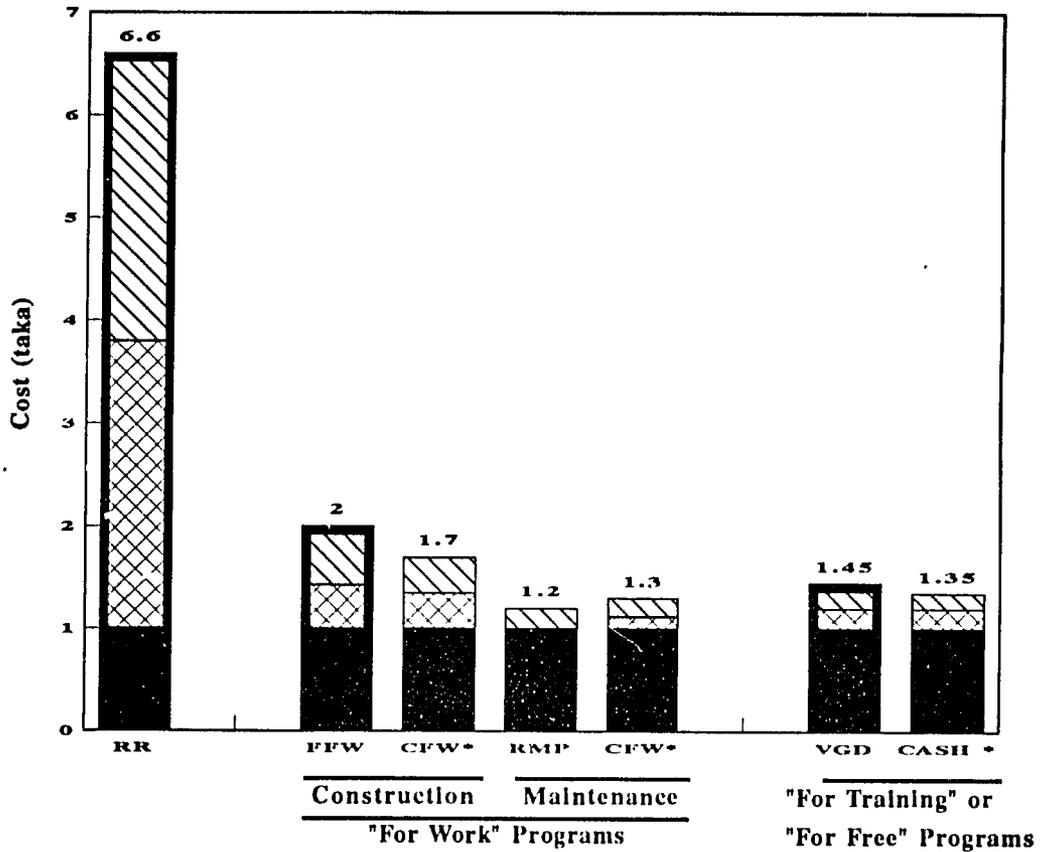
Evidence from the world's largest foodstamp program, in the USA, indicates clearly that \$1 in foodstamps generates more food expenditure than \$1 in income transfers (Buse et al. 1990). Initial results from Bangladesh corroborate this finding for the VGD program, at least in some seasons. Ahmed's (1993a) recent study indicates that, among VGD households, delivery of 100 taka worth of wheat generates a greater increase in food consumption than does an additional 100 taka in cash income. This difference results, in large part, from the high transaction costs faced by VGD's female-headed households. They cannot easily sell their wheat because of restrictions on women's access to markets and, in the case of this particular study, because the study measured recipients' behavior outside of wheat marketing season when wheat buyers were not operating.

These results may or may not hold for other programs, such as Food for Work, in which male-headed households are paid in-kind during the wheat marketing season. Men face fewer restrictions on mobility and market access and thus find it much easier to exchange their wheat ration for cash. Measurement of these potential differences is the subject of continuing research under IFPRI's consumption and nutrition survey in Bangladesh.

In the final analysis, even if future research determines that in-kind distribution results in greater food consumption across a range of targeted programs, this does not mean commodity distribution is preferable to cash transfers - at least not in the eyes of the recipient households. Poor households face many pressing needs - for medicine, loan repayment, clean water, shelter, and farm inputs. When poor households receive cash transfers, they set their own spending priorities, directing 63% of additional income to food and 37% to nonfood needs. In-kind distribution imposes transactions costs that constrain households' choices, potentially leading them to spend more on food than they otherwise would and correspondingly less on nonfood requirements. Ultimately, the case for in-kind distribution rests on the premise that increased household calorie consumption is more important than the other urgent needs poor households would elect to address, if given the choice.

The conclusions are quite clear. Ration channels offer the least effective vehicles for delivering income to vulnerable households. Under Rural Rationing (RR), it cost taka 6.6 to supply taka 1 to an eligible household. High system leakages combined with the costs of commodity handling lead to this high cost (Figure 7). In contrast, Food for Work (FFW) programs are more effective. They deliver 1 taka of income at a cost of taka 1.8 to 2.4. VGD transfers commodities still more cost-effectively because they reduce leakage in half, from the 30% to 35% prevailing in FFW to 8% to 14% in VGD. Because of their

**Figure 7—Food versus non-food transfers**  
 (Cost of supplying 1 taka to a vulnerable household)



**Cost components:**

▨ Administration

▩ Leakage

■ Income

**Commodity:**

■ Food

□ Cash

\* = Hypothetical Programs

RR= Rural Rationing

FFW=Food for work

CFW=Cash for Work

RMP=Rural Maintenance Program

VGD=Vulnerable Group Development

Source: See Appendix Table B9.

dramatically lower leakage, VGD transfers taka 1 of income at a cost of taka 1.4 to 1.5. Cash-based programs, like RMP, are cheaper still. Because they operate at close to zero leakage, thanks to the bank transfers, and because they also avoid the cost of commodity handling, they can deliver income to targeted households at the lowest cost of all, taka 1.2. Pure cash for work programs, by avoiding the costs of monetizing grain, could do so with an RMP-like mechanism at about 1.3.

What are the keys to cost-effective safety netting? First is assuring low leakage. RMP does this by operating easily supervised maintenance activities, assuring careful monitoring with a large field staff, and by transferring cash through banks. VGD lowers leakage by empowering its recipients. In all other commodity-based programs, individual beneficiaries must convince powerful interests to supply their income subsidy. Ration card holders must convince profit-minded private traders to sell them grain at 25% below market price. FFW workers must convince gang leaders to pay them their full wage.

Several key features of the VGD program contribute to this empowerment. Central is the practice of convening the beneficiaries altogether on a set day each month to collect their ration. Because of this, they know each other and they know their entitlement. If program managers attempt to short-change beneficiaries, recipients realize it instantly. Since they are sitting together, they can and do take collective action, picketing the local Union Parishad Office if necessary. Four ingredients appear necessary in empowering recipients: a) publicize entitlement well - in a recent IFPRI survey, 100% of VGD beneficiaries were aware of their entitlement; b) clearly identify beneficiaries, in this case with photo identity cards, thus making counterfeiting much more difficult than with the ration cards; c) establish a sense of group solidarity through regular monthly meetings of beneficiaries; and d) physically gather beneficiaries together so they can take collective action if necessary.

The second key to cost-effective safety-netting is avoidance of commodity handling costs. While cash-based systems clearly impose non-zero financial transaction costs, these are far less than the handling costs associated with bulky grain shipments. These low-cost cash-based programs come in many flavors. Executing agencies can operate "cash for work" schemes, like RMP. They can run "cash for training" programs. Or they can operate pure safety netting "cash for free" programs similar to the ration channels and the original Vulnerable Group Feeding (VGF) program.

## **IMPLICATIONS FOR INCOME-TRANSFER PROGRAMS**

*Empowerment lowers leakage.* As the VGD program illustrates, empowerment of vulnerable groups improves their ability to retain the resources to which they are entitled. In a similar spirit, the recent "Taskforce Review on Poverty Alleviation" notes that empowerment may provide the most powerful of all levers for improving the status-of the poor (Hossain 1991).

***Private traders are not good vehicles for delivering subsidies to the poor.*** The profit motive is valuable when it stimulates competitive cost-cutting and efficient delivery of services. It is a disadvantage, however, when it motivates diversion of subsidized commodities away from intended beneficiaries.

***Where possible, avoid handling commodities.*** Commodity-based programs raise costs by about 25% due to commodity handling charges.<sup>9</sup> They lower benefits as well due to higher leakage. As CARE's Rural Maintenance Program (RMP) has shown, "cash for work" can provide a lower cost safety net than "food for work" schemes. Many countries, including the USA and India, have operated "cash for work" schemes to target income to low-income households. Because of the heavy prevalence of food aid in Bangladesh, many people equate FFW with labor-intensive public work schemes. But food is by no means essential to running these public work programs.

***Monetization of food aid merits expansion***<sup>10</sup>. Monetization - the domestic sale of food aid to generate cash - offers considerable potential for cost reduction and programming flexibility. Currently, about two-thirds of all food aid is monetized. Government monetizes slightly over 40% of food aid formally through its ration channels, while Food for Work and VGD recipients sell a portion of their ration, thus informally monetizing about 25% more. We advocate expanded monetization in small increments to enable flexibility and experimentation with programs such as those suggested in this report.

But large-scale expansion of monetized food aid will require careful study of the following issues:

- new mechanisms for monetization, given
  - the rapid shrinking of the principal monetized ration channels, and
  - continuing difficulties in assuring the deposit of sales proceeds into cash accounts

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<sup>9</sup>This estimate is undoubtedly conservative. It excludes actual transit and storage losses at the Directorate General of Food, both of which are believed to be considerable. These estimates likewise omit any estimate of fixed costs.

<sup>10</sup>This represents the majority view among Working Group members. Two voices, however, dissented from this position. One, an implementing agency offering expert testimony, advocated more caution, while the other, a Working Group member, advocated greater speed. The first suggested that monetization of additional food aid "should be approached gradually and with care" because of past difficulties in ensuring timely receipt of monetized resources and because of concerns about cash management, the self-targeting aspect of food aid and the macro implications of monetization on the foodgrain economy. The countervailing dissent maintained that monetization should proceed full speed since any resulting macro changes would represent a salubrious move away from the current, distorted system of consumer and producer price incentives. In particular, the probable increase in harvest-time wheat prices would simultaneously increase producer incentives and decrease wheat consumption, thus reducing the current, artificially inflated "wheat gap" by more faithfully transmitting market scarcity values.

- likely price effects of monetization and their impact on:
  - wheat and rice consumption
  - producer incentives and domestic wheat production<sup>11</sup>
  - import demand for wheat
  - trade balance.

We believe this study can and should be done quickly.

*To expand, many "for work" schemes need to identify new activities.* Currently, project staff have difficulty identifying income-generating activities that uneducated, undernourished men and women can perform better than their healthier, more experienced village competitors. Our review suggests several interesting candidates for consideration: urban environmental clean-up; canal digging and drainage of low-lying areas; social forestry; latrine construction; fish-tank excavation; and construction and maintenance of primary schools. Among these, the construction and earth-moving activities are most difficult to monitor. Because of this, the maintenance activities - such as urban environmental clean-up and school maintenance - offer reduced scope for leakage.

*Missing programs.* Surprisingly few programs target support to vulnerable individuals within poor households. Issues of intra-household food distribution, food quality, and caring behavior in general, receive comparatively little attention in the current constellation of programs. For that reason, future focus on caring behavior merits special attention.

## CHANGING CARING BEHAVIOR

Programs that affect intra-household food distribution and food quality are much more difficult to evaluate and compare. With programs that target income to poor households, it is possible to rigorously compare the cost-effectiveness of each alternative program. But how can those programming scarce funds compare vitamin-A distribution to preschool children with iron supplementation for pregnant women? To do so, decision-makers must make value judgments about what target groups have priority and which of their needs to address. How much are they willing to pay to prevent a child from going blind? How does this compare with the benefits of reducing hemorrhaging to death by

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<sup>11</sup>A study of wheat marketing in Bangladesh, completed after the close of the Working Group deliberations, points out the importance of monetization in avoiding the price-depressing effects of the current in-kind distribution. That study, by Chowdhury (1993), estimates that 75% of all food aid wheat is currently monetized, either by donors, scheme operators or recipients. Since the bulk of FFW activity must take place in the dry season, its distributions peak in the months of March, April and May - exactly the months when domestic wheat is harvested and marketed, that is, when wheat prices are lowest. Because of the high leakage from FFW onto the open market, insistence on in-kind distribution in FFW schemes is tantamount to insisting on monetizing wheat at harvest time, exactly when it will most depress farmer price incentives. As Chowdhury notes, a principal benefit of monetization is that it allows government to monetize at times other than harvest time, when the sale of these large quantities will not depress farm prices of wheat.

anemic pregnant woman? Inevitably, these hard decisions come down to subjective judgments.

Although it is difficult to rigorously compare this group of programs, Table 5 summarizes general experience with programs that aim to influence caring behavior. Among these programs, micronutrient supplementation attracts the greatest enthusiasm. These programs typically generate significant nutritional benefits at lowest cost. Consequently, most nutritionists agree that these efforts demand priority in funding decisions. In Bangladesh, the major supplementation program not yet in place involves iron and folic acid supplementation for pregnant women. UNICEF and Ministry of Health plan to institute this supplementation soon, through EPI centers and satellite clinics.

Although not commonly conceived as a nutrition intervention, family planning programs offer important nutritional side-effects. To the extent they promote breast feeding, family planning efforts directly improve the health of infants and preschool children. Breast feeding also influences birth spacing and thereby improves nutritional status of mothers. It likewise increases the birthweight and survival prospects of subsequent children. At around \$100 million per year, this important family planning effort appears well funded.

Single-input supplementation and nutrition education programs have not enjoyed great success worldwide. In part as a result of this, nutritionists now believe that integrated programs can most effectively influence caring behavior and significantly reduce malnutrition. Most promising, according to the specialists, are integrated community-based programs which incorporate participation, empowerment, growth monitoring, nutrition education, immunization and sometimes supplementation. Enthusiasm for these integrated approach derives from the substantial impact documented in several pilot projects, most notably the Iringa Project in Tanzania (Jonsson 1986; Tanzania 1988) and the Tamil Nadu Integrated Nutrition Project in south India (Berg 1987).

Presently, it remains unclear what cost these programs will involve in Bangladesh and how large their impact will be. Only pilot efforts will tell. Given the current vacuum, it seems well worthwhile to initiate efforts of this type as part of a balanced, concerted effort to combat malnutrition.

**Table 5—An overview of interventions targeted at vulnerable individuals**

Program	Target Group	Cost per Beneficiary	Impact		Bangladesh Programs		
			Alone	Complementary Inputs	Coverage	Cost**	Implementors
<b>1. Micronutrient supplementation</b>							
a. vitamin A	PLW,I,PC	-	++	2	++	\$1	MOH, UNICEF, HKI
b. iodine	all HHs	-	++	2	++	\$1	MOH, UNICEF, priv. sector
c. iron and folic acid	PW	-	++	2,3a,4,5	planned	\$4	MOH, UNICEF
<b>2. Nutrition education</b>							
a. extension	PLW	+	-	2b,2c,3,4 (+)	++		MOH
b. media*	I, PC	-	-/+	2a,3,4 (++)	-	-	NGOs
c. social marketing*	all HH	-	-/+	2a,3,4 (++) immunization sanitation	-	-	UNICEF priv. sector
<b>3. Supplementary feeding</b>							
a. on-site							
- maternal child health	PLW,I,PC	+	-/+	1,2,4,5 (+)	-	-	NGOs
- rehabilitation centers	PLW,I,PC	++	+		-	-	ICDDR,B
- institutional	PC,SC	++	+	immunization	-	-	VGD
- school feeding	SC	+	+	income generation-			hospitals
b. take-home supplements							
- weaning foods	PC	+	-/+		-	-	NGOs
<b>4. Growth monitoring</b>							
	I,PC	+	-	2,3,1	-	-	NGOs
<b>5. Family planning</b>							
	PLW,I	+	+		++	\$150	MOH, NGOs, priv. sector

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**Key:** ++ big  
+ significant  
- negligible

PLW = pregnant and lactating women  
PW = pregnant women  
I = infants under 1 year of age  
PC = preschool children  
SC = school-age children  
HH = household

MOH = Ministry of Health  
HKI = Helen Keller International  
NGO = non-governmental organizations  
VGD = Vulnerable Group Development  
ICDDR,B = Intl. Center for Diarrheal  
Disease Research, Bangladesh

\* Media and social marketing used extensively in family planning (\$150), Expanded Programme of Immunizations (EPI: \$10), and Oral Hydration Saline (ORS: \$1).

\*\* \$ millions per year.

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## Recommendations

### PROGRAMMING LEVELS AND BALANCE

This report remains agnostic on the absolute magnitude of resources to be marshalled for combatting undernutrition. Short-term relief is a worthy objective. But it is one that must compete against other highly valued programs with long-run impacts: agricultural research, supply of farm inputs, primary education, physical infrastructure, industrial promotion, and national defense. Tradeoffs among these programs require value judgments and debate. Comparisons among them involve far more than mere technical questions. So allocation of Bangladesh's very scarce resources among these competing options can only be made in a political arena.

Given a specific allocation, for either income targeting or for programs aimed at improving caring behavior, the following recommendations identify the most interesting programming options within each group. While it is difficult to compare across categories, we note that current funding is heavily skewed towards programs that target income to vulnerable households. Greater balance will require experimentation with activities that target caring behavior.

The following recommendations consider options from among both existing and promising pilot activities.

### EXISTING, "ON-THE-SHELF" PROGRAMS

#### No new monetized ration channels

Resources available for poor households can be far more effectively delivered through other programs - either new or existing relief channels, related pilot programs, or programs targeted at caring behavior.

To demonstrate the gain in targeting efficiency, consider the \$60 million in food subsidy previously spent annually through Rural Rationing. If channeled through an RMP-like "cash for work" program, those resources would increase vulnerable household income by \$46 million. Through VGD, similar resources would generate \$40-\$43 million

for target household, and through FFW \$25-33 million. Yet with the same resources, Rural Rationing directed only \$9 million to its intended beneficiaries.

### **Effective programs can be replicated without modification**

Although we see some exciting potential for new targeted income programs, we believe it is most prudent to begin any additional efforts by expanding proven, existing programs. Some of these are available on-the-shelf and can be expanded without modification. But this potential is limited, and most existing programs will require slight modification in order to expand significantly.

- **RMP.** As an income safety net, the "cash for work" Rural Maintenance Program is the most cost-effective of all existing programs. It can be replicated without modification, although not immediately. Expansion will require additional staff and expansion to new areas. Current managers estimate that in the medium run, RMP could roughly double in size, absorbing an additional \$20 million in cash or 100,000 tons of food resources.

- **VGD.** This program also offers an effective safety net. Yet to expand further would require additional resources and manpower. If expanded on a large scale with government funding, it may be desirable to change the program names to clearly distinguish them from donor-funded programs. This would also offer government, if they wish, the latitude to operate these VGD-like or RMP-like programs purely as safety nets. Currently, because of their development objectives, the existing VGD and RMP programs are more costly than they need be purely for purposes of safety netting.

### **Consider expansion, with modification**

- **OMS.** Open Market Sales is the only program operating in the second lean season of September-October. In addition, it is well positioned to target distressed, food-deficit regions by dampening seasonal price spikes there. Currently, it is unclear to what extent OMS meets this potential, since both price and stock data are difficult to obtain for government Local Supply Depots (LSDs) in distress regions. It appears, however, that OMS operates mainly in urban areas. To fully gauge the prospects for expanded OMS coverage in distress regions and seasons will require more elaborate field investigation and analysis. This should be a high priority for future food policy analysis.

From available evidence, however, it appears that expansion of OMS to distressed rural regions in the lean seasons will probably require four ingredients. Each will likely require some modification of current OMS operation.

- a) ensure adequate supply at LSDs during the two lean seasons; currently it is not clear that OMS supplies are available in remote regions, given the priority given to Essential Priority (EP) and Other Priority (OP) channels;

b) allow anyone, not just authorized dealers, to purchase from LSD's at the OMS price; The original OMS legislation provided for unrestricted access to OMS grain. To the extent that OMS currently limits purchase to sanctioned dealers, it restricts the offtake and effectiveness of OMS. Subject to some modest minimum purchase requirement, one 80 kg. bag perhaps, it will best serve everyone's interest to make OMS grain available to all comers.

c) publicize open access to OMS as well as OMS trigger prices. This will be necessary to encourage offtake during the stress months.

d) sell by auction, rather than at fixed prices. This will reduce costs to government and minimize disruption of private markets. In this way, government will dampen price spikes by increasing market supply. Instead of releasing grain at below-market prices and subsidizing traders, government will reap the gain. The net effect on aggregate supply, and hence on market price, will be the same as in the current system of sale at fixed, offtake prices. But the auction system will be less disruptive of private incentives to store grain and less costly for government. The price dampening effect will be the same, but at much lower cost.

● *"Cash for Work"*. RMP-like "cash for work" schemes - like any "for work" programs - enjoy the advantage of self-targeting. They also have the potential to produce useful infrastructure and services in addition to the income relief they provide to participating households. But expansion of "cash for work" and "food for work" programs is constrained by administrative capacity and identification of productive activities that undernourished, unskilled poor people can perform.

We suggest two modifications that could enable significant expansion of "cash for work" programs. First is the introduction of geographic targeting. Urban slums are currently completely untouched by these labor-intensive works schemes. We suggest beginning pilot efforts in secondary urban centers in an effort to improve living standards there and to help stem migration to the large centers of Dhaka and Chittagong. In addition to targeting urban poverty, this shift would have the advantage of calling upon a different set of administrative institutions to manage these works programs. In rural areas, we propose targeting distress regions, such as the flood-prone districts that line the Meghna, Jamuna and Padma rivers.

Second, expansion requires identification of new, productive work activities. In urban slums we propose environmental clean-up activities. In rural areas, we suggest still others: canal digging and drainage of low-lying areas; social forestry; latrine construction; fish-tank excavation; and construction and maintenance of primary schools.

● *FFW*. Although more costly to run than "cash for work" and less cost-effective, FFW is a valid option where food is the only available resource. To facilitate expansion, we propose the same two modifications suggested for "Cash for Work": a) expand to secondary urban areas and more intensively target distress rural regions; b) explore new activities, as enumerated above.

## **PILOT PROMISING NEW PROGRAMS**

In the course of our review, we generated considerable enthusiasm for the following new programs. Most draw at least some inspiration from experience outside Bangladesh. Yet they all include components we found most impressive in successful local programs.

### **Food (or cash) for education (FFE, CFE)**

*Improve primary school attendance by the poor.* We envisage a slightly modified, VGD-like program. It would use the VGD identification procedure - or one similar to it - the identity cards, and the monthly group distribution of entitlement. The entitlement may be in the form of cash, food stamps or food.

But instead of tying the ration to training for adults, we propose tying it to primary school enrollment of a vulnerable household's child. Currently, children from the poorest families do not attend primary school - because they cannot afford to, because they are too sick, or because they cannot be spared from contributing to their family's livelihood. The FFE ration becomes the income entitlement that enables a poor family to release a child to school. The goal of FFE is to improve primary school attendance by children from the lowest-income groups.

In a generation, the effect would be what the recent Task Force Report on Poverty has called "Empowerment through Education". Improve the productivity and standing of the poorest households. Equip them to expand their income-earning potential in the long run. Help the very poor to leap-frog up the economic ladder within a generation.

The monthly ration distribution would provide a valuable vehicle for further advancing nutrition education. At that monthly convocation, presumably on the school premises, organizers could offer the following, in addition to the ration distribution:

- nutrition education for parents;
- community awareness and organization;
- growth monitoring and immunizations of the children;
- pregnancy monitoring and iron supplementation for mothers.

We suggest a six-year contract with each family, with continuation contingent upon satisfactory attendance and performance in school. Attendance norms and appropriate measures of school performance would need to be developed. These would provide automatic graduation mechanisms for the assisted families. Some have suggested paying a higher ration for school attendance by girls. Pilot programs could experiment with both the size of the ration and with gender-specific entitlements.

*With or without school feeding?* FFE rations aim to improve school attendance by poor children. School feeding, in contrast, aims to improve their performance once they attend. Recent reviews of nutrition and school performance strongly suggest that

undernutrition reduces a child's ability to concentrate and retain what he or she has learned (Politti 1989). School feeding, especially a light snack early in the day, may improve performance, as in recent trials in Jamaica (Grosh 1992).

Although it may solve the attentiveness problem, school feeding also introduces many complications. It raises costs, requires cooking facilities, and is prone to leakage. Energy-dense wafers or other uncooked foods diminishes these difficulties.

We view school feeding as a potentially valuable addition to a FFE program, but one that needs to be piloted very carefully before any large-scale expansion.

*Capacity and quality constraints.* Expansion beyond small pilot efforts will rapidly bump up against capacity constraints in the current education system. More buildings and teachers will be required. In addition, the quality of existing education system will probably require upgrading.

These concerns suggest that CFE and FFE pilot efforts will need to include both government and nongovernment schools. Likewise, they may require collateral support for facilities, salaries and supplies.

## **Maternal child health monitoring and supplementation**

Preschool children, pregnant women, and lactating women are the most nutritionally vulnerable groups in Bangladesh. Yet few nutrition programs currently target them.

In view of their extreme vulnerability, we recommend piloting of supplementation programs that would include the following elements:

- a focus on the most undernourished;
- regular check-ups;
- iron supplementation;
- monitoring and immunization; and possibly
- food supplementation through food stamps.

Any income supplement, such as a food stamp, would require careful needs-testing, probably most effectively through anthropometric measures such as MUAC (mid upper arm circumference). To avoid the possibility that families might systematically limit the woman's food intake to qualify for rations, we suggest that low-but-improving MUAC - plus regular check-ups - be considered as a criterion for retaining the ration.

In piloting, two elements merit special attention. First is the search for an appropriate organizational and delivery vehicle for targeting poor rural women. In urban areas, slum clinics would probably be accessible to poor women. But in rural areas, an appropriate, available outlet is less certain. The recently developed Expanded Programme of Immunization (EPI) Centers might be sufficiently dispersed to enable access to poor

rural women. But most probably, interested agencies would need to opportunistically review alternatives in their operational zones. School-based FFE or CFE sites may provide a novel option in piloting these efforts.

A second possible introduction to Bangladesh is food stamps, which, in countries such as Jamaica and Brazil, serve as income supplements, more easily managed in a clinic setting than physical food commodities or cash. Food stamps offer several potential advantages. They afford a powerful stimulant attracting low-income women to the centers; they allow the centers to avoid commodity handling; and they may increase food intake more than cash. Yet food stamps also require a serious administrative start-up investment in working out where to encash them and how to avoid forgery problems.

### **Cash for the destitute**

For the bottom two to three percent of the population, many working group members felt that cash transfers via banks or post offices would be most effective. These would have to be scrupulously targeted and probably of limited duration, as with the VGD's two-year limit on ration entitlement.

## **THE CHALLENGE**

In sum, a range of exciting opportunities exist for combatting malnutrition. An optimal mix will probably involve some combination of income targeting and attention to caring behavior.

Many times before, Bangladesh has led the development community - with the Comilla Project, the Grameen Bank, BRAC and others. Perhaps yet another great wave of creativity will emerge from among the options proposed here for combatting malnutrition.

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# **APPENDICES**

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# Appendix A

## WORKING GROUP COMPOSITION, MANDATE AND SCHEDULE

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## **GROUND RULES FOR THE WORKING GROUP ON TARGETED FOOD INTERVENTIONS**

**Goal:** To systematically review cost-effective options for improving nutrition of the food-insecure in Bangladesh.

**Operating Assumption:** The magnitude of resources available is only a small fraction what would be required to completely relieve undernutrition in Bangladesh. Therefore any interventions will have to be targeted where they can achieve maximum impact. As an order of magnitude, the WG will take the \$60 million formerly spent as the annual subsidy in Rural Rationing and compare the nutritional benefits achievable by spending a similar amount in alternative programs.

### ***Operating Procedures:***

#### **1. Background material.**

One week prior to each meeting, the session coordinator will distribute background material to all WG members. The background material will include the following:

- a. focused key discussion questions
- b. discussion framework
- c. reference handouts (6 maximum)
- d. bibliographic references
- e. a list of invited technical specialists (4 maximum)

#### **2. Session proceedings.**

- a. Chairman will guide discussion according to the discussion framework.
- b. invited specialists will not give presentations; they will be briefed in advance and bring material focused on the key discussion questions; they will participate in the discussion and respond to questions from the WG.

#### **3. Summarizing key conclusions.**

Immediately after each session, the Secretary will prepare a 5-10 page summary of the key conclusions of the session. He will distribute it to each WG member.

# **TARGETING THE FOOD-INSECURE: A FRAMEWORK FOR EVALUATING ALTERNATIVES**

## **I. Overview**

- A. magnitude of food insecurity in Bangladesh
- B. magnitude of resources available
- C. the need for targeting

## **II. What is the target?**

- A. population groups at risk
- B. regions
- C. seasons
- D. commodities that target the poor

## **III. What do they need?**

- A. food
- B. caring behavior
- C. sanitation and disease prevention

## **III. Program Options**

- A. Reform Rural Rationing
- B. Expand Open Market Sales
- C. Alternative Programs
  - 1. food for work
  - 2. vulnerable group development
  - 3. school feeding
  - 4. health clinics
  - 5. vitamin supplementation
  - 6. complementary inputs:  
sanitation and public health
  - 7. food stamps
  - 8. credit
  - 9. others

## **V. Comparing the Alternatives**

- A. benefit/cost if managed well
- B. feasibility of managing it well
- C. difficulties in monitoring graft
- D. political acceptability
- E. opportunity cost of program resources

## **VI. Recommendations**

- A. optimum mix and scale of efforts
- B. building on existing programs
- C. pilot programs
- D. monitoring, evaluation, modification and expansion

## CALENDAR OF WORKING GROUP SESSIONS, 1992

	Date	Topic	Coordinator
I.	June 18 (Thursday)	"Calendar and Ground Rules"	S. Haggblade
II.	June 25 (Thursday)	"Who is at risk?"	A. Ahmed
III.	July 1 (Wednesday)	"What do they need?: Interactions among Food Sanitation & Disease"	M. Mulder- Sibanda, (S. Haggblade)
IV.	July 9 (Thursday)	"Rationing and Open Market Sales"	N. Chowdhury (S. Haggblade)
V.	July 16 (Thursday)	"Food for Work & Rural Maintenance Program"	CARE (S. Haggblade)
VI.	July 23 (Thursday)	"Vulnerable Group Development"	WFP (A. Ahmed)
VII.	July 30 (Thursday)	"Feeding Programs, Vitamin Supplementation, Nutrition Education"	M. Mulder- Sibanda, (S. Haggblade)
VIII.	August 6 (Thursday)	"Innovative Alternative Programs: Food stamps, Credit, Others"	S. Kumar (A. Ahmed)
IX.	August 13 (Thursday)	"Identifying Priorities and Recommendations"	S. Haggblade
X.	August 27 (Thursday)	"Review Draft Report"	S. Haggblade

## **LIST OF WORKING GROUP MEMBERS**

**Mohammed Abdullah**  
Associate Professor  
Institute of Nutrition & Food Science  
University of Dhaka  
Dhaka

**Nick Ritchie**  
Deputy Director  
CARE International  
Dhaka

**Akhter U. Ahmed**  
Consumption Economist  
IFPRI Local Office  
Dhanmondi R/A, Dhaka

**Salehuddin Ahmed**  
Director of Programs  
BRAC  
Mohakhali, Dhaka

**D. Craig Anderson and Shirley Pryor**  
Office of Food and Agriculture  
USAID/Bangladesh

**Nuimuddin Chowdhury**  
Consultant  
IFPRI Local Office  
Dhamnondi R/A, Dhaka

**Tawfiq-e-Elahi Chowdhury**  
Additional Secretary  
Planning Academy  
Babupur, Nilkhet  
Dhaka

**Naser Farid**  
Asst. Chief  
FPMU, Dhaka

**Steven Haggblade**  
Chief of Party  
IFPRI Local office  
Dhaka

**Syed Aatur Rahman**  
Asstt. Chief  
FPMU, Dhaka

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# Appendix B

## SUPPLEMENTARY TABLES

**Appendix Table B.1—Cost-effectiveness of existing targeted income transfer programs (per ton of grain)**

	Rural Rationing		Statutory Rationing		Vulnerable Group Development			RMP		Food for Work CARE		Food For Work WFP		
	(rice)		(wheat)		(wheat)					(wheat)		(wheat)		
	Actual		Actual		Actual		Actual	Actual		Actual		Actual		Actual
<b>1. Costs</b>														
a. grain cost														
purchase cost	\$272		\$190		\$195			\$195		\$195				\$195
- sales receipts	\$206		\$178											
net cost per ton	\$66		\$12											
b. govt contrib.								\$16						
c. administration														
- DG Food	\$60		\$60		\$54			\$27		\$54				\$54
- CARE/WFP					\$1			\$13		\$21	\$42			\$1
- Ministries					\$2			\$1		\$8	\$8			\$8
d. total cost per ton														
(1) if donated					\$55			\$56		\$83	\$96			\$55
(2) if GOB purchases	\$126		\$72		\$252			\$236		\$278	\$299			\$258
<b>2. Income transfer to vulnerable HHs</b>	<b>Ideal</b>	<b>Actual</b>	<b>Ideal</b>	<b>Actual</b>	<b>Ideal</b>	<b>Actual</b>	<b>Actual</b>	<b>Ideal</b>	<b>Actual</b>	<b>Ideal</b>	<b>Actual</b>	<b>Ideal</b>	<b>Actual</b>	<b>Actual</b>
a. leakage														
- undercompletion							(WFP) (IFPRI)				26%			(BIDS/IFPRI)**
- underpay workers											10%			7%
- other														21%
total leakage	0%	70%	0%	94%	0%	8%	14%	0%	0%	0%	36%	0%	15%	28%
b. income transfer to beneficiaries														
- per ton	\$73	\$19	\$10	\$0	\$178	\$164	\$153	\$178	\$146	\$178	\$114	\$178	\$151	\$128
- per month (taka)	143	43	12	0.2	214	197	184	730	730	671	604	671	617	530
c. average beneficiary income (taka/month)		1850		8200							1,009			
d. percent of monthly HH income (2b/2c)	8%	2%	0%	0%			12%				60%			
e. income transfer per ton if monetized at world rather than ration price	\$73	\$19	\$10	\$0	\$195	\$179	\$168	\$195	\$195	\$195	\$125	\$195	\$166	\$140
<b>3. Cost/income transferred</b>														
a. donor gives grain (1d(1)/2b)					0.31	0.34	0.36	0.31	0.38	0.47	0.84	0.31	0.37	0.43
b. government procures grain (1d(2)/2b)	1.73	6.56	7.20	360.00	1.42	1.54	1.65	1.33	1.62	1.56	2.62	1.45	1.71	2.02
c. government procures, monetizes at world prices ((1d(2)/2e)***	1.73	6.56	7.20	360.00	1.29	1.40	1.50	1.21	1.21	1.43	2.40	1.32	1.56	1.84

## **Notes to Appendix Table B.1**

### **Cost-Effectiveness of Existing Targeted Income Transfer Programs**

**Notes:**

\* WFP estimates.

\*\* Based on Ahmed et al (1985) and Choudhury (1983), whose figures refer to 1982. At that time, the composition of WFP Food For Work activities covered mainly water development. These activities now account for 40% of program activities. Leakage may change over time and may vary across activities. We have no evidence on either potential source of bias.

\*\*\* Currently, government monetizes grain at the official ration price of \$178 per ton, set as a fixed mark-up over domestic procurement price. To enable a fair comparison with cash-based channels, line 3.c. values grain at the landed cash cost of imported wheat. Of course, to achieve this higher payout per ton would require government to revise the price at which it monetizes imported wheat.

**Sources:**

Rural Rationing: Akhter U. Ahmed, 1992. "Operational Performance of the Rural Rationing Program in Bangladesh," Bangladesh Food Policy Project Working Paper No. 5, Dhaka: IFPRI.

Statutory Rationing: Preliminary results, IFPRI field investigation.

Vulnerable Group Development: Figures supplied by World Food Programme supplemented by preliminary results of IFPRI household consumption and nutrition survey.

Rural Maintenance Programme: CARE.

Food for Work: CARE and World Food Programme. Ahmed et al. (1985) and Choudhury (1983).

**Appendix Table B.2— Probable cost-effectiveness of new targeted income transfer programs**

	Food Stamps		Cash Transfer to the Destitute			Cash for Work (1) Maintenance			Cash for Work (2) Construction & Excavation		
	Expected		Expected			Expected			Expected		
<b>1. Costs</b>											
a. value	1.00		1.00			1.00			1.00		
b. printing	0.05		0.00								
c. administration	0.10		0.10			0.10			0.20		
d. monetization at port	0.05		0.05			0.05			0.05		
e. Total cash cost (a-c)	1.15		1.10			1.10			1.20		
f. Cost if monetized food aid (a-d)	1.20		1.15			1.15			1.25		
<b>2. Income transfer to vulnerable HHs</b>	<b>Ideal</b>	<b>Expected</b>	<b>Ideal</b>	<b>Est.a)</b>	<b>Est.b)</b>	<b>Ideal</b>	<b>Est.a)</b>	<b>Est. b)</b>	<b>Ideal</b>	<b>Est a)</b>	<b>Est b)</b>
a. leakage											
- misidentification	0%	10%	0%	5%	5%	0%	0%	0%	0%	0%	0%
- underpay beneficiary	0%	10%	0%	5%	10%	0%	5%	10%	0%	5%	10%
- undercompletion						0%	0%	0%	0%	15%	15%
- redeem at less than face value	0%	10%									
total leakage	0%	30%	0%	10%	15%	0%	5%	10%	0%	20%	25%
b. income transfer to beneficiaries	1.00	0.70	1.00	0.90	0.85	1.00	0.95	90%	1.00	0.80	75%
<b>3. Cost/income transferred</b>											
a. cash resource (1e/2b)	1.15	1.64	1.10	1.22	1.29	1.10	1.16	1.22	1.20	1.50	1.60
b. monetized food aid (1f/2b)	1.20	1.71*	1.15	1.28	1.35*	1.15	1.21	1.28*	1.25	1.56	1.67*

**Notes**  
**Appendix Table B.2**  
**Probable Cost-Effectiveness**  
**of New Targeted Income Transfer Programs**

Food Stamps: Costs estimated based on actual performance of programs in Jamaica and Sri Lanka. Leakages adjusted upwards based on judgments about administrative difficulties anticipated in Bangladesh. For references, see Grosh (1992) and Edirisinghe (1987).

Cash Transfer to the Destitute: Costs estimated based on actual RMP costs of 8%, rounded up to 10%. Leakages taken at VGD rate of 14%, rounded off to 15%.

Cash for Work (1): We estimate the costs of administering easily supervised programs - such as routine maintenance, tree planting, and urban clean up - at the rounded off RMP rate of 10%. Although the prototype RMP program has experience zero leakage, these estimates include a 5% to 10% provision for leakage given inevitable slippage when expanding a program.

Cash for Work (2): Construction and excavation activities require more supervision and hence greater operational costs. They require engineering design work as well as surveying, at least on a sample basis, before and after work begins. An average of the costs actually incurred by CARE and World Food Programme in their FFW schemes places this cost estimate at 20% of wage payments. These programs also offer more scope for leakage - overstatement of output by gang leaders in order to extract wage payments in excess of actual work performed. An average of WFP and CARE experience places this loss at 15% of total payments.

Cost of monetization: If monetized on arrival at the port of Chittagong, we estimate a cost of 5% of the grain. If monetized, as in the past, through various ration channels, the cost rises by a factor three to five.

**Appendix Table B.3—Nutritional impact of two targeted relief programs**

<b>Impact</b>	<b>Control Group</b>	<b>Rural Rationing</b>	<b>VGD</b>
<b>1. <u>Income</u></b>			
a. income transfer due to program as percent of total income		3.5%	22.0%
<b>2. <u>Household calorie consumption</u></b>			
a. average calories per capita	2,157		
b. percent increase due to program		0.9%	14.7%

Source: Preliminary results, IFPRI's 1991/92 household consumption and nutrition survey.

**Appendix Table B.4—Estimated calorie consumption as percent of minimum requirement, 1985/86**

Percentile of Population (Ranked Poor to Rich )	Rural	Urban
	(.....percent.....)	
5	60	70
10	69	75
20	82	81
30	89	86
40	94	90
50	99	94
60	104	98
70	110	101
80	119	107
90	124	111
95	132	113

Source: Adapted from Ahmed, Akhter U. et al., 1991. "Poverty in Bangladesh: Measurement, Decomposition and Intertemporal comparison." The Journal of Development Studies 27(4).

## **Appendix Table B.5. Notes to Table 1. Assumptions used in estimating population groups at nutritional risk.**

---

### **1. Numbers**

**Population:** The estimated total population of 110 million in 1991/92 has been disaggregated by population groups on the following bases and assumptions:

**Infants:** The predicted crude birth rate of 3.28% for 1990 is used to estimate the size of infant (less than 12 month old) population.

**Preschool and school-age children:** The age and sex compositions of 1991 census population are not yet available. Therefore, the sizes of preschool and school-age population are calculated using the proportions of 1981 census. The age range of preschool children is 12-59 months and school-age children, 5-14 years.

**Pregnant and lactating women:** The number of pregnant women is estimated from the crude birth rate. The number of lactating women is assumed to be the same as the number of infants (below 12 months).

**Female Household head:** The number of female household head is estimated using the information from the 1988/89 household expenditure survey report.

**Other women:** The population size of other women is estimated by subtracting the sizes of pregnant and lactating women, and the female household heads from the total female population above 15 years of age.

**Men:** The adult male population, above 15 years of age.

### **2. Risks**

The sizes of population groups at risk have been estimated based on the following criteria:

**Infants:** Based on the mortality rate at birth of 110 per thousand.

**Preschool children:** Based on prevalence of stunting--70% for boys and girls.

**Adults and school-age children:** The total size at risk for each group is estimated using the proportion of population under the poverty line (in terms of shortfall in calorie intake from the required level). According to the 1988/89 household expenditure survey report, about 48% of the population were under the poverty line. For each group, the sizes of male and female population are estimated using the differences in food intake in the respective age groups, as reported in a recent poverty analysis by Chowdhury (1992).

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**Appendix Table B.6—Overview of the Food for Work (FFW) and Rural Maintenance (RMP) programs**

Program Features	Food for Work		R M P
	CARE	WFP	
1. Source of funds		WFP/donors	
a. donors	USAID	none	CIDA
b. local contribution	GOB		unions
2. Commodities distributed	wheat	wheat	wheat oil
3. Program size (1991/92)			
a. tons of grains ('000 metric tons)			
- nonmonetized	120	400	0
- monetized	72	45	110
b. value of grain (\$ million)	\$ 33	\$ 78	\$ 18
c. number of beneficiaries ('000)	600	3,400	62
4. Target group	unskilled labourers	unskilled laborers	destitute women
5. Regional focus	national, 44 districts	national 60 + dist.	national 60 dist.
6. Seasons	Jan - May	predominantly Nov.- April	all year
7. Activities undertaken	roads (80%), canals (15%), tanks, bridge, culverts (5%)	embankments & canals (40%) roads (30%) forestry (8%) fisheries (7%) others (15%)	road maintenance (100%)
8. Implementors:			
a. Who handles the grain?			
- port to LSD	DG Food	DG Food	DG Food
- LSD to work site	PIC	PIC	none
b. identifies beneficiaries?	self-selecting	self-selecting	union
c. pays beneficiaries	PIC-sardar	PIC-sardar	banks
- what commodity	wheat	wheat	cash
d. proposes schemes?	upazilla	WDB, LGEB, DOF	upazilla
e. reviews proposals?	CARE (100%)	Ministries/WFP (17%)	CARE
f. implements construction?	PIC: roads; contractors: bridges	WDB, LGEB, DOF	upazilla
g. monitors construction?	upazilas	f + WFP/donors	upazilla
h. monitors impact on beneficiaries?	CARE	WFP/GOB (selective)	CARE
9. Link institution			
a. local level	upazilas	PIC	upazilla
b. central ministry	Local Govt.	ERD, RR, line	Relief
10. Staff number	250	20	264

**Table B.7—Features of the Vulnerable Group Development (VGD) program**

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1	Source of program resource (wheat, 1991/92): a) Donors	WFP (47%), Canada (26%) EEC (8%), Australia (5%) FRG (3%)
	b) Local contribution	GOB (11%)
2	Commodities distributed	Wheat, oil, and pulses
3	Program size (1991/92): a) Wheat ('000 metric tons)	192
	b) Value of wheat (\$ million)	33.5
	c) Number of beneficiaries	456,212 households under VGD, 40,057 women under WTC 54,709 women and children under IFDP
4	Target group	Destitute Women, orphan children
5	Regions	Focused on distressed regions (see attached Map 1)
6	Seasons	Year-round
7.	Development activities	Integrated poultry program (chart 6); pilot credit scheme; self-employment through cottage industries; functional literacy; health, nutrition, and agricultural extension training.

---

**Table B.8—Seasonality in Food for Work schemes, 1991 (monthly offtake, in tons)**

	Jan	Feb	Mar	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
rice	6441	5637	10238	2766	569	360	10	36	3	4	150	45
wheat	69871	67279	89732	68016	80031	20408	9211	5368	13847	13927	8683	11885
total	76312	72970	99970	70782	80600	20768	9221	5404	13850	13931	8833	11930

Source: World Food Programme, "Foodgrain Forecast", March 4, 1992.

**Appendix Table B.9—Food versus non-food transfer programs**

	Rural Rationing	"For Work" Programme				"For Free or For Training" Programs	
		Construction		Maintenance		VGD	Cash
		FFW	CFW	RMP	CFW		
<b>Dollar values</b>							
a. income transfer	19.2	134.8	0.75	195.0	0.90	173.6	0.85
b. leakage*	53.8	60.2	0.25	0.0	0.10	21.5	0.15
c. Admin.**	60.0	76.8	0.25	41.0	0.15	57.0	0.15
d. sum	133.0	271.8	1.25	236.0	1.15	252.0	1.15
e. total cost	126.0	271.8	1.25	236.0	1.15	252.0	1.15
f. residual	7.0	0.0	0.0	0.0	0.0	0.0	0.0
g. admin -residual	53.0	76.8	0.25	41.0	0.15	57.0	0.15
<b>Cost components</b>							
leakage	2.80	0.45	0.33	0.00	0.11	0.12	0.18
admin - residual	2.76	0.57	0.33	0.21	0.17	0.33	0.18
income	1.00	1.00	1.00	1.00	1.00	1.00	1.00
total***	6.56	2.02	1.67	1.21	1.28	1.45	1.35

\* Worst-case estimate b) from Table B.2.

\*\* Includes cost of monetization at port for cash-based program.

\*\*\* These are the figures depicted in Figure 7.

Source: Appendix Table B.1 and B.2.

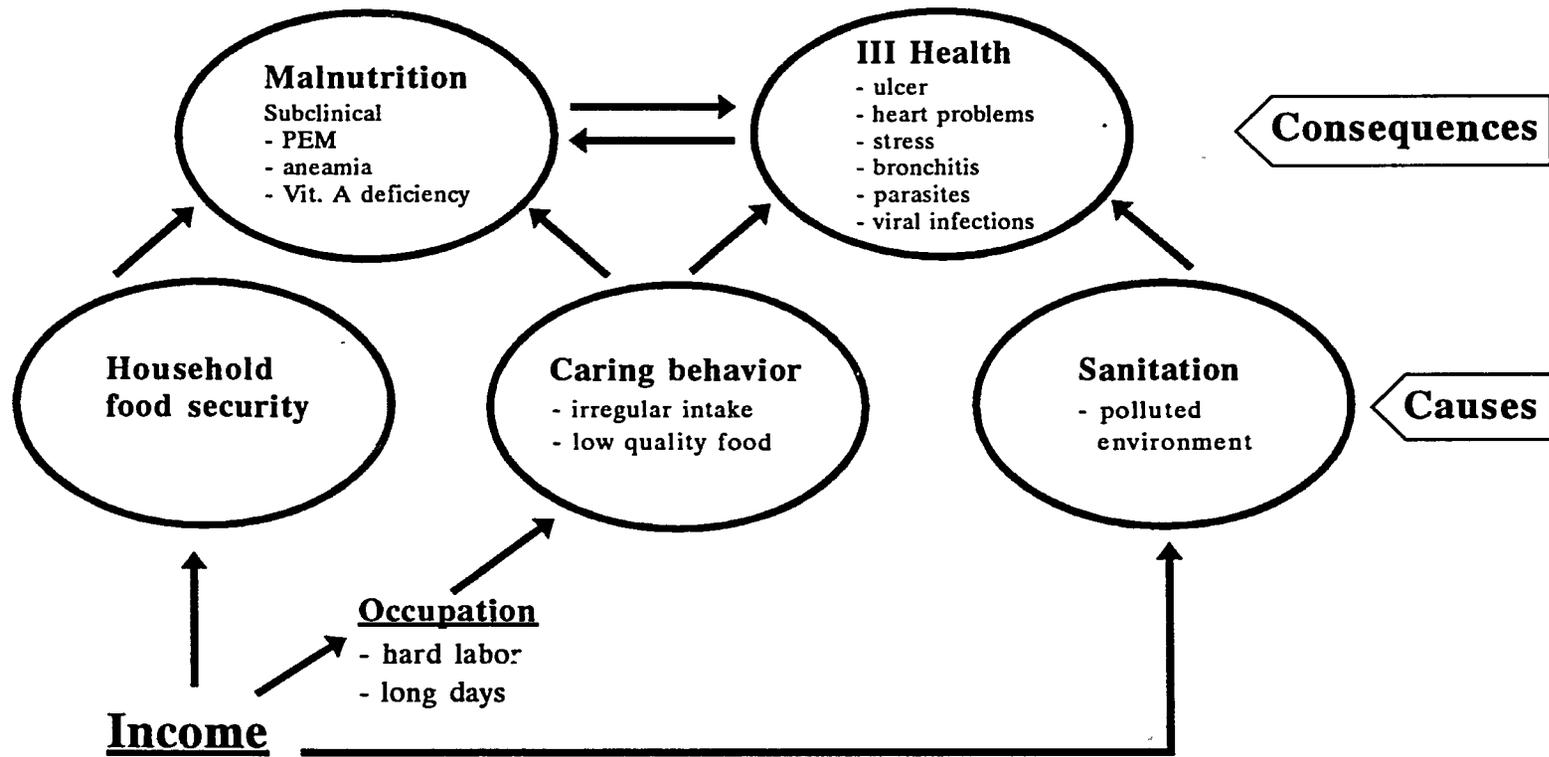
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# Appendix C

## SUPPLEMENTARY FIGURES

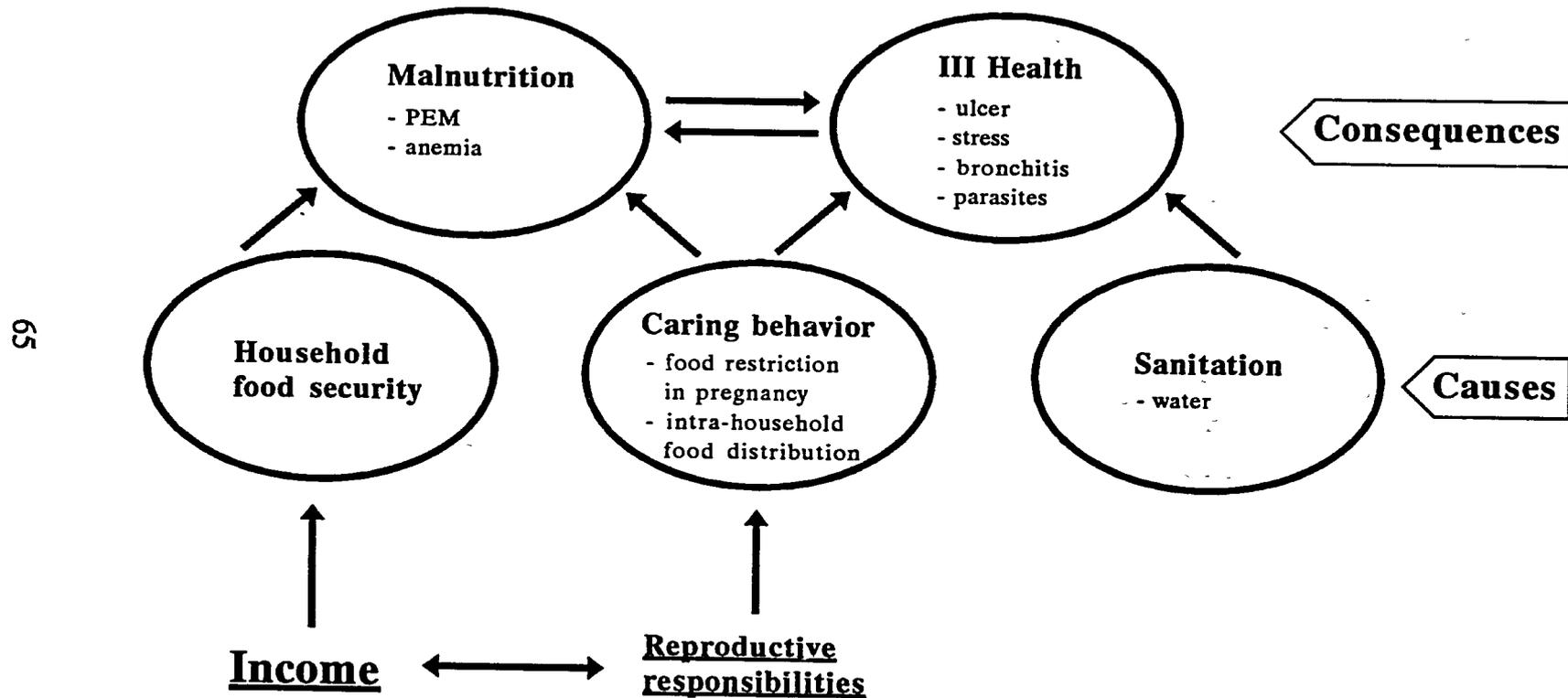
**Figure C1—Causes of malnutrition among male breadwinners**

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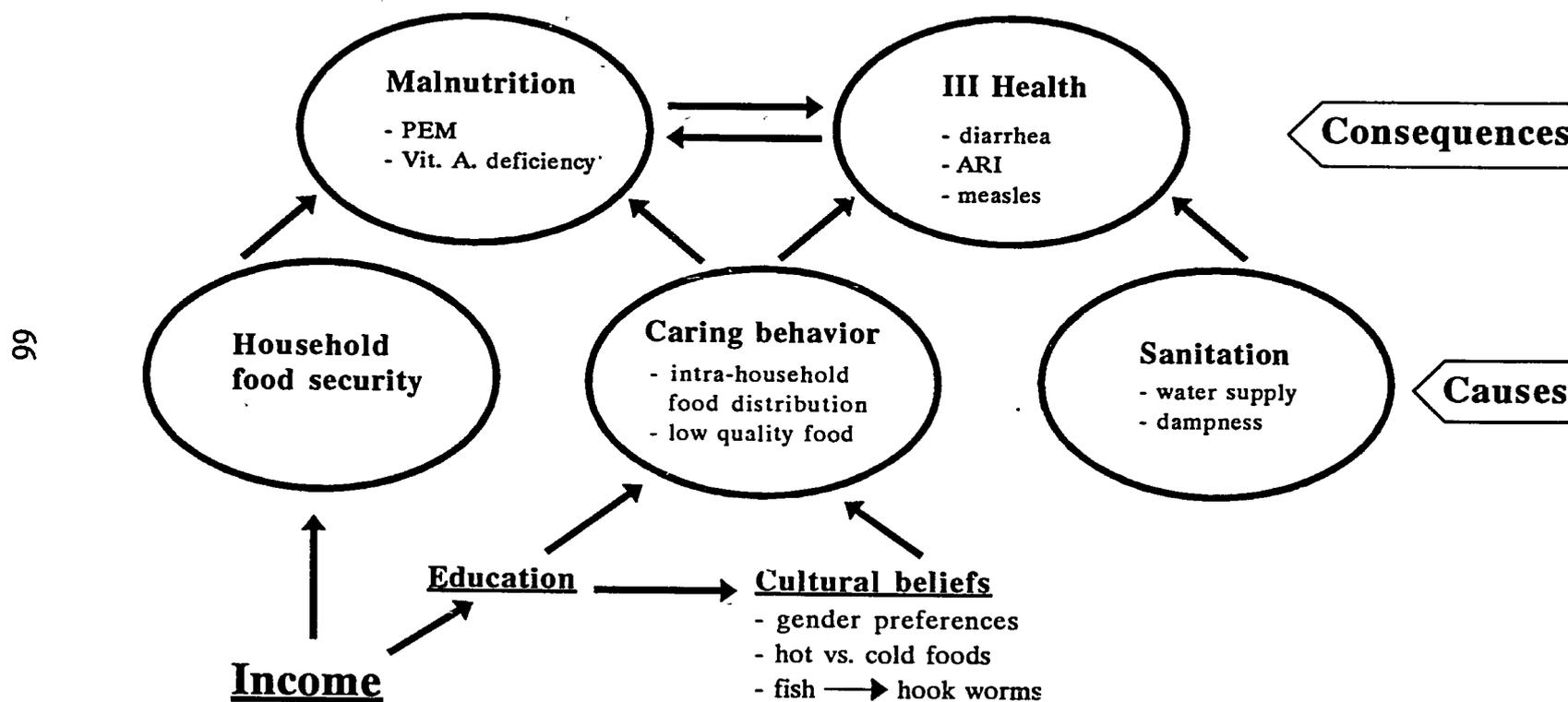
Source: Adapted from UNICEF (1990)

**Figure C2—Causes of malnutrition among female breadwinners**



Source: Adapted from UNICEF (1990)

**Figure C3—Causes of malnutrition among preschool children**



Source: Adapted from UNICEF (1990)