How Nutrition Improves – Nutrition policy discussion paper No. 15

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NUTRITION POLICY DISCUSSION PAPER #15

A report based on an ACC/SCN Workshop held on 25–27 September 1993 at the 15th IUNS International Congress on Nutrition, Adelaide, Australia

Written and edited by

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Support *from UNICEF is gratefully acknowledged for the preparation of the workshop, including country case–studies, and the preparation and production of this document.*

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United Nations – Administrative Committee on Coordination – Subcommittee on Nutrition (ACC/SCN)

The ACC/SCN is the focal point for harmonizing the policies and activities in nutrition of the United Nations system. The Administrative Committee on Coordination (ACC), which is comprised of the heads of the UN Agencies, recommended the establishment of the Sub–Committee on Nutrition in 1977, following the World Food Conference (with particular reference to Resolution V on food and nutrition). This was approved by the Economic and Social Council of the UN (ECOSOC). The role of the SCN is to serve as a coordinating mechanism, for exchange of information and technical guidance, and to act dynamically to help the UN respond to nutritional problems.

The UN members of the SCN are FAO, IAEA, IFAD, ILO, UN, UNDP, UNEP, UNESCO, UNFPA, UNHCR, UNICEF, UNRISD, UNU, WFP, WHO and the World Bank. From the outset, representatives of bilateral donor agencies have participated actively in SCN activities. The SCN is assisted by the Advisory Group on Nutrition (AGN), with six to eight experienced individuals drawn from relevant disciplines and with wide geographical representation. The Secretariat is hosted by WHO in Geneva.

The SCN undertakes a range of activities to meet its mandate. Annual meetings have representation from the concerned UN Agencies, from 10 to 20 donor agencies, the AGN, as well as invitees on specific topics; these meetings begin with symposia on subjects of current importance for policy. The SCN brings certain such

matters to the attention of the ACC. The SCN sponsors working groups on inter−sectoral and sector−specific topics.

The SCN compiles and disseminates information on nutrition, reflecting the shared views of the agencies concerned. Regular reports on the world nutrition situation arc issued, and flows of external resources to address nutrition problems are assessed. State−of−the−Art papers arc produced to summarize current knowledge on selected topics. SCN News is normally published twice a year. As decided by the Sub−Committee, initiatives are taken to promote coordinated activities – inter−agency programmes, meetings, publications – aimed at reducing malnutrition, primarily in developing countries.

Preface

An earlier version of this paper was presented at the ACC/SCN workshops on *Nutrition−Relevant Actions in Developing Countries−Recent Lessons* at the 15th IUNS Congress, 25−27 September 1993 at Adelaide, Australia.

Prior to this, at the 14th IUNS Congress in Seoul in 1989, an ACC/SCN workshop was held where case studies of 17 selected nutrition programmes in 12 countries were presented, which in turn led to the publication of *Managing Successful Nutrition Programmes.* In February 1990 the SCN decided, following a proposal by UNICEF, that the scope be broadened and a series of case studies undertaken on country−wide actions aimed at improving nutrition.

Three documents that guided the country reviews through providing a basic format and general ideas on setting scope and content, were the UNICEF (1991) Nutrition Strategy document and the two 1991 ACC/SCN publications, *Nutrition−Relevant Actions* and *Managing Successful Nutrition Programmes.*

During 1990, focal national institutions were approached and consultations held on the outlines of country−specific reports. Preparation of the first drafts of the reviews took approximately 6−12 months, and was carried out in each case by individuals selected by the collaborating institution.

Following their completion, the first drafts were reviewed by the SCN's Advisory Group on Nutrition (AGN) along with other external reviewers identified by the AGN as having considerable experience in the countries concerned. Comments from these individuals were forwarded to the authors to facilitate subsequent revision. An informal meeting of Country Review authors took place on 25−26 August 1992 in Geneva, following the International Conference on Nutrition Preparatory Committee, to deal with outstanding questions from the individual country reviews, compare experiences, and decide on the structure and content of this synthesis.

The ACC/SCN Secretariat carried out some final editing and formatting of the individual country reports in late 1992 before arranging publication within the countries concerned. A first draft outline of the synthesis was compiled in January 1993 and considered by the ACC/SCN 20th Session. Subsequent comments received were taken into account in the background paper for Adelaide, which was then further revised to lead to the present version.

We are greatly indebted to the following authors of the case−studies: Timiebi Agary, A. Avila, S. Bermejo, A. Chavez, R. Iunes, F. Jalal, Thom Jayne, I. Jus'at, Yongyout Kachondham, R. Karim, Festo Kavishe, N. Lenneiye, H. Madrigal, N.S. Malik, S.J. Malik, Carlos Monteiro, H. Nassar, N. Pralhad Rao, Vinodini Reddy, J. Roldan, Meera Shekar, Soekirman, G. Sumodiningrat, Julia Tagwireyi, I. Tarowtjo, Kraisid Tontisirin, Pattanee Winichagoon, S.M. Yusoff and K.F.K. Zaman. Many of these took time to contribute to and comment on the present document.

We are most grateful to David Sanders, University of the Western Cape, South Africa, who acted as a consultant in preparing the workshop, and contributed substantially to Chapter 6, as well as reviewing the document overall. We thank T. Cavalli−Sforza, F. Kavishe, C. Monteiro, M. Shekar and Soekirman for comments on this final version.

We are also very grateful to UNICEF New York who supported this project from its inception, to the AGN and external reviewers, and to UNICEF offices in Brazil, Egypt, India, Indonesia, Mexico, Tanzania, Thailand and Zimbabwe who provided support for publication of the individual country reviews and/or participation of the authors in the Adelaide workshops.

Finally, many thanks are due to Jane Hedley, Viki Elliot and Jane Wallace for their time and patience in handling text, graphics and data.

Foreword to Country Case Studies

[1]This foreword, written in 1993, introduced each of the country case−studies, and is included here to give context.

Viewing improved nutrition as an outcome of development processes expands the area of concern for policy−makers and practitioners who seek to combat malnutrition. These processes operate at different levels in society, from (he individual through to the whole arena of governmental policy and indeed international relationships. The SCN, in deciding on initiating a series of country−wide reviews of nutrition−relevant actions in 1990, aimed to provide a rich base of documented experience of why and how such actions were undertaken and what was their effect on nutrition.

This country−wide approach built on the progress made at the 1989 workshop on "Managing Successful Nutrition Programmes" held at the 14th IUNS Congress in Seoul. The focus here had been on nutrition programmes, and the essential factors determining their success, and the synthesis of findings and individual case studies were later published as ACC/SCN Nutrition Policy Discussion Paper No. 8.

Two other influential documents were the SCN's "Nutrition−Relevant Actions" that emerged from the 1990 workshop on nutrition policy held in London, and UNICEF's 1991 Nutrition Strategy document. Together these provided both a common analytical framework for organizing the reviews and a common language for discussing the various actions that impinge on nutrition. The value of such a framework has been demonstrated by the ease with which it lends itself to analyses of both the nutrition problem and its potential solutions. The food − health − care triad of underlying causes of malnutrition, in particular, proved to be a very useful framework for orienting the inputs and subsequent discussions at the 1992 International Conference on Nutrition, co−sponsored by FAO and WHO. Communication and thus advocacy are facilitated when people share such a conceptual understanding.

UNICEF had originally proposed that a series of country−wide reviews be undertaken and the results presented at the 15th IUNS Congress in September 1993. At the time of writing, preparations for this workshop are well underway − in fact, the richness of documented material has necessitated the organization of an additional two−day satellite meeting in Adelaide. We are extremely grateful to UNICEF for their financial support throughout this exercise. The series editor for these country reviews was Stuart Gillespie, and the SCN Advisory Group on Nutrition (AGN) also technically examined the drafts as these emerged. In addition, I would like to express gratitude to the external technical reviewers, selected for their in−depth knowledge of particular countries, who provided the authors with comments and suggestions on initial drafts.

The essential value of these country case studies lies in their ability to describe the dynamics involved when a national government attempts to combat malnutrition. Questions such as the role of the political economy in determining policy options, obstacles met in implementation, how programmes are modified or expanded, and how they are targeted, are all addressed. The need for actions to be sustainable to achieve results over the long−term, and the importance of both measurable objectives and a system of surveillance to monitor progress, are examples of important conclusions. These reviews thus provide valuable insights into the questions of "how" as well as "what", in terms of nutrition policy.

The country reviews are intended for a wide audience including those directly concerned with nutrition in developing countries, development economists, and planners and policy makers. Along with the output of the Adelaide meeting, they will be valuable for advocacy in underscoring that effective actions *will* improve nutrition. It is hoped that these reviews and the proceedings of Adelaide will provide guidance for a strengthening and expansion of future actions for reducing nutritional deprivation.

Dr A. Horwitz
Chairman, ACC/SCN
April 1993

Chapter 1: Introduction

Nutrition is improving for many people in the world, but for most not nearly fast enough. The problems are becoming concentrated in sub–Saharan Africa and South Asia. In sub–Saharan Africa the nutrition situation is actually worsening overall. More than half the malnourished children in the world are in South Asia, due both to the prevalence being much higher than elsewhere (nearly double that of sub–Saharan Africa) and to the enormous population. Regional trends shown in Figure 1.1 illustrate this; these cover the period 1975–1990, in line with the perspective of this report. Together sub–Saharan Africa and South Asia account for 70% of the world's underweight children.

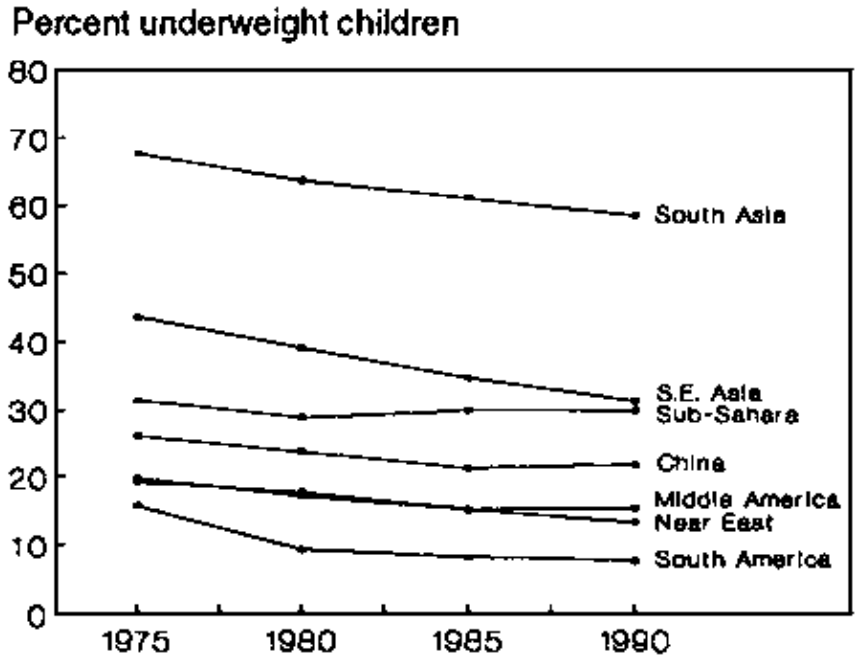


Figure 1.1: Trends in Prevalence of Underweight Children, 1975–1990

Source: ACC/SCN (1992) page 11

At the International Conference on Nutrition in 1992 all governments endorsed the ambitious goals of the World Summit for Children of 1990, calling for halving the 1990 underweight prevalence by the year 2000(UN, 1990; FAO/WHO, 1992). An idea of the size of this task can be seen from the fact that, in South Asia, the rate of improvement for the 1980s was –0.5 percentage points per year[2]; to meet the goals in the 1990s about three percentage points per year reduction is needed, six times the historical trend. Again, in sub–Saharan Africa, a static situation would need to turn into an improvement of –1.5 percentage points per year, higher than that seen in any country in the region since measurements began in the 1970s. Nonetheless, in some countries in the world, notably in South East Asia, rates of improvement have been fast enough to meet such goals. In fact, for these and for much of South America and the Near East, the end of hunger and malnutrition as major social problems is coming into sight. The basic question addressed here is how can nutrition improve more rapidly for the rest–the majority–of the world's malnourished.

[2] A negative sign for prevalence change means reduction, i.e. improvement; this is used throughout.

Not only have some countries shown rapid improvement, but a number of effective nutrition programmes have now been operating on a large scale for a considerable time. Although evaluations are often inadequate, it is likely that many of these have substantially improved nutrition. Considerable experience now exists on how to manage and make these programmes more effective (ACC/SCN, 1991). There is a basis at country and programme level for learning how nutrition improves and applying this to future policy.

The widely–agreed framework for analyzing nutrition problems and actions is now widely agreed, based on the UNICEF strategy conceptual framework, as shown in Figure 1.2 (UNICEF, 1990). The "underlying causes" of inadequate access to food, insufficient health services and an unhealthy environment, and inadequate care for women and children, were reflected in the structure for the International Conference on Nutrition in 1992. This categorization of food/health/care guided analysis of "nutrition–relevant actions" at an SCN workshop in November 1990 (Gillespie and Mason, 1991), which in turn led to the present exercise.

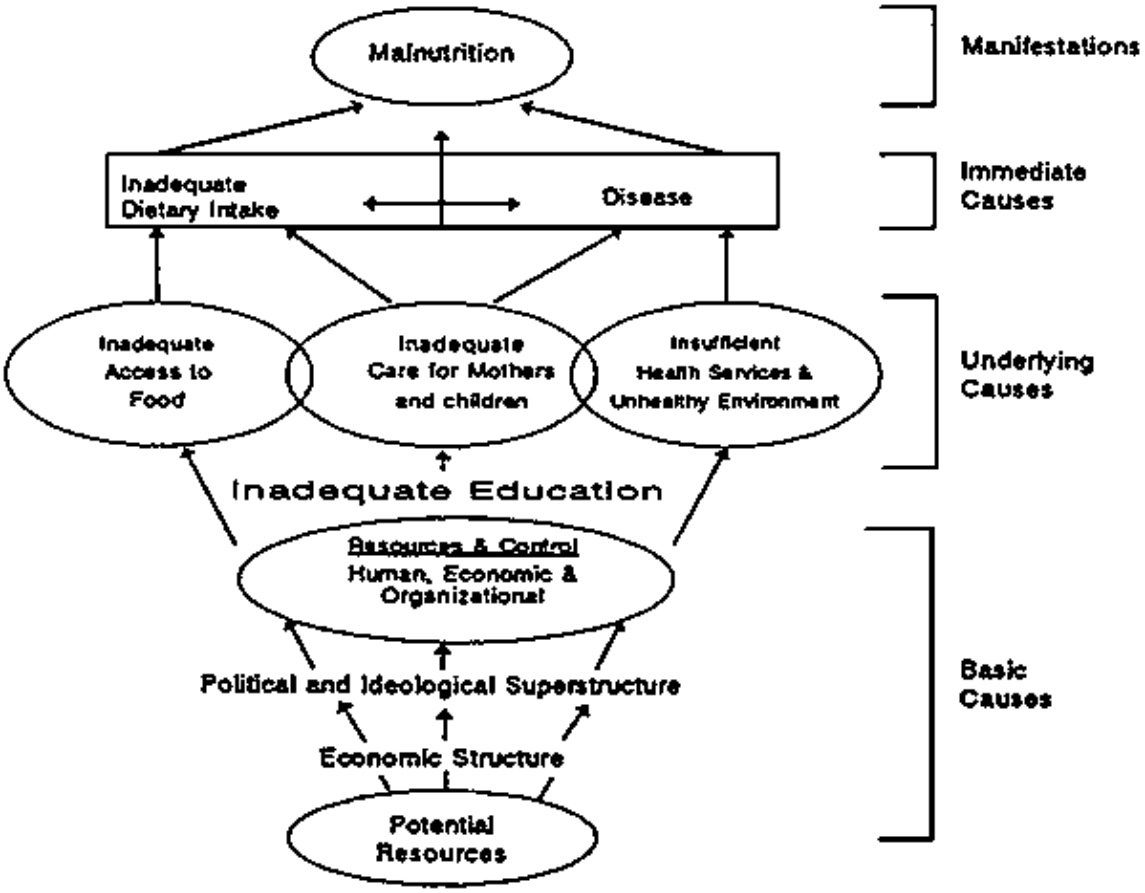


Figure 1.2: Causes of Malnutrition

Source: UNICEF(1990)

By 1992, then, some important background existed: trends in nutritional status were known in many countries; there was considerable experience of nutrition programmes; and there was a broadly accepted framework for analysis. Analyses of national trends for reporting on the world nutrition situation provided context, showing for instance that economic growth could account for part, but by no means all, of changes seen (ACC/SCN, 1994, p5). The case studies which provide the basis for this paper were undertaken to help gain a deeper understanding at national and sub–national level. Emphasis here has been given to learning from successes, with an emphasis on larger countries.

Case studies were commissioned to find out *how* nutrition improved, in ten countries. The framework of food/health/care, and the policies related to these, as laid out in *Nutrition–Relevant Actions* (Gillespie and Mason, 1992), acted as guidance. In synthesizing from these, the focus here is moved a step nearer to operational decisions that affect nutrition–in economics, social sector investments, nutrition programmes, and institutions–which form chapter headings. This also allows clearer linkage with the concerns in the mainstream of development thinking, as discussed for example by the World Bank and UNDP. The World Bank's *World Development Report* provides a wide range of indicators to monitor the pace of social and economic development and the eradication of poverty (e.g. World Bank, 1994). UNDP's *Human Development Report* (e.g. UNDP, 1994) focuses on public spending for human development priorities, (especially in the social sector) and on changes in human development *per se,* using an index which incorporates national incomes, adult literacy, and life expectancy. In neither of these publications is nutrition the central focus of concern, although relevant data are monitored.

In this synthesis, on the other hand, nutrition is the primary outcome of concern; changes in economic development and levels of poverty, in human development expenditures, and in nutrition policies and programmes, are examined to better understand what drives nutrition. In this sense, nutritional improvement is seen as an outcome –as an objective in its own right. The concept of nutrition as a human right reinforces this (e.g. Jonsson 1993). The purpose of understanding how nutrition improves in the case study countries is to help apply the lessons elsewhere.

Nutritional improvement is becoming recognized as an important route to better health, and enhanced human capital. Both these involve cycles through time, of varying lengths. The interaction of malnutrition and

infection, recognized as a major public health issue (Scrimshaw *et al.,* 1968; Tomkins and Watson, 1989) operates as a cycle, or perhaps is better described as a spiral, as shown in Figure 1.3. In this illustration, episodes of disease lead to declining nutritional status (marked by growth failure in children), which reduces resistance to disease, increasing vulnerability further; the way back is better nutrition (Mason, 1996).

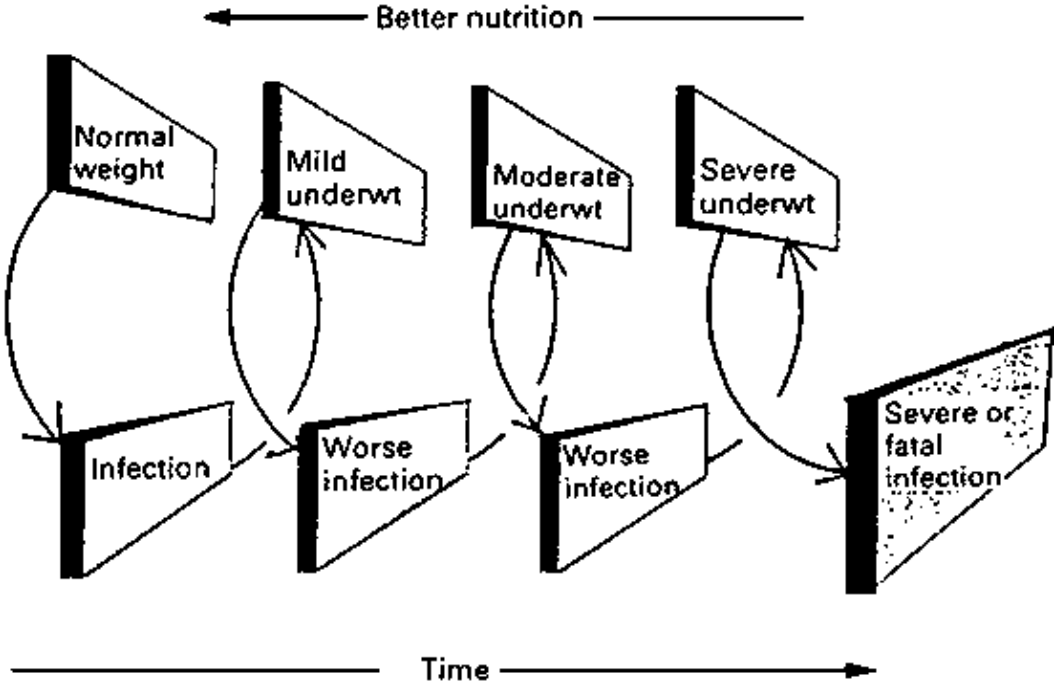


Figure 1.3: Spiral of Malnutrition and Infection

Source: Mason (1996)

The quantitative demonstration that malnutrition kills in synergism with infection, and that even mild degrees of underweight carry an increased mortality risk (Pelletier *et al.,* 1994), powerfully reinforces the significance of nutrition in health and survival. Such relationships lead to estimates that, through the indirect effects of malnutrition, the global burden of disease would be reduced by around 25% if malnutrition were eliminated (Mason *et al.,* 1995). (This estimate updates earlier ones, in World Bank 1993a.) The non–specific public health effect of better nutrition has often meant that as with other interventions that affect a range of diseases, the potential effectiveness has been underestimated (Mosely and Becker, 1991). In fact, malnutrition as viewed here is very similar to the concept of "frailty" used by Mosely and Becker, 1991, which is defined as the biological risk of death, increased by exposure to a high infectious load and other insults; "current evidence suggests that birthweight, anthropometric status, and vitamin A levels would seem to qualify as useful indicators" of frailty (p.226). These authors comment that cost effectiveness considerations of interventions that affect multiple diseases simultaneously will be radically different if intervention strategies are considered in terms of their overall impact on health and survival rather than just as they relate to a single disease–precisely the same point as is made for nutritional improvement, which has also suffered from the analytical limitation of trying to apply nutrition to one disease at a time.

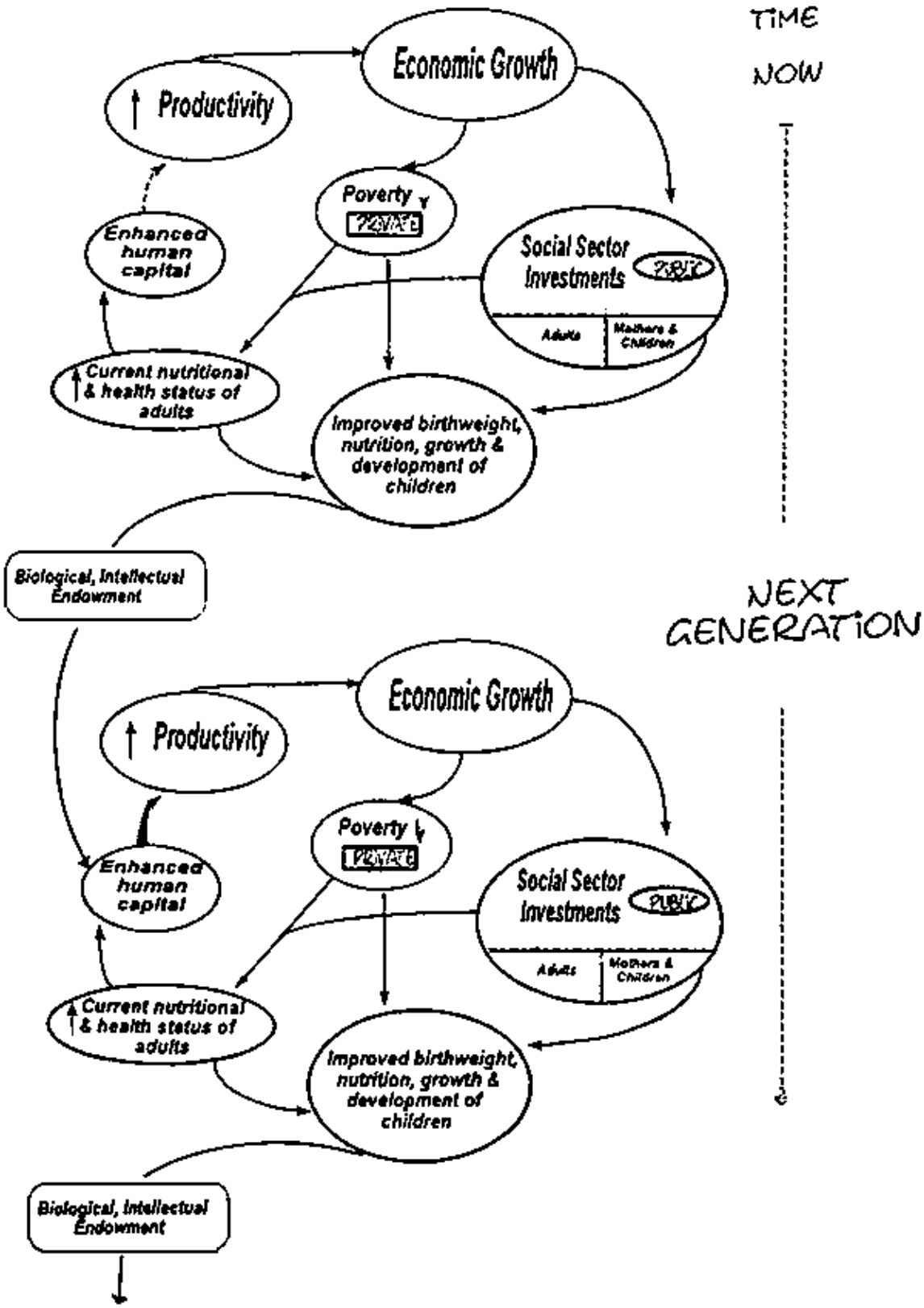


Figure 1.4: Intergenerational Cycle of Economic Growth, Human Capital and Nutrition

The long–term linkage of nutrition improvement to educability and human capital (Martorell *et al.,* 1992; Pollitt, 1990) provides for expectation of a self–reinforcing, virtuous cycle from nutrition. The effect here is one of good early nutrition leading to better educated, more skillful, and stronger adults, thus favouring economic development and hence accelerating the cycle. Part of this would also be through better grown adults having higher birthweight children. Hope for accelerated progress in nutrition lies with the operation of such long–term cycles. This is illustrated in Figure 1.4, and since the concept is central to much of what follows, it is worth considering the details, both of the mechanisms and of possible policy interventions.

The two cycles shown in Figure 1.4 are essentially the same, repeated through time and reinforced. Starting at the point of economic growth in the top cycle, this can lead to a reduction in poverty and thus increased private means, as well as the possibility of greater public investment in the social sector, notably (in this case) in health and education. Both private and public resources provide the potential for improving current adult nutrition and health status, making the current generation fitter to increase productivity, and thus to further growth. A major effect is through the next generation: less poverty and increased health and education lead to a lower incidence of low birthweight, to better nutrition and growth and development of young children–not least through improved care. We now know that this has a long–term effect on educability, acquired skills, and physical fitness, such that when this generation of children in turn becomes adults, in the second turn of the cycle in the illustration, human capital is significantly enhanced, leading to improved productivity and a reinforcement of the cycle for that generation, and for the next. The connection between the healthy well–nourished child and the productive adult is biological and intellectual, making the individual better able to respond to opportunities in the environment.

The cycles in Figure 1.4 fit the structure used here. While economic growth is probably only influenceable to a limited degree by nutritional considerations, it can be shown to have an important effect on nutrition improvement, through routes such as those shown in Figure 1.4 – the details of which are elaborated at the underlying and basic level of the UNICEF framework. In Chapter 3, we consider economic growth as well as programmes directly intended to alleviate poverty and improve household food security. Human resource development through Figure 1.4 social sector expenditures in health and education is addressed in Chapter 4, while specific nutrition programmes are considered in Chapter 5. Finally, in Chapter 6 the issue of institutional capacity for nutrition, political economy and the role of specific nutrition policies in nutritional improvement are addressed.

Regarding the measure of the nutrition outcome used, while physical growth is not synonymous with nutritional status, the prevalence of young children experiencing various anthropometric deficits is one useful summary measure of the nutritional outcome, albeit non–specific to causes (see Beaton *et al.* 1990). The prevalence of children who are underweight, stunted or wasted, may be defined as the percentage, in a given age–sex group, of those more than 2 standard deviations below the NCHS median reference values for weight–for–age, height–for–age and weight–for–height respectively. In the country reviews, anthropometric data of young children (usually under–fives) were thus one main outcome of concern, along with indicators of micronutrient deficiency disorders and infant and child mortality. These indicators were used in the Country Reviews to build a picture of the nature, extent and severity of the nutrition problem and its changes over time, as far as data availability and reliability permitted. In this summary review we have focussed mainly on young child underweight prevalences.

The goal of the Country Reviews was to explain, as far as possible, the underlying reasons for the nutritional improvements observed in each case. To achieve this, the scope necessarily went beyond nutrition programmes *per se*–clearly, just as malnutrition is multi–causal, many actions have potential for affecting nutrition outcomes, and were thus relevant to the review. Questions concerning *how* successful actions were implemented, were also addressed, along with consideration of *who* designed and implemented them–what was the relative involvement of governments, institutions and communities? Such a broad scope required an understanding of the political economy of nutrition, institutional capacity and the inter–relationship between community–level dynamics and programmes.

The overall view was that momentum in nutritional change is established by long–term social and economic trends, policies and related investments. This may be disturbed by medium–term problems, and blown off course in time spans measured in years. Crises and shocks may be superimposed, with varying severity; when over though, the situation may revert more slowly than the onset of the crisis. Nutrition programmes, if appropriate, can accelerate progress, or cushion vulnerable groups from deterioration during medium to long–term crises. Human capital/resource development, particularly through education, has a long–run momentum–generating and multiplying effect. Necessary for this is some form of democracy and its institutions, which although culturally diverse, share characteristics of justice, human rights, and freedom. To effectively attack the causal factors and processes leading to malnutrition, at the levels and time periods over which they operate, policies should include a judicious mix of poverty–reducing, equitable growth, household food security actions, social service provision, and relevant nutrition programmes.

In sum, drawing on the country reviews, this synthesis aims to compare the country experiences–the nature and scope of nutrition–relevant actions, their pre–conditions, their place in overall development and their future prospects. The objectives are broadly to understand the determinants of trends in nutrition over the last decade or so in a selected number of countries; to identify policies and programmes that would accelerate the rate of nutritional improvement under different conditions; and to draw relevant lessons about the role and

place of such policies and programmes.

Countries Included

A number of considerations applied to proposing and contacting countries for review. Firstly, there needed to be nutrition (anthropometric) trend data, in a majority of cases showing a significant improvement during the last decade or so. This was a primary criterion for "success". Secondly, there needed to have been an explicit governmental attempt to deal with the problem of malnutrition, manifested as nutrition–oriented programmes, a nutrition policy and/or explicit nutrition–related objectives built into broader developmental policies or programmes. UNICEF refers to the Triple A process of assessment, analysis and action (UNICEF, 1990). Applied to the problem of malnutrition, each country in these reviews can be said to have been undergoing such a process during the 1980s. Employing these criteria, and following discussion with UNICEF, the following six countries were contacted: India, Indonesia, Thailand, Tanzania and Zimbabwe and Brazil. As well as differing in context, the actions seen to determine the nutritional improvements ranged from large–scale targeted nutrition programmes (e.g. Tamil Nadu in India) to broader development policies (e.g. equitable growth in Indonesia).

A further four countries, for which recent detailed material had been commissioned for the ACC/SCN's *Second Report on the World Nutrition Situation,* are also considered in this synthesis. These are Pakistan, Egypt, Mexico and Nigeria. The work on Egypt was brought together to specifically look at policies and programmes. Seven case studies have thus been published, which provide the basis for this work. These are the following:

> Iunes, R. and Monteiro, C. (1992) *The Improvement in Child Nutritional Status in Brazil: How did it Occur?*
>
> Nassar, H. *et al.* (1992) *Review of Trends, Policies and Programmes affecting Nutrition and Health in Egypt.*
>
> Reddy, V., Pralhad Rao, N., Shekar, M. and Gillespie, S.R. (1992) *Nutrition in India.*
>
> Soekirman, Tarwotjo, I., Jus'at, I., Sumodiningrat, G. and Jalal, F. (1992) *Economic Growth, Equity and Nutritional Improvement in Indonesia.*
>
> Kavishe, F. (1992) *Nutrition–Relevant Actions in Tanzania.*
>
> Kachondham, Y., Tontisirin, K. and Winichagoon, P. (1992) *Nutrition and Health in Thailand: Trends and Actions.*
>
> Jayne T., Tagwireyi, J. and Lenneiye, N. (1992) *Nutrition–Relevant Actions in Zimbabwe.*

Other case studies for the Second Report on the World Nutrition Situation have not been published but have also been drawn upon for many of the points in this synthesis. These are:

> Chavez, A., A. Avila, S. Bermejo, J. Roldan, H. Madrigal (1992) *The Food and Nutrition situation of Mexico: A Report of Trends in Food Consumption, Nutritional Status and Applied Programs, 1960–1990.*
>
> Agary, T. and S.R. Gillespie (1992) *Trends in Nutrition in Nigeria.*
>
> Malik, N. and S. Malik (1992) *Reporting on the World Nutrition Situation: Case Study on Pakistan (1976–1991).*

In addition, at the workshops held in Adelaide in September 1993, when these were discussed, a further case study was presented from Malaysia, which has been most usefully included in this synthesis. The report is:

> Karim, R., Zaman, K.F.K., and Yusoff, S.M. (1993) *Review of Policies and Programmes that have an Influence on Nutritional Status in Malaysia During the 1980s.*

Eleven case studies therefore form the basis of this work. Of these, the first seven listed above provide the most material, as they have specifically addressed policies and programmes in relation to nutritional trends. Over and above this, country level data from recent reports on the world nutrition situation (ACC/SCN 1992–94) are used to provide context.

The ideal would be that those who use this synthesis in detail have with them copies of the published case studies, as listed above. These are available on request from the ACC/SCN Secretariat. As appropriate, reference is made in the text below to these case studies where specific facts or opinions need to be referenced. They are abbreviated such that, for example, B p16 means Brazil case study page 16, as follows: Brazil–B; Egypt–E; India–Ind; Indonesia–Ins; Tan–Tanzania; Tha–Thailand; Zim–Zimbabwe. The other four case studies are unpublished, but used for the report, referenced as follows: Ma–Malaysia; Me–Mexico; Ni–Nigeria; and Pa–Pakistan. At the end of each chapter, relevant case study experience is summarized.

Finally, some limitations should be recognized. The range of country experiences reviewed is limited to eleven (where in–depth material has been compiled), with some reference to others where information is also available. Second, nationally representative data are in some cases not available at regular intervals. Third, sometimes it is not possible to directly attribute causes to outcomes. Rather, we aim to tell a story that makes some sense, by relying on the literature and on specific studies, to infer that an impact on nutrition should be expected resulting from changes in causal factors, deliberate or otherwise. The "story" is therefore subjective but nevertheless the consensus of many, including country representatives at the workshop in Adelaide.

Chapter 2: Nutrition Trends

Before discussing the driving forces behind the nutritional trends observed in the case study countries, we need to briefly describe these trends in a national and regional context. In Table 2.1 the nutrition and mortality outcomes are provided for the eleven countries, ranked in order of increasing GNP *per caput.* The IMR ranking goes quite closely with GNP across regions, while underweight prevalences show more variation. For example Tanzania is worse off than India in terms of IMR and GNP, but lower in underweight prevalence.

Table 2.1: Summary of Selected Indicators by Country

	Per caput **GNP ($)**	**Real *per caput* GDP ($PPP)**	**Infant Mortality Rate per 1000 live births**			**Low Birth Weight (%)**	**Child Underweight Prevalence**
	1990	**1990**	**1970**	**1980**	**1990**	**1990**	**1990(%)**
Tanzania	110	572	152	137	115	14	24.2
Nigeria	290	1215	139	135	98	16	35.4
India	350	1072	137	123	92	33	52.7*
Pakistan	380	1862	142	126	103	25	41.6
Indonesia	570	2181	118	93	61	14	38.0
Egypt	600	1988	158	103	66	10	10.0
Zimbabwe	640	1484	96	74	49	14	14.1
Thailand	1420	3986	73	55	27	13	13.0
Malaysia	2320	6140	45	31	16	10	17.6
Mexico	2490	5918	72	56	39	12	13.9
Brazil	2680	4718	95	77	57	11	7.1

* India: 1990 prevalence derived from National Family Health Survey (1992–93)

Source: IMR, GNP (World Bank 1992 and 1982), GDP in $ PPP (UNDP 1992) tow birth weight (World Bank 1993a), prevalence data (ACC/SCN 1993).

Measures of national income such as GNP are associated with nutritional status, as shown in Figure 2.1 in which countries providing information for this review are marked. This used anthropometric data from surveys in the 1980s, and indicates a strong relationship up to around a *per caput* GNP value of $1,000. Beyond this level, the relationship with GNP is relatively weak. Countries in South Asia, in the top left–hand side of the figure, such as Bangladesh, Nepal and India, can be seen to have much higher prevalences of underweight children than would be expected from their GNP; the reasons are not fully understood, but it does suggest that the causes of child malnutrition and its interpretation may differ between regions. The countries studied here are generally scattered around the average line, with examples of prevalences both higher and lower than expected from the GNP. This deviation from the average may be particularly interesting, and can be looked at more carefully in relation to *changes* in prevalence and GNP, as discussed in Chapter 3. Part of the deviations may be historical: countries in South Asia and probably South East Asia started with a higher prevalence decades ago.

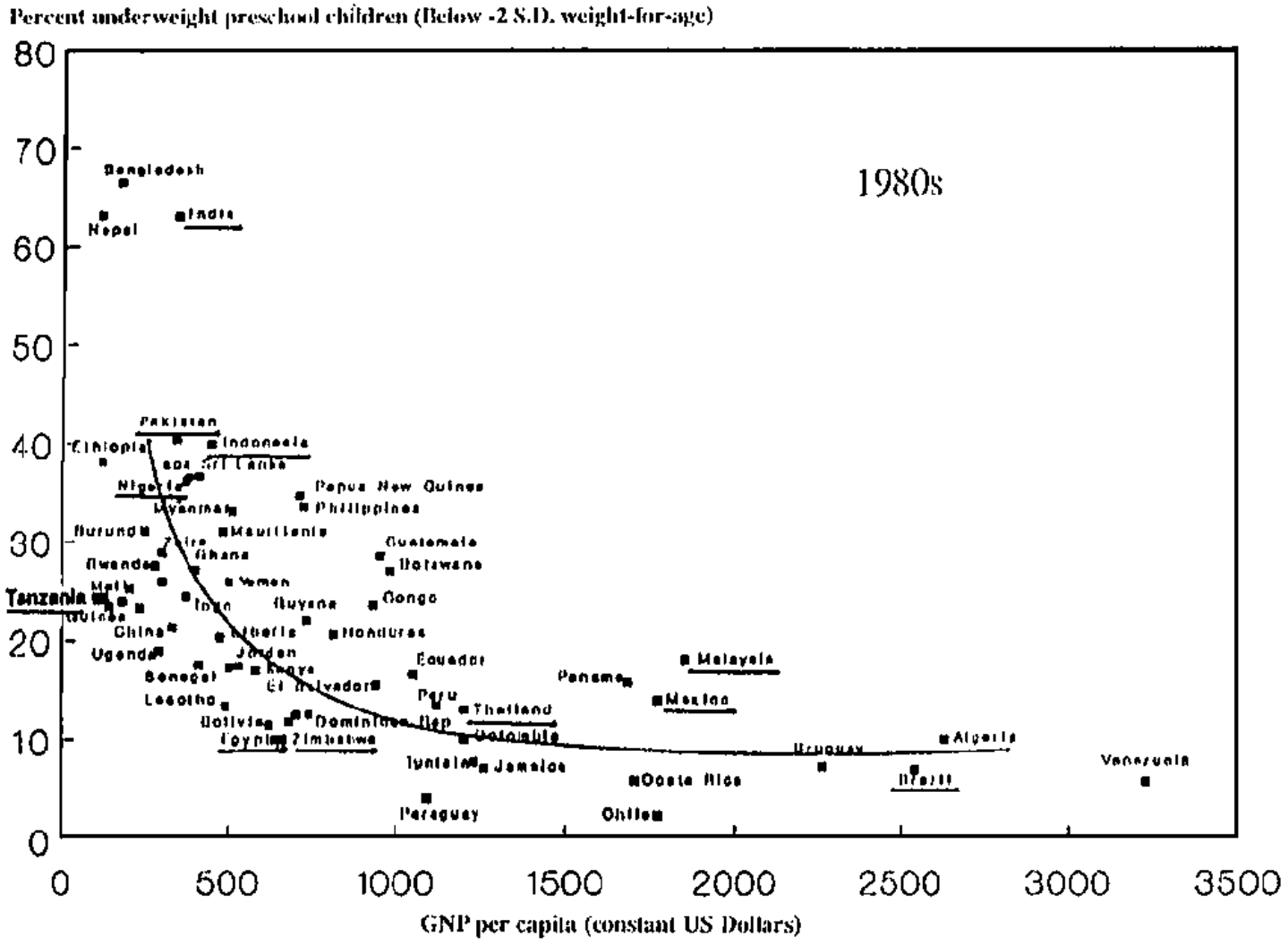


Figure 2.1: Relation of Malnutrition (as prevalence underweight) with GNP

Notes: Data on prevalence of underweight children are based on actual surveys (latest available). GNP per capita is given for the same year that each country's anthropometric survey was undertaken.

Recent trends in underweight prevalences in 37 countries are shown in Figure 2.2, with considerable variation being apparent around the average within each region. It is particularly interesting to compare the trends observed in the last 10–15 years with the regional trends that would be necessary in future to meet goals proposed for the World Summit for Children (WSC) and the International Conference on Nutrition (ICN). This is shown in Table 2.2, which gives the rates of change in the units used throughout this review – percentage points per year. This is chosen rather than percentage change per year, for a number of reasons, including

that the value seems moderately constant across different regions – the slopes in Figure 2.2 being roughly parallel. This rate of change is also easier to calculate directly, and avoids appearing to minimize the progress made in the high prevalence countries.

Table 2.2: Country Nutrition Trends

		Child	Underweight Prevalence Rates of Change (pp/year)			
		Und.weight Prev 1990 %	Country Rate	Rate required to reach goals (1990–2000)	Regional Average 1980–90	Residual
Brazil	1975–1989	7.1	–0.8	–0.4	–0.3	–0.2
Egypt	1978–1988	10.0	–0.7	–0.5	–0.4	+0.7
India	1977–1990	52.7	–0.7	–2.7	–0.6	+0.4
Indonesia	1986–1989	38.0	–1.6	–1.9	–0.7	–0.1
	(1980–1990)		(–0.8)			
Malaysia	1983–1986	17.6	–1.6	–0.9	–0.7	–1.1
	(1980–1990)		(–1.2)			
Mexico	(1980–1990)	13.9	(–0.3)	–0.7	–0.2	na
Nigeria	(1980–1990)	35.4	(+0.5)	–1.8	0	na
Pakistan	1977–1990	41.6	–1.0	–2.1	–0.6	+0.2
Tanzania	1987–1992	24.2	–1.0	–1.2	0	–0.1 (–0.6)
Thailand	1982–1990	13.0	–2.9	–0.7	–0.7	–0.3
Zimbabwe	1984–1988	14.1	–1.0	–0.7	0	–0.8

Source: ACC/SCN, 1992,1993, 1994; see text later in this chapter.

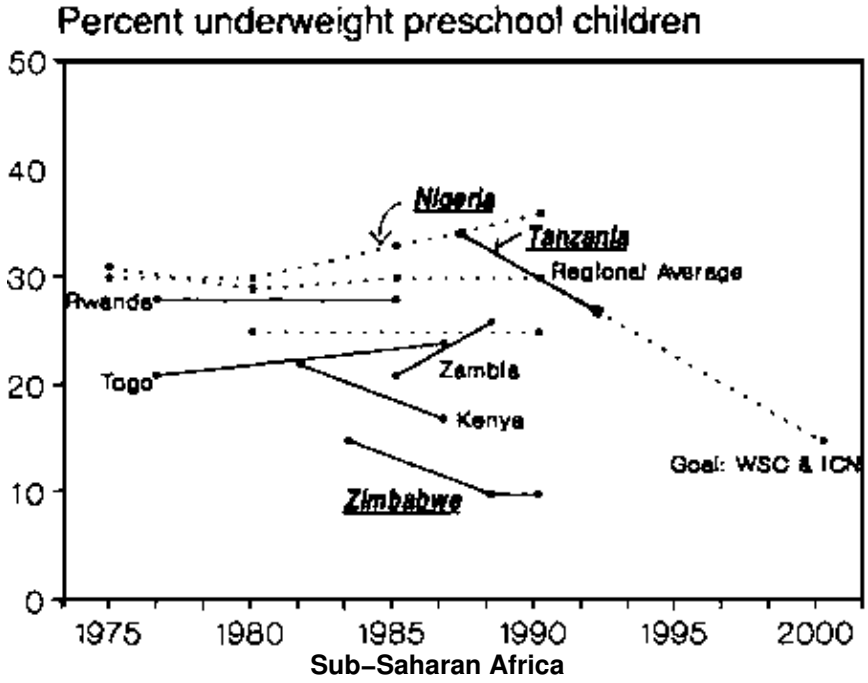
Note: For Indonesia and Malaysia, where there are several sources of data (see later text), estimates from the model are also given in brackets. Repeated comparable survey results are not available for Mexico and Nigeria; model estimates are given. Otherwise results of change are shown in Figure 3.1, discussed later. For discussion of "residual" column, see text.

This comparison does indicate that the required rate of improvement to meet these goals has been attained in some countries at some times in the past. Examples other than the eleven countries discussed here (given in ACC/SCN, 1994, Table 1) are notably in South East Asia (e.g. Vietnam), China, and the Americas (e.g. Costa Rica, Jamaica, Colombia). However many countries are lagging behind, some with very large populations e.g. Nigeria and India, and overall the average rates of change in each region are inadequate to meet the goals.

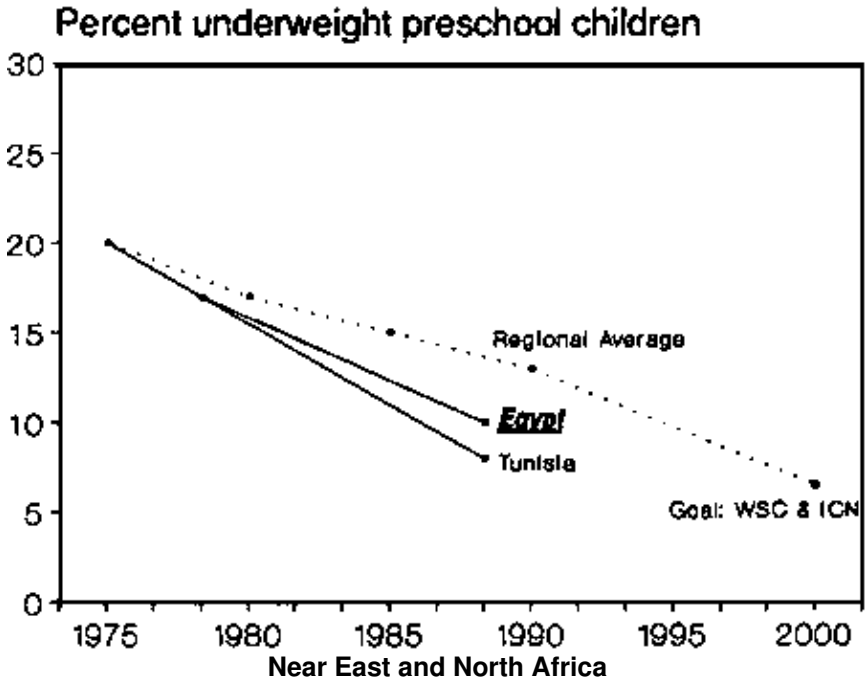
The last column indicates how the observed rate of change of underweight prevalence compares with that expected from the economic growth rate (using the model shown in Figure 3.1 and discussed later). The "residual" is the difference between the observed rate and the expected – the difference vertically from the fitted line in Figure 3.1 Thus, for example, from this calculation Brazil was improving slightly faster than expected, by –0.2 pp/yr change; Egypt somewhat more slowly, by +0.7 pp/yr; and so on. For Tanzania, for which underweight prevalence changes were calculated for 1987–92, it seems likely that the economic growth figure used (2.5% p.a.) is an overestimate (see Table 3.1); the GNP growth was about zero as indicated in Table 3.1, the residual would be –0.6 pp/yr, shown in brackets in Table 2.2.

Finally, it should be stressed that the effects of "economic growth" in this context necessarily includes other factors, associated with growth, including government expenditures. Thus examining how countries "beat economic growth" implies the effects of *additional* efforts (e.g. government expenditures), over and above the average.

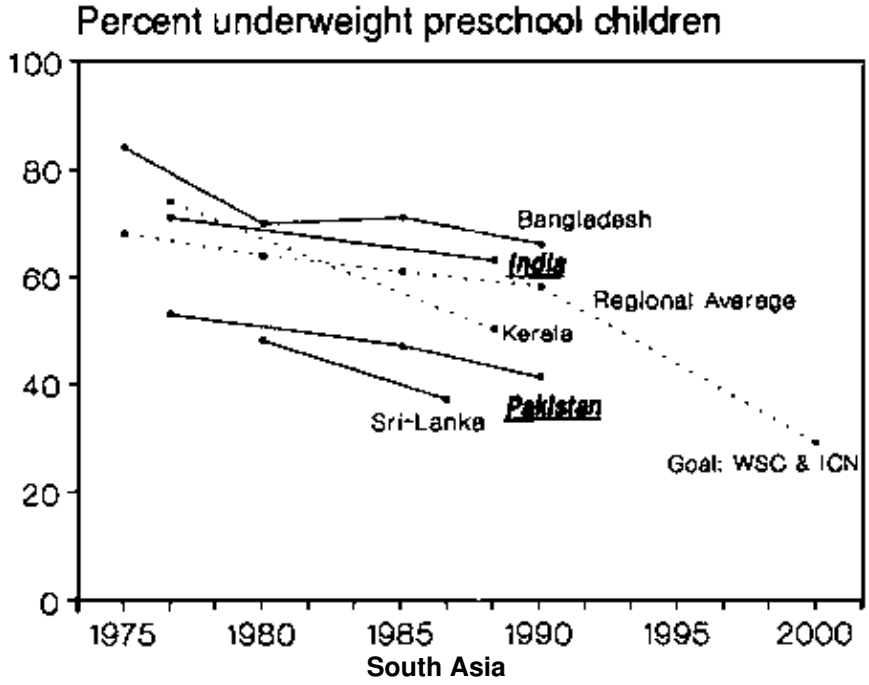
Figure 2.2: Recent Trends in Prevalence of Underweight Children



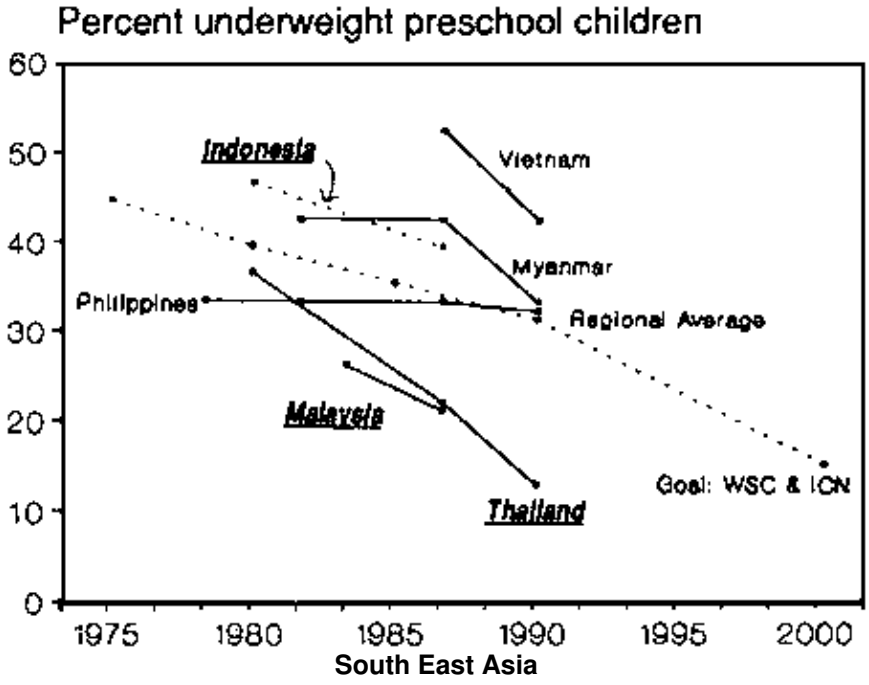
Sub–Saharan Africa



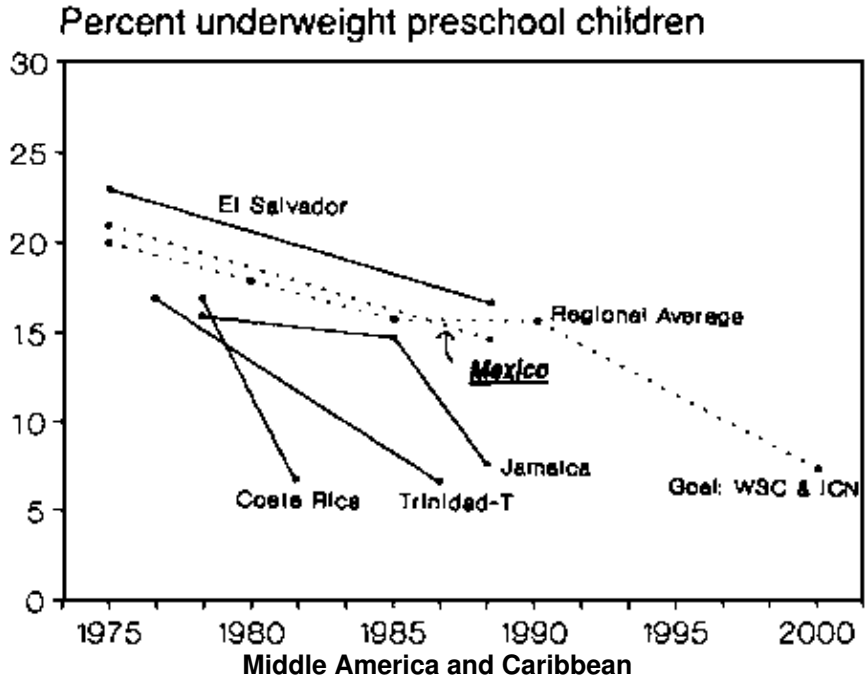
Near East and North Africa

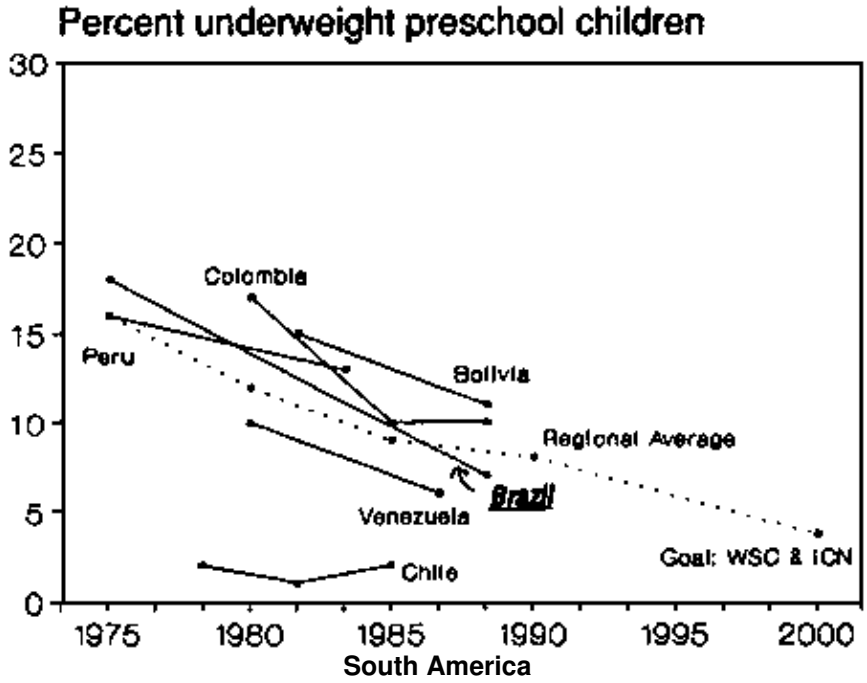


South Asia



South East Asia





Source: ACC/SCN (1993) page 5

The trends are summarized below by region, and then for the individual 11 case–study countries – refer to Figure 2.2.

In **Latin America and the Caribbean,** there is considerable consistency in the improving trend observed during the 1980s, although there is some concern as to whether this can be maintained in countries such as Brazil. Nonetheless, it is clear that there are indeed circumstances under which the goal of halving the 1990 prevalences by the year 2000 could be achieved. In this region there is a real prospect that, if progress can be maintained or re–established at the level of the late 1980s, malnutrition is on its way to being a problem of the past, although important pockets of severe poverty may remain, such as N.E. Brazil, where malnutrition may prove more intractable. A similar picture emerges for countries in the **Near East and North Africa.**

In **South East Asia,** rapid progress in nutrition has been made in several countries. These have tended to be where there has been good economic growth, coupled with vigorous community–level nutrition and health programmes. Well known examples are Thailand and Indonesia, and indeed the results reported from Malaysia, Myanmar, and Vietnam, are also encouraging in the apparent trend of improvement in underweight prevalences. In contrast, as shown in Figure 2.2, the Philippines' nutritional situation is lagging, having shown

little improvement in the last decade. If the nutritional improvement in countries such as the Philippines were to accelerate to that of others in the region, then the improvement to 2000 could indeed be, more or less in line with the WSC and ICN goals.

The trend in **South Asia** is dominated by that in India. The upward slope shown in Figure 2.2 for India (1989–92) probably does not represent a long–term trend (see discussion later), and slow improvement is considered more likely. The rates of change in most countries in this region are quite similar, of the order of –0.5 to –0.7 percentage point reduction in prevalence per year. The rate of improvement in Sri Lanka, estimated from repeated surveys, was faster than the average for the region in the 1970s and early 1980s, probably due to a combination of factors including investment in education and support for food consumption (e.g. through food stamps). A parallel improvement was observed in Kerala State in India between 1976 and 1989, and this with Sri Lanka again provides evidence that a rate of improvement substantially higher than that seen on average can be achieved. Bearing in mind that about 55% of underweight children in the world are in South Asia, unless the average rate of change here can be significantly accelerated, the nutrition problem will not be effectively addressed for many decades to come. Extending the existing regional trend for South Asia – if this does not falter – shows the underweight prevalence would not reach ten percent or less for about 100 years. We need to see an accelerating rate of improvement, which suggests that a continuation of the present policies and programmes is not enough.

The picture in **sub–Saharan Africa** is of substantial differences in trend between different countries, with a static regional average trend. On the one hand, there is room for optimism from the data available, in that in Zimbabwe in particular, and also probably Kenya, substantial improvement occurred during the 1980s – although effects of recent setbacks must be taken into account. However, there is evidence from several countries – Togo and Zambia are shown in the figure from direct estimates – of a deteriorating situation. Time series data are not available for Nigeria, which accounts for about 20% of the African population, but recent surveys showed a somewhat unexpectedly high prevalence of underweight there and there is concern that the situation may be deteriorating. It is very clear from the available data that unprecedented efforts are needed in many parts of sub–Saharan Africa to prevent a continued deterioration in the nutritional situation. On the other hand, there is evidence from Tanzania and Zimbabwe, for example, that vigorous community–level programmes can help to protect and improve nutrition (as will be discussed later). Among the measures that are urgently needed, it is likely that more widespread adoption of such programmes is important.

Comparing National Trends in Nutrition

Brazil

The likely changes in nutrition in recent years are that, for the whole under five population, the prevalence of underweight was substantially reduced from an estimate of 18.4% prevalence in 1975 to 7.1% in 1989, This is a prevalence reduction of around 0.8 percentage points per year (abbreviated to –0.8 pp/yr) on average over this 15 year period. Significant reductions were observed for both boys and girls of all ages. Taking into account the population projections for 1975 and 1989, the number of underweight children dropped by more than one million.

The available evidence points to the likelihood that most of this improvement took place in the late 70s and early 80s, and that the situation was probably static, or possibly deteriorating in some areas, in the late 80s. This is the period with which this paper deals, and changes since 1990 on a national basis are not known, although improvement may have restarted. Some of the reasons to suppose that the improvement was concentrated in early part of the period are as follows. Many indicators document economic crises that were particularly severe around 1980 – GNP per caput fell between 1980 and 1985 – followed by a period of hyper inflation starting around 1988. This was associated with reports of faltering in the decline of the infant mortality rate, which even showed a slight increase at national level between 1982 and 1984; other data indicated a very severe impact in certain regions. Although nutritional surveys at national level are only available for 1975 and 1989, a survey was carried out in the North East in 1986, and results were compared by Iunes and Monteiro, in their case study – B p10, Table 7. This provides evidence at least for the North East region that no further improvement in underweight prevalences took place between 1986 and 1989. Finally, using an innovative analysis of heights of older children (and elsewhere of adults) it was concluded that, in 1989, the height deficits of children of five to nine years old were similar to those in the under–fives; since these children would have been born in the crisis years (in this case, 1980 to 1984), this does support the idea that no improvement in early childhood nutrition took place during the early 1980s.

The trends in malnutrition prevalence can also be observed by region, and by certain indicators of socio−economic status, of which income band will be used here. Available estimates of prevalences of underweight children by region are compared in Figure 2.3. As noted above, only for the North East are data available beyond those for 1975 and 1989. The prevalences of underweight children are seen to, on average, have reduced roughly in parallel region−by−region, with the regions outside the North and North East practically reaching levels seen in the industrialized world by 1989. The parallel decreases in the North are perhaps surprising, knowing that these regions remain the most deprived. The rates of improvement on average in the 14 years between 1975 and 1979 were around a reduction of one percentage point per year in the North and North East, and −0.5 to −0.7 pp/yr in the more southern areas. It is interesting to note these rates are easily adequate, if maintained, to meet the halve−the−prevalence goals by the year 2000, in all regions.

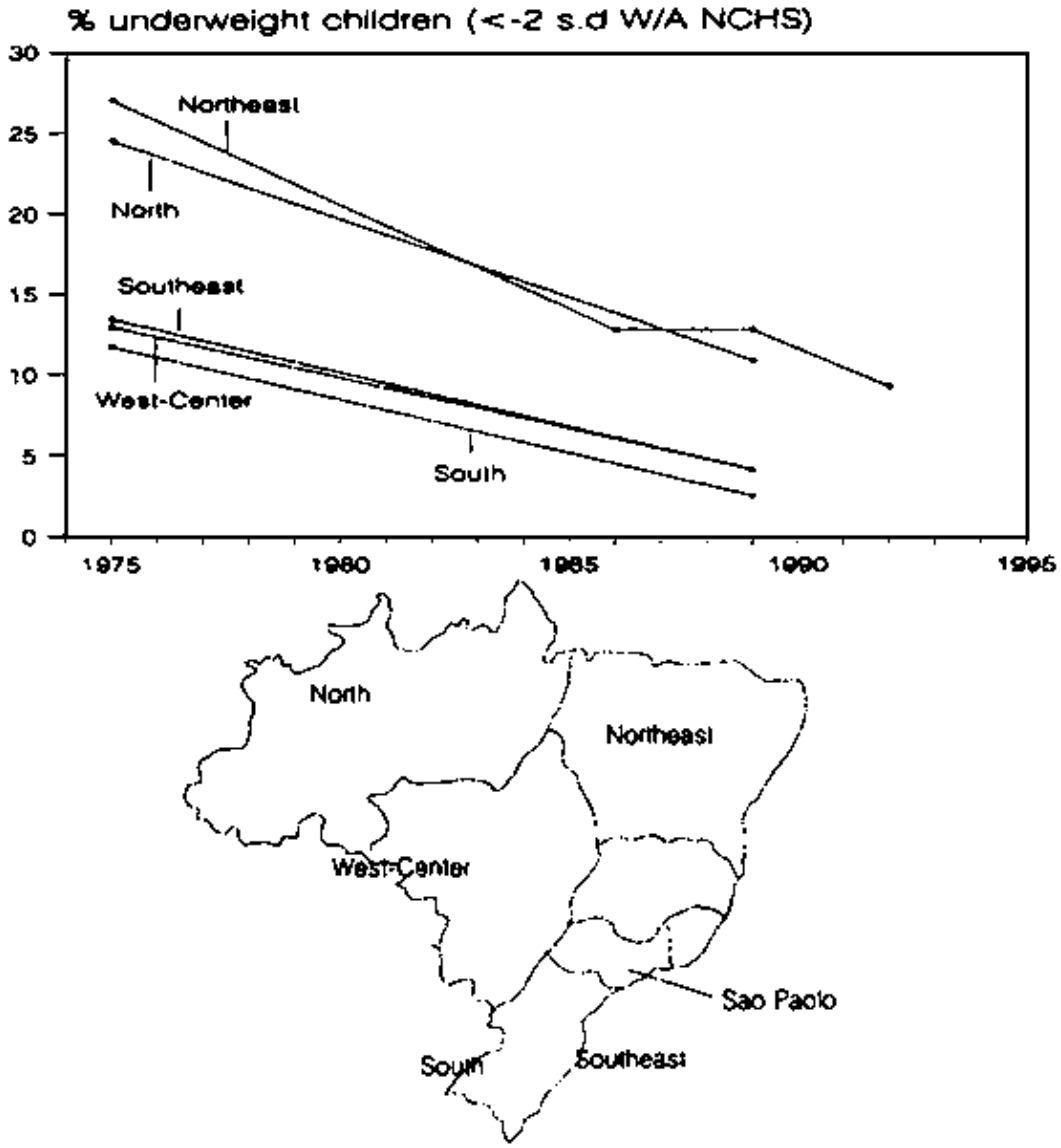


Figure 2.3: Brazil: Prevalence of Underweight Children, by Region

Source: ACC/SCN (1994), p. 13

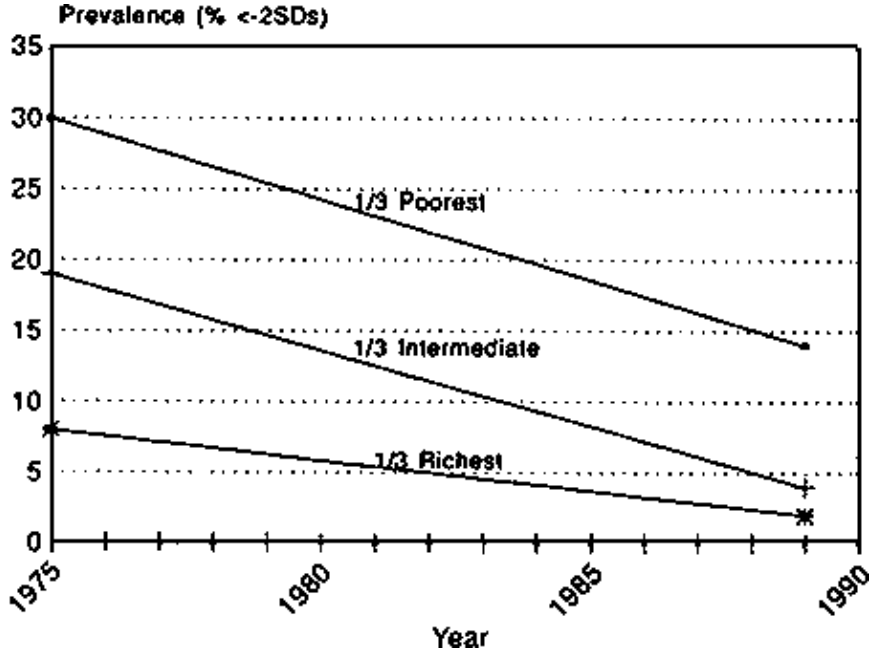


Figure 2.4: Brazil: Underweight Children by Income Strata

Source: Data from Iunes & Monteiro (1993) p. 13

Changes in prevalence of underweight children by income strata were calculated by Iunes and Monteiro (1993) –B p13, Figure 6), and these results are adapted and shown in Figure 2.4. Again, it can be seen that the rate of improvement for the poor tercile (in this case) was moderately rapid – on average around –1.1 pp/yr – also a rate adequate to meet the goals if maintained. The percentage point change for the rich group was –0.4 pp/yr. While the gap in nutritional status between the richest and the poorest groups remains, it could be argued that it was narrowed in that the prevalence gap was reduced from some 22 percentage points in 1975, to 12 in 1989[3].

[3] Changes can be expressed in terms of absolute percentage points or relative change. It is really a difficult choice. Of course the two alternatives are valid but they express different things. The main disadvantage of using percentage points reduction to compare performance of two groups is that similar reduction means increase of the "relative distance" between the groups. Suppose two groups ("rich and poor") with initial prevalence of malnutrition of 80% and 20% having rates reduced in 10 percentage points. At the beginning, risk of malnutrition was four times higher in the poor group, after "similar reduction" of malnutrition in both groups the relative risk associated with the poor group increased to seven times. The key point is equity. If our goal is not only reducing prevalence but also reducing inequalities, then relative change is better. Actually if we want equity in the future then the goal should be having not only equal but actually higher relative reduction in the more affected groups.

Rates of change, both by region and by income group, can also be calculated in terms of the annual percentage change, which in this case is compounded over the period of 14 years. The annual proportional change for the poorest group is a reduction in 5.4% (note: as a proportion, not a percentage point change, i.e. an annual reduction by a factor of 0.946). The equivalent compounded rates would be 6.0% annually for the intermediate group, and 9.4% for the richest group – however, at these low levels of prevalence it is doubtful that this argues that the rich were necessarily improving that much more rapidly. The equivalent compounded rates of change by region include a 5.1 % annual reduction for the North East, giving a reduction from 27% in 1975 to 13% in 1989, and for the South East a reduction from 13% to 5% over this period (i.e. a 5.8% annual reduction).

Contrasts can also be seen using indicators such as infant mortality rates, and the height deficit discussed above. An example is given in Table 2.3 which shows that these other indicators have shown a similar substantial improvement over the period, while gaps remain between the regions.

Table 2.3: Brazil: Indicators of Child Nutritional Status, North–East and South–East Regions, 1975–77 and 1989

Period & Region	Underweight Children %	Height Deficit at 7 years cm		Infant Mortality (per 1000 live births)
	<–2SDs	Boys	Girls	
1975–1977				
North East	27.0	10.1	9.1	157
South East	13.4	5.6	6.0	63
1989				
North East	12.8	6.3	5.7	75
South East	4.1	2.3	1.5	33

Source: Iunes and Monteiro 1993 p. 13, Table 11.

Egypt

Comparing data from national surveys in 1978 and 1988 indicates that the prevalence of underweight children (6–36 months age group) fell from around 21% to 14% over this period. These figures were based on nationally representative surveys from the CDC/Egypt Nutrition Institute and DHS, and data from the first survey has been recalculated to the common age group of 6–36 months old. For comparison with other countries, the calculated values for 0–59 months old are 16.6 for 1978, and 10.0 for 1988. A more recent survey done by CAPMAS and PAPCHILD in 1990 also indicated that 10% of children (0–59 months) were underweight. A follow–up survey in 1992 is also of interest (although beyond the period examined here) in showing a further reduction of underweight, from 10.4% in 1990 to 9.4% in 1992.

The average rate of improvement nationally over the ten year period 1978 to 1988 is a reduction in prevalence of –0.7 pp/yr. There is no direct means of assessing whether this change occurred regularly throughout the period, or whether there were periods of greater or lesser change. Economic problems coupled with rapidly rising prices in the late 1980s make it likely that the period of more rapid improvement was earlier rather than later. This is also in line with a more rapid earlier improvement in IMR.

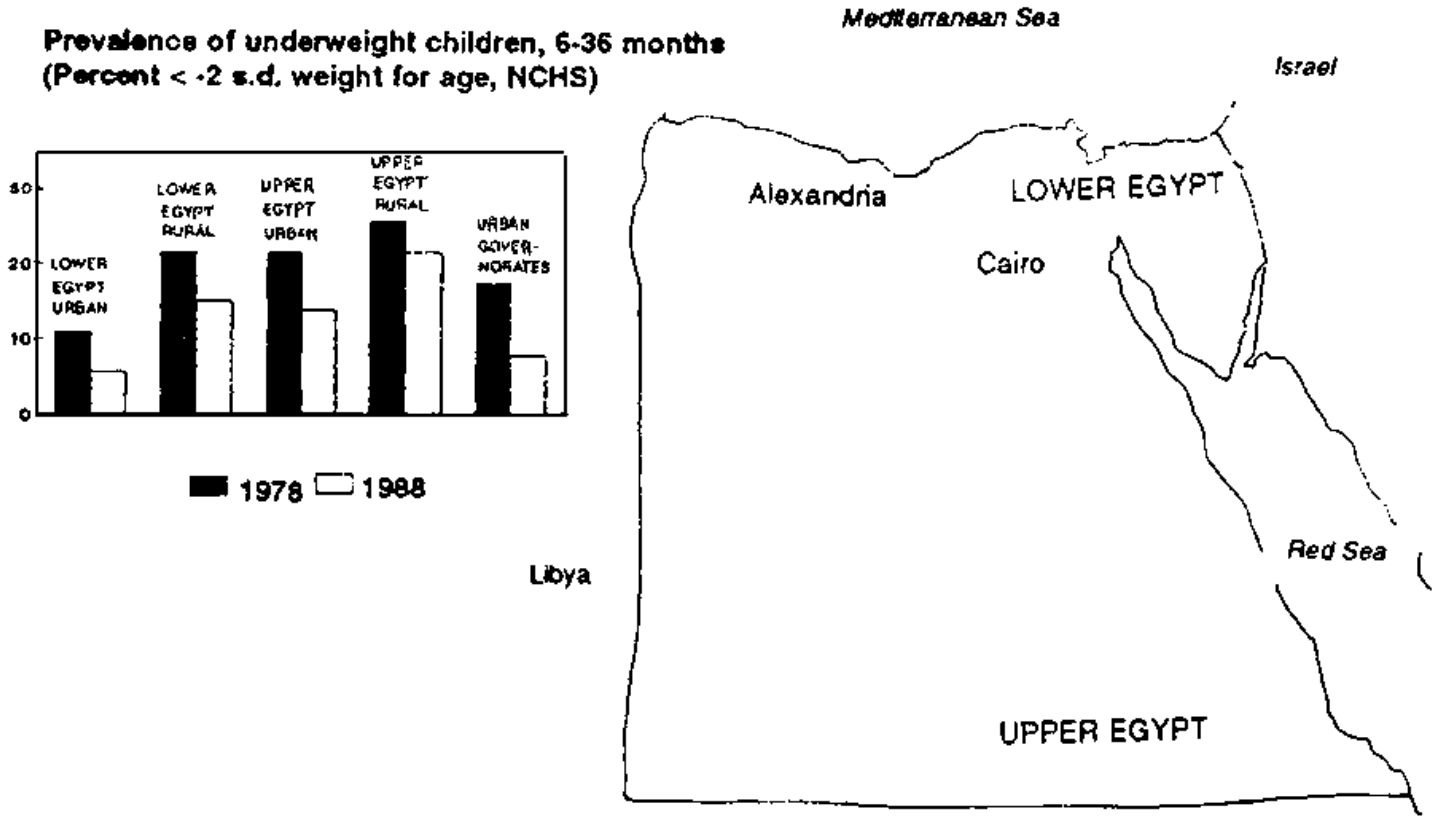


Figure 2.5: Egypt: Regional Nutrition Trends

Source: ACC/SCN (1993) p.49

Comparisons between different regions in Egypt are shown in Figure 2.5. This indicates both the higher prevalence in rural areas, especially in Upper Egypt, as well as the relatively slower improvement particularly in Upper Rural Egypt. The rates of improvement range from −1.0 percentage point per year for the urban governorates, to −0.4 for Upper Egypt, rural. Finally, there is some indication that the situation has improved more for girls than for boys over the ten year period 1978 to 1988. In 1978 the underweight prevalence was 19.2% for boys, and 22.1 % for girls; this changed to 14.0% and 13.3% respectively in 1988 − equivalent to a −0.5 percentage point per year change for boys and −0.9 for girls.

India

Assessment in changes in child nutrition in India has until recently depended mainly on surveys by the NNMB, which covers eight to ten southern states. The main trend analyses are available for the period between 1975/9 and 1988/90. Since there are some variations in the sampling procedure, some caution has been exercised in the interpretation of the apparent trends. A comprehensive DHS−assisted National Family Health Survey (NFHS) of 24 states in 1992/3 gave a national underweight prevalence of 53.4% under−four year olds, with state−wise percentages varying from 28.5% in Kerala to 62.6% in Bihar. This survey however is for various reasons not comparable with the earlier NNMB surveys. For the present purpose, the main question concerns the situation and its trends in Andhra Pradesh and Tamil Nadu states, since these are the foci of the case study. Nonetheless, it is of interest to know how typical these are of the all−India situation.

The NFHS prevalences for under−fours were 49.1 % for Andhra and 48.2% for Tamil Nadu − both lower than the national figure, although not nearly as low as the Kerala figure. Overall, using NNMB data, the estimates are that the prevalence of underweight children in India generally fell by −0.6 pp per year. Both Andhra Pradesh and Tamil Nadu were included in these estimates, with prevalences again slightly lower than the all−India average in 1975/9 and in 1988/90. The prevalences were calculated as: Andhra Pradesh, 67% in 1974/79,61% in 1988/90, a change of −0.5 pp/yr; Tamil Nadu was 66% in 1974/79, 57% in 1988/90, a rate of −0.8 pp/yr.

Trends in severe malnutrition are also used, as given in the India case study (Ind part II p6−7). For Andhra Pradesh, these showed the reduction to have been more rapid in the period around 1980, and overall from around 15% in 1975/9 to 8% in 1988/90 − a rate faster than the all−India improvement in this indicator of around 15% to 9% in the same period. Tamil Nadu on the other hand showed a slightly more rapid improvement, from around 13% to 4% in this period. The latter appears to have improved more in the late 1980s than earlier, which may in part be related to the impact of the Tamil Nadu Integrated Nutrition Programme, as discussed later.

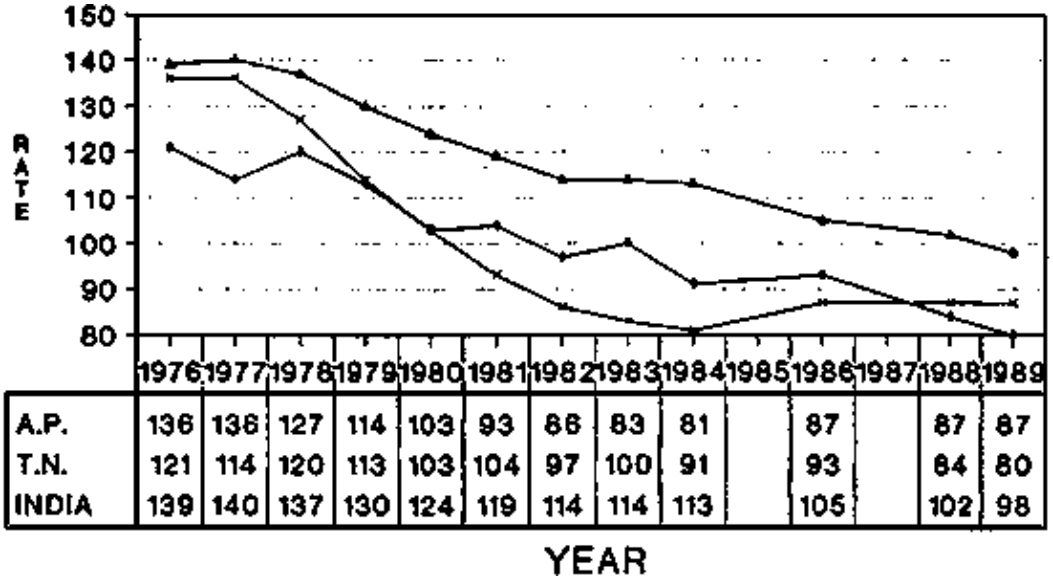


Figure 2.6: India: Rural Infant Mortality Rates (per 1000 live births)

Source: Reddy et al. (1992)

Trends in rural infant mortality rates (Ind part II p5) tend to confirm the severe underweight data as shown in Figure 2.6. Both Tamil Nadu and Andhra Pradesh have rural IMRs better than all−India, and Andhra Pradesh showed a fairly rapid improvement between 1977 and 1984, but then no further improvement; Tamil Nadu showed fairly steady improvement during the period. Data on the percent of the rural population below the poverty line, for the 1977/8,1983/4, and 1987/8, are in line with the other indicators, in showing both Andhra Pradesh and Tamil Nadu somewhat better off than the rest of India, with the indicator falling for both states, but the rate of improvement in Andhra Pradesh slowing down considerably after 1983/4.

Some food consumption data are also available, allowing some comparisons in the average intakes between 1975/9 and 1988/90. At the earlier measurement, the average calorie and protein availability was estimated as approximately up to the recommended dietary allowance (RDA), in rural Andhra Pradesh and Tamil Nadu. However this appears to have fallen, notably in rural Tamil Nadu, to the point where an estimated 80% of energy RDA is available.

Differentials between urban and rural populations have also been examined by a number of indicators. In both states the prevalence of underweight children is higher in the rural areas, although children living in urban slums have a higher prevalence than others in urban areas, at a similar level to rural children.

The summary of what is known about trends in nutrition in these two states is given in the case study, as follows (Ind part II p11−12). "There has been a moderate decline in pre−school underweight prevalence rates in Andhra Pradesh and Tamil Nadu over the decade 1977/8 to 1988/90, despite a reported decline in aggregate energy intakes. Nonetheless, about 50% of children in both states continue to be under 75% of NCHS reference standards, even in 1988/90. Mean dietary intakes of energy and protein appear close to recommended levels [anyway in Andhra Pradesh], but these aggregate figures are likely to conceal fairly large inter−individual variations, thus explaining the persistence of high prevalence rates despite seemingly adequate energy (and protein intakes). Further, it is likely that in Andhra Pradesh the influence of non−dietary factors on malnutrition may have increased over the last decade. Despite low dietary vitamin A intakes, deficiency and disease have diminished over time. Nevertheless, prevalence of vitamin A deficiency in both states continue to be above the cut−off levels proposed by WHO for identifying a public health problem. Further, despite higher poverty levels and poorer household food situation, nutrition profiles in Tamil Nadu are marginally better than those in Andhra Pradesh."

Indonesia

Assessing Indonesian trends in nutrition, using prevalences of underweight children as the indicator, is complicated by varying cut−offs, geographical coverage, and survey sampling designs. Certain results from surveys done in 1987 and the National Xerophthalmia Surveys of 1986 and 1989 (both Central Bureau of Statistics) are summarized in Table 2.4. The estimated prevalence of 39% of children more than 2SDs below the weight−for−age median in 1989 should be used for comparison with data from other countries.

The trend is less easy to assess, in part because of different time periods between surveys. The authors of the Indonesia case study assess trends both in the short−term (1986 to 1989) and in the longer−term (1978 to 1989). The results are also included in Table 2.4, calculated from their data (Ins, Tables 4.08 and 4.09, p37−38), which cover 23 of the 27 provinces. They also estimate the trend from all the surveys, using prevalences of less than 70% weight−for−age, as shown in Figure 2.7 (reproduced from their Figure 4.04) which gives an estimated change in this indicator of approximately −0.4 pp/yr. This is similar to that estimated between 1978 and 1989 for the other underweight indicators (the rates are similar for moderate or for severe underweight). In fact, the estimate for 1986−89 of −1.7 pp per year appears likely to be atypical and it seems unlikely from other indicators that all the improvement took place between 1986 and 1989 − for example, IMR, poverty, and kcals showed a much steadier trend over the period. From the interpolated estimates of prevalence given in the World Nutrition reports, the estimated trend from 1980 to 1990 would be of −0.8 pp/year, and this figure can be used for comparisons with other countries.

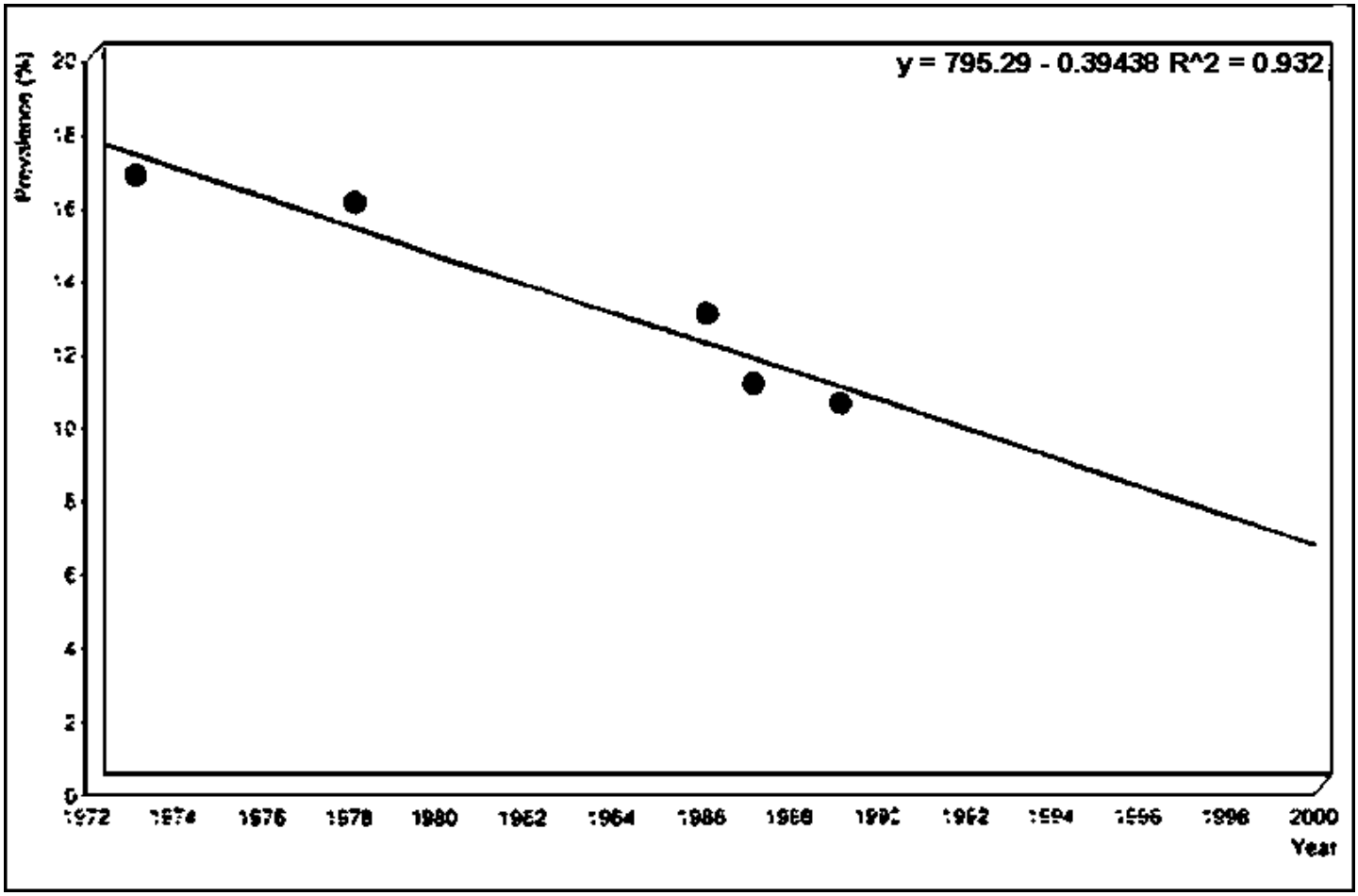


Figure 2.7: Indonesia: Trend of National Malnutrition Levels (<70% wt/age)

Source: Soekirman et al. (1992)

Prevalences by region have been estimated from all three surveys. Geographical differentials are not all that marked, unlike those between urban and rural areas. For example, in 1989 the all–Indonesia prevalence of underweight at less than 70% weight–for–age was 14% in rural areas compared with 19% in urban (a difference likely to be reflected in the more common underweight indicator of <2SDs). The improvement recorded between 1986 and 1989 occurred in virtually all areas (Ins p32, Table 4.03), except for slight increasing prevalences in Aceh and Northern Sumatra (Ins p32, Table 4.03). The trends by region are less clear over the period 1978 to 1989. It should be remembered that the estimates all have confidence intervals (not reported here), related to the sample size, and with estimates by area (particularly trends) differences may not be statistically significant. The 23 provinces covered are grouped into four regions – Sumatra, Java, Kalimantan (including Bali, Lombok, Ambon), and Sulawesi. The improvement in Java (covering more than 60% of the population) was the most rapid, of an average of –0.74 pp per year, with slower rates observed in Kalamantan and Sulawesi; from these data the prevalence in Sumatra appears actually to have increased from an estimated 38% in 1978 to 41% in 1989 (less than 80% weight–for–age).

Underweight prevalences have also been analyzed by expenditure group (as a proxy for income). An example is shown in Figure 2.8, which both demonstrates the substantial gap between urban and rural areas, controlling for income, and shows that the improvement may accelerate at higher income levels (taken from Ins Table 4.10, p40). This has implications for a more rapid improvement as income increases.

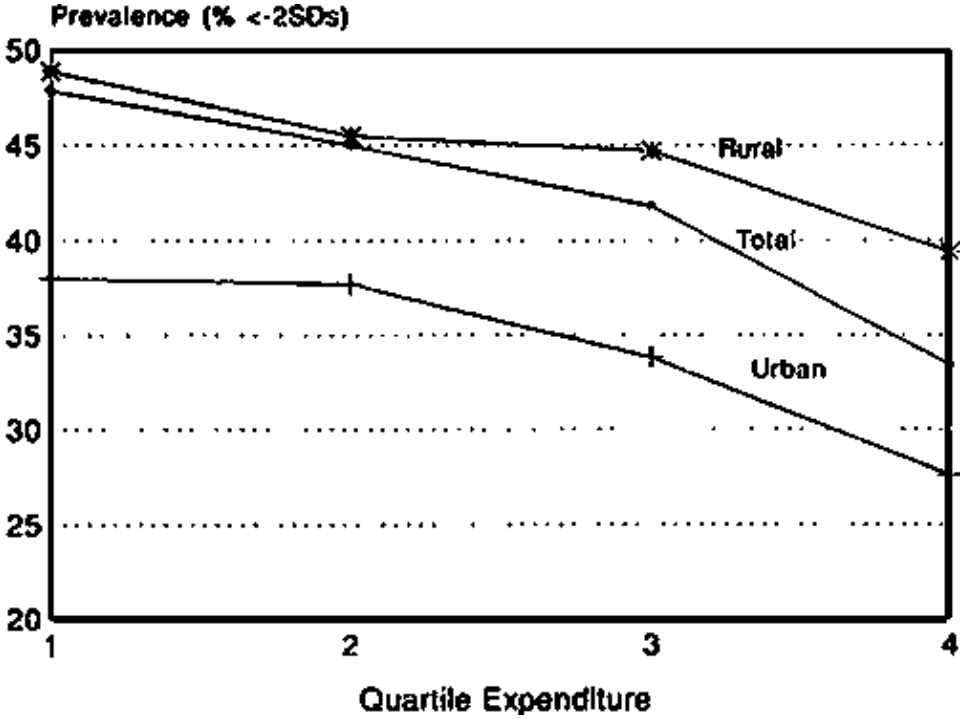


Figure 2.8: Indonesia: Percentage <–2SDs by Quartile Expenditure, 1987

Source: Redrawn from data in Soekirman et al. (1992)

Food availability is estimated to have increased over the period 1969–1987 (Ins p31, Table 4.02), from 1947 kcals/head/day in 1968/70, to 2341 in 1978/80, to 2675 in 1986/88, a regular and even slightly accelerating trend. At the same time, the case study authors demonstrate that poverty is estimated to have decreased fairly steadily in both urban and rural areas, from an average of 29% in 1980 to 15% in 1990 – with urban areas having a slightly higher incidence, e.g. 17% urban versus 14% rural poverty incidence in 1990. (Ins p29, Table 3.05).

Table 2.4: Indonesia: Compilation of Anthropometric Survey Results and Model Estimates (in brackets) [from tables in Indonesia case–study]

Prevalence			Source/coverage/case study table
Data	<–2SDs	<80%	
1975	(51.3%)		Model estimate (SCN), natl
1978	43.6%	51.0%	Natl. xerop. survey. S+J+K+S *
1980	(45.7%)		Model estimate (SCN). T 4.08, 4.09, natl.
1985	(40.5%)		Model estimate (SCN). T 4.08, 4.09, natl.
1986		51.3%	Natl. (except M, IJ**)
1987	41.4%		Natl, T.4.10
1989	38.7%	44.9%	Natl (S+J+K+S)
		46.4%	All provinces, T.4.03
1990	(38.0%)		Model estimate (SCN)
			Prevalence change rate (<–2SDs)
Model estimates:		1975–1990:	–0.89 pp/yr
		1980–1990:	–0.77 pp/yr

Survey comparisons:	1987–1989:	–0.45 pp/yr
	1986–1989:	–1.6 pp/yr (<80%)
Fitted line (Figure 4.04, case study)		–0.39 pp/yr (<70%)

*S+J+K+S: Sumatra, Java, Kalimantan (incl. Bali, Lombok, Ambon), Sulawesi
** M, IJ: Maluku, Irian Jaya

Thailand

A national survey carried out in 1987, which used NCHS reference rather than the more usual Thai reference in the country, led to an estimated prevalence of 22% underweight children under five (< –2SDs). While this prevalence is lower than the regional average (although still somewhat high for the GNP) the more remarkable observation has been the very rapid rate of improvement in nutrition in Thailand in the 1980s. While these data showing trends are taken from the National Nutrition Surveillance System, which has the complication of a rapidly increasing coverage over the first part of period, it is consistent with other information to conclude that the rate of improvement has been from around 36% in 1982, through 22% in 1987, to 13% in 1990 – one of the fastest rates of improvement observed anywhere in the world.

The National Nutritional Surveillance data, used extensively in the case study (see Tha p.92–93, Tables 33–34) indicate that this rapid rate of improvement occurred especially in the first half of the decade. Between 1982 and 1986, the prevalence of mild, moderate and severe malnutrition (i.e. less than 90% weight–for–age using Thai reference) decreased from 50.8% to 26.1 % – a rate of –6.1 pp/yr; the equivalent change of moderate plus severe underweight (<75% Thai standards) was 15.3% to 3.35% a rate of–3.0 pp/yr. The national trend from the surveillance data was slower during 1986–90, from 26.1 % malnutrition (<90% W/A) to 18.6%, a decrease of –1.8 pp/yr. During this period severe malnutrition appears to have been virtually eradicated, and moderate plus severe reduced to <1%. It is important to note that the coverage in 1990 by village of the surveillance system is given as 99.5%, and of all children 89.7%, so that conclusions on the latter picture – for example the virtual eradication of severe malnutrition – appeared to be reasonably sure.

The trends can also be seen by region, as displayed in Figure 2.9. This emphasizes that the improvement has been throughout the country, in fact marginally faster in the worse off North and North East, where more than half the population lives. Again, the more rapid improvement in the early part of the 1980s is clear. The rates of improvement in malnutrition (<90% W/A) over the period 1982–90 were –4 pp/yr of malnutrition (<90% W/A) nationally, and range from –3.4 pp/yr for the East, to –4.0 pp/yr for the North and North East (calculated from Thai, p.92–3, Tables 33–34). The equivalent rate calculated from the <2 SDs NCHS indicator (i.e. from 36% to 13%) is –2.9 pp/yr.

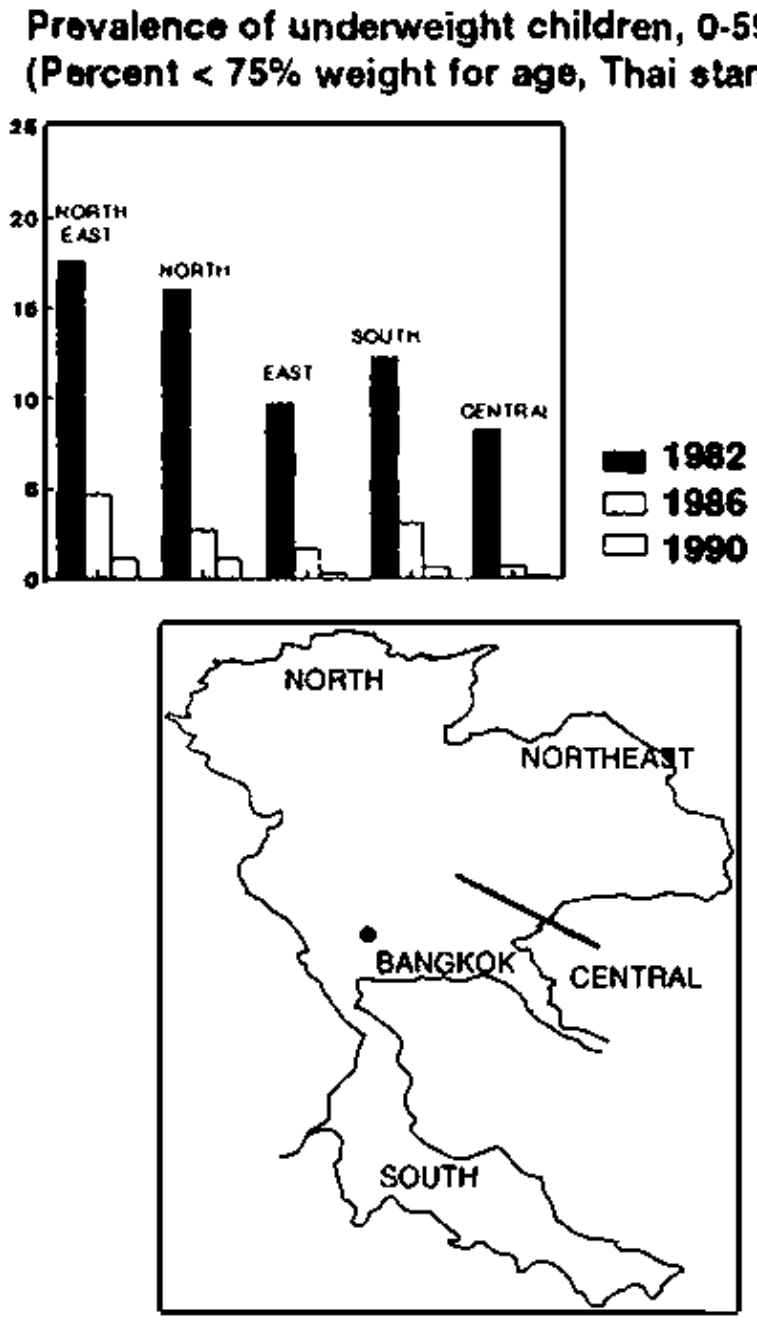


Figure 2.9: Thailand: Regional Nutrition Trends

Source: ACC/SCN (1993) p.41

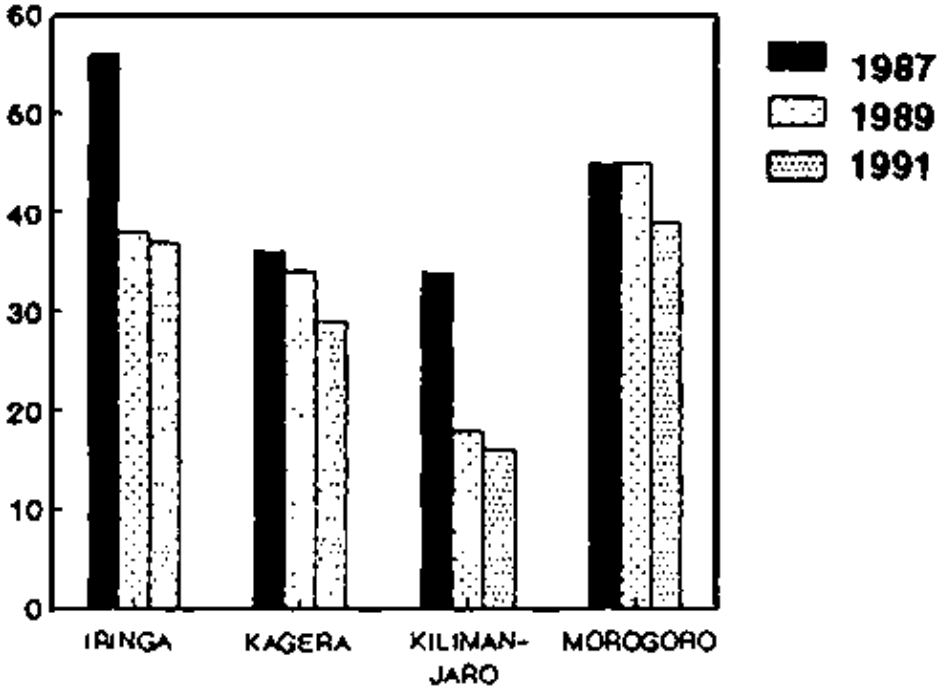
This more rapid improvement in the early part of the 1980s almost appears to precede the marked improvement in other indicators. For example, the fastest growth in GNP was during the period 1987–90, although Government budget and health expenditure grew very significantly during the period 1981 –83, before slowing down in the latter part of the decade (Tha p.76, Table 18). Nonetheless, many indicators showed rapid improvement during the 1980s e.g. access to safe drinking water increased from 33% in 1982 to 70% in 1986 (Tha, p.71, Table 12) and measles immunization from 25% in 1985 to 70% in 1990 (Tha p.70, Table 11). Interestingly, food prices fell in comparison with the general price index during period 1980–88, before rising again. However, during the 1980s when Thailand was in the middle of its economic miracle, almost everything showed major improvement. As will be seen later, this allowed financing of widespread programmes, including nutrition. In retrospect, it seems likely that the 1980s will be seen as the steepest part of an "S"–shaped curve of falling malnutrition prevalence.

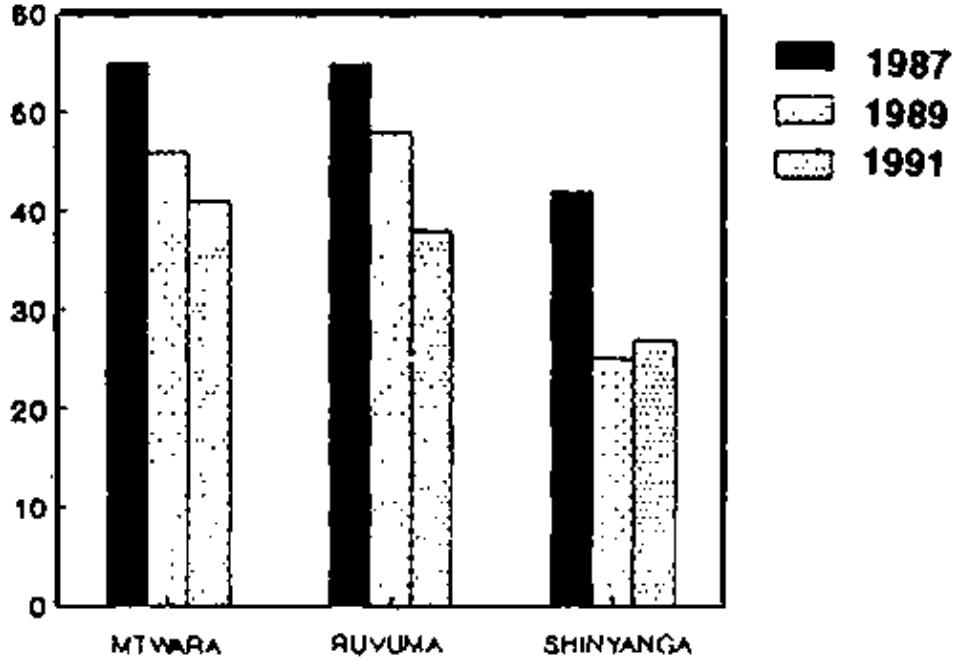
Prevalences by income group are not available, but it is of interest to note that average food share expenditures are around 30% to 40% in all regions (Tha p. 87). For the poorest groups in urban areas this reaches 60% (in 1982), but in the lowest income class of the North East it was as high as 81 %, which is almost certainly associated with a high prevalence of malnutrition (Tha p.86).

Tanzania

The recent national survey on nutrition (1991–92) indicates that 25.2% of children under five are underweight (below –2 SDs weight–for–age using the NCHS reference). This result is derived from the nutrition module of the national household budget surveys, and is intended to be representative of the national nutrition situation. The DHS also carried out a national survey at about the same period in 1991–92 and gave a national figure of 28.5% underweight children. The two surveys are not strictly comparable because the DHS survey excluded some regions, although the estimates are generally within a similar range.

Percent underweight children
(Below 80% Harvard standard, < 5 years old)





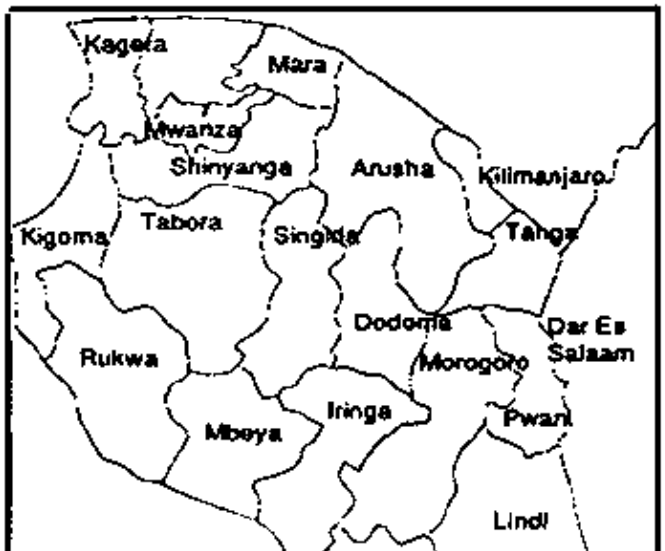


Figure 2.10: Tanzania: Regional Trends in Underweight Prevalence

Source: ACC/SCN (1993) p.65

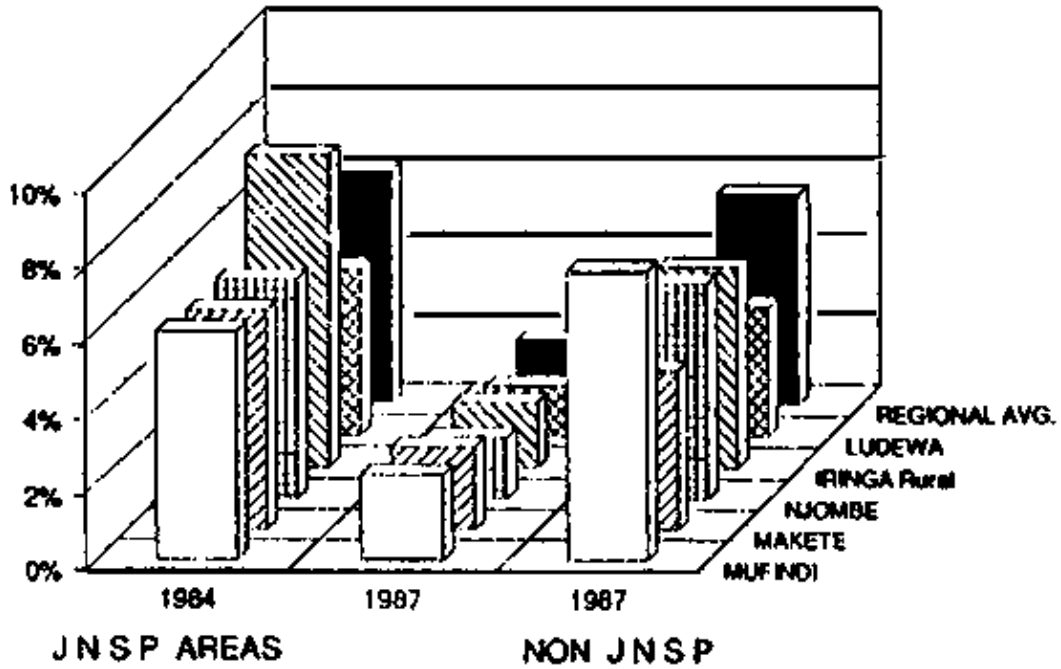


Figure 2.11: Tanzania: Prevalence of Severe Malnutrition in JNSP and non–JNSP Areas (1984–1988)

Source: Kavishe (1993) p. 153

There are no comparable national data in previous years. However, it is possible to discern trends over time in a few regions of the country where large programmes have been implemented (the programmes did not cover all villages within regions, but data are only available for those participating). Iringa Region has the longest series of nutritional status data based on community level monitoring systems in the country. These show a declining trend in the prevalence of underweight children in all districts (56% in 1984, 35% in 1991, using a cut–off of 80% of Harvard standard). The improvements in Iringa have been attributed to the activities within the Iringa Nutrition Programme, which has been underway in the area since the early 1980s, working with local administrative structures to empower communities to deal with their nutritional problems.

Similar trends were seen in other regions when community–based nutrition programmes – child survival and development – were initiated. These results are shown in Figure 2.10, from the Tanzania case study data (Tan p 45–46). This shows the rates of change of underweight prevalence in the parts of nine regions (out of 20 in the country) where these programmes were implemented. The average rate of improvement over a period of around four years was –3.7 pp/yr, in moderate plus severe malnutrition (<80% W/A), with a range of around –2 to around –6 pp/yr. Taking this into account, with other national data, led to estimating a national trend for 1987–92 of –1.0 pp/yr. Trends in low birth weight are consistent with an improving nutrition situation in the latter part of the 1980s (Tan p.51, Table 17). Mostly, it is considered that improvement took place in the programme regions, and the situation was largely static elsewhere. However, as Kavishe points out in the case study (p.45), economic recovery took place in the latter part of the 1980s at the same time as nutrition recovery. He interprets this as the economic recovery facilitating nutrition improvement as a direct result of the implementation of the nutrition programmes (p.45). Another line of evidence for the importance of community based programmes is shown in Figure 2.11, which compares the prevalences of severe malnutrition (<70% W/A) in the areas served by the programmes (in this case JNSP in Iringa region), which – while not showing trends in non–programme areas – demonstrates both that a decrease occurred in programme areas, and that in 1987 the programme areas had considerably lower prevalence than the non–programme areas.

Estimates of prevalences of underweight by rural/urban area, and by income group, are not readily available. Food balance sheet data indicate a relatively constant calorie consumption, around 2100 kcals/head/day. The infant mortality rate has shown a steady improvement over the 1980s. While this is consistent with a possible improvement in nutrition, it should be noted that a similar fall in IMR has been seen, in, for example, Nigeria, where nutritional status has probably deteriorated. In sum, the main indications of change in nutrition in fact come from the programme data, and there does seem to be broad consensus that, to quote Kavishe (xviii). "The last decade has seen some substantial improvements in the nutritional status of children under five

years of age especially in areas implementing integrated nutrition programmes".

Zimbabwe

The probable interpretation of the results of a number of surveys, and surveillance from clinics, is that prevalences of underweight children decreased substantially between 1982 and 1990. As the case study authors point out, there are "dangers in comparing studies reported in different ways"... (Zim p.7), but "... there have been substantial improvements, with values for wasting and stunting for both rural and urban children in 1988 less than half those found in 1982". Some of these results are shown in Figure 2.12, with the height–for–age results being taken from a comparative study (Thomas, 1990, see Zim p.8, Table 4), using urban/rural population ratios (from UN 1994 p78).

The generally improving trend in weight–for–age shown in Figure 2.12 appears to have gone through three phases – improvement 82–85, static 85–88, and further improvement 88–90. This may be a real reflection of what happened, with severe economic recession and stabilization (a precursor to structural adjustment) in the mid–80s. In fact, the estimated GNP figures showed a substantial fall from 1982–1986, from approximately $900/caput to $550/caput using the World Bank Atlas methodology, a reduction of nearly 40% over four years. Thus the fact that the prevalence did not appear to increase already indicates substantial achievement.

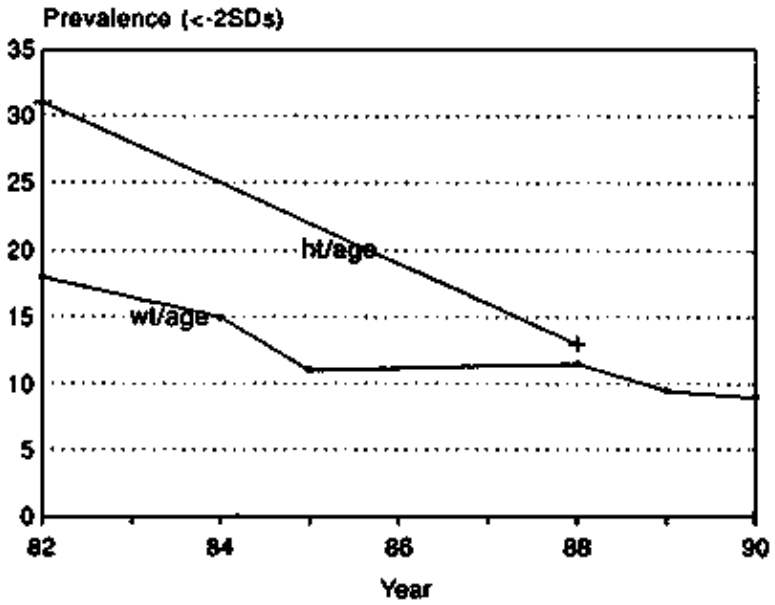


Figure 2.12: Zimbabwe: Trends in Underweight and Stunting

Source: Redrawn from Tagwireyi et al. (1992), p.8

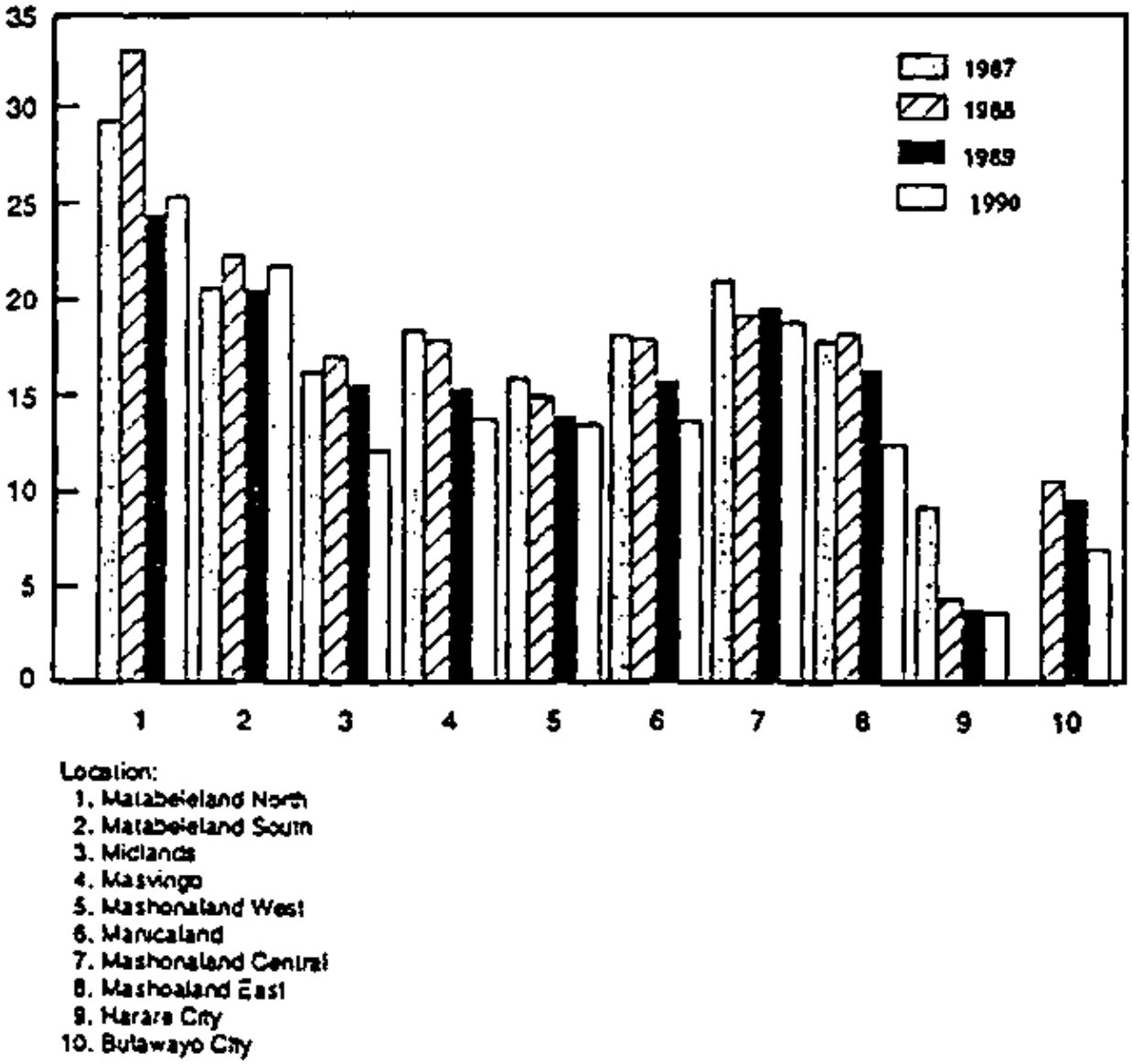


Figure 2.13: Zimbabwe: Percentages of 2–5 Year Olds Below the Third Percentile in Weight–for–Age by Province

Source: Tagwireyi et al, (1992) p.9

Trends by region in underweight children, given in the case study (Zim p.9) are reproduced in Figure 2.13. These tend to show, in almost every area, a fairly static situation in 1987–88, followed by an improvement 1988–90 – in line with the national figures. It should be noted that the data shown in Figure 2.13 are from nutritional surveillance, from clinics, where it is expected that the trends may be comparable with the survey data used for national estimates, but the prevalences themselves may differ. The ranking of prevalences from the surveillance data is similar to that from estimates of low birth weight incidences in 1989 given in Zim p.14, Figure 4.

Urban/rural differentials in stunting and wasting have been shown, particularly for 1982 and 1988. These show urban areas consistently with lower prevalences of stunting, with improvements in both urban and rural areas over the 1982–88 period. Wasting prevalences were low (around 3% below 85% NCHS in 1988) in both urban and rural areas. The 1988 data were also analyzed by settlement pattern in rural areas, indicating that large scale commercial farm areas and communal farms were about average in terms of stunting, while small–scale commercial farms were much better off, and resettlement areas had about twice the stunting prevalence (28% compared with 13% nationally) by these estimates.

Finally, the rate of change of underweight prevalences over the period 1982–90 is estimated at around –1.1 pp/yr. As mentioned earlier, there may have been a stagnation during 1985–88. For the estimate in relation to economic growth, the period 1984–88 is taken, with a prevalence change of –1.0 pp/yr, and a GDP growth rate of –0.5%/year.

Mexico

Only one survey at the national level is available for Mexico, conducted in 1988 by the Ministry of Health, showing a prevalence rate of underweight children (below –2 SDs) of 13.9%. The southern region of the country had the most serious nutrition problem with 20% of the children underweight compared to the metropolitan area of Mexico City, which had a prevalence of only 7%. The north and central regions had underweight prevalence close to the national mean.

National rural surveys in 1974, 1979, and 1989, conducted by the Instituto Nacional de Nutricion point to an overall improvement in nutritional status in the last two decades. Some regional comparisons are possible. The seven Northern states show a relatively low prevalence of underweight, with less than 7% of pre–schoolers weighing below the –2 standard deviation cut–off. The central zones of the country show a small improvement, but still about 14% of the children were underweight. The six south and south–eastern states of the country, as well as the Huasteca zone of the Gulf of Mexico had a prevalence of more than 20%. This is similar to the average for the countries to the south, like Guatemala and Honduras. The regions with the worst nutritional outcomes house the largest segment of the Indian population, indicating the extent to which this group has fallen behind in the country's development process. Other indicators also point to significant disparities: there is a difference of more than ten years of life expectancy and 40 deaths per thousand live births in the rate of infant mortality between the poorest states and the most developed ones.

Nigeria

It seems likely that the prevalence of children underweight rose during the 1980s and is now an increasingly serious problem in Nigeria. The most recent national survey done in collaboration with the DHS (1990) placed the proportion of underweight under–five year old children (below –2 SDs weight–for–age) at 35.7%, including 12% severely underweight (below –3 SDs). A modelling of past trends estimated the national prevalence of underweight children to be about 30% in 1980; hence an increase in the prevalence is probable during the 1980s.

The 1990 survey also showed that the prevalence of stunting (below –2 SDs height–for–age) to be 43%, including 22% severe stunting (below –3 SDs), while corresponding levels of wasting were 9.1 and 1.8%. Underweight prevalences were found to be higher among rural children than urban, among children with uneducated mothers, and within the one to three year age group. There were also marked regional differences (see Figure 2.14), with the highest levels of wasting (over 10%) and stunting (over 50% – a very high level) being reported in the North–East and North–West. There were no significant gender differences in prevalences.

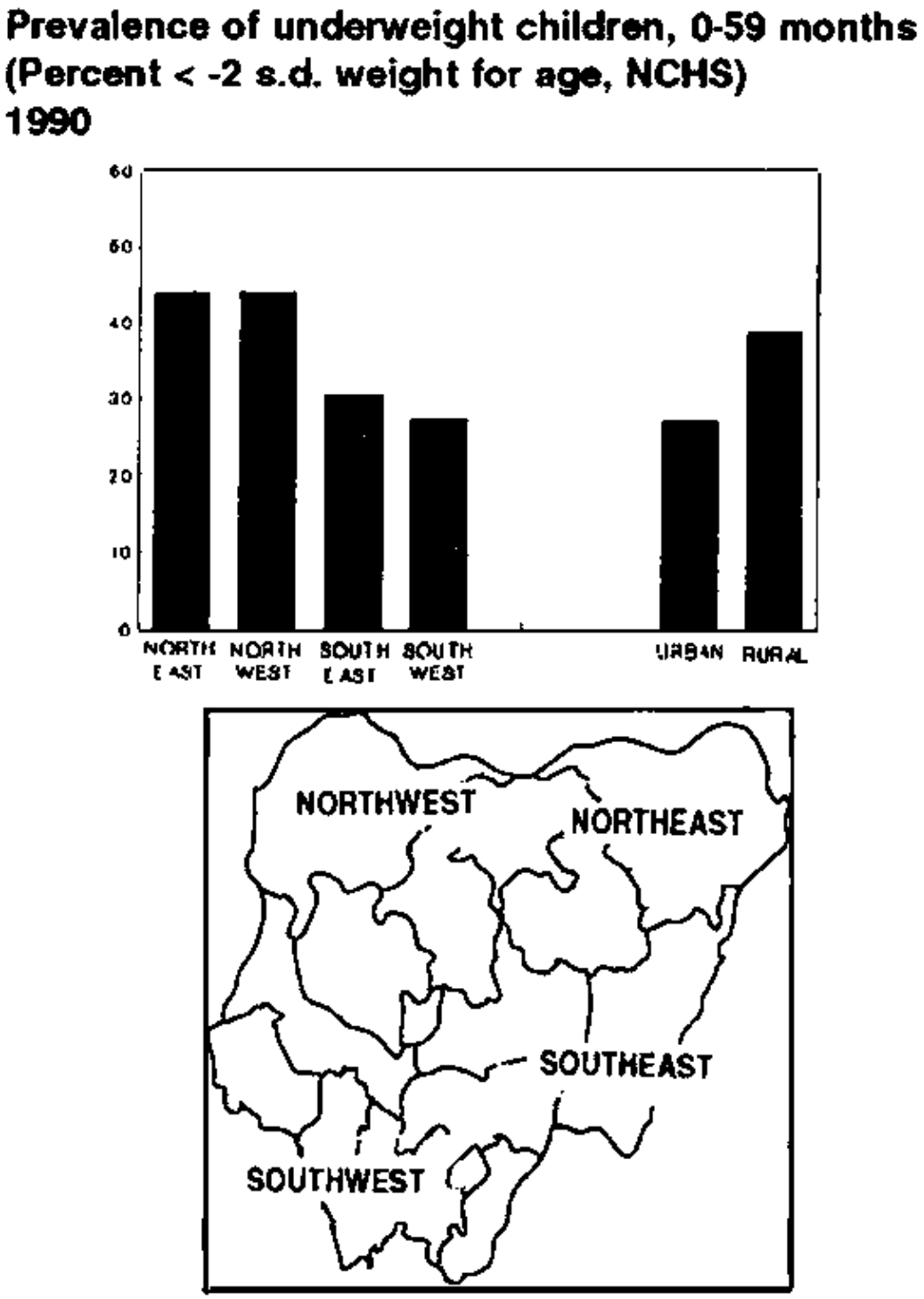


Figure 2.14: Nigeria: Regional Prevalences (1990)

Source: ACC/SCN (1993) p.59

Although there are no data comparable over time to allow direct estimates of trends, it seems widely agreed that deterioration has occurred. For example, the World Bank concluded "Many knowledgeable observers feel that the nutrition status of children fell during the 1980s. In the absence of any earlier data comparable to the NDHS findings, however, it is difficult to verify this common perception." (World Bank, 1994).

Pakistan

A National Nutrition Survey conducted in 1985/87 indicated that among children 6–59 months, 48% were underweight, down from 54% in 1977. The more recent national DHS survey (1990/91) results showed further declines in the national prevalence of underweight children, estimated at 41 %, indicating more rapid improvements in the late 1980s.

Significant regional variations in malnutrition were observed in these surveys (see Figure 2.15). Underweight prevalences were lowest in the Punjab and North West Frontier Province and highest in Baluchistan. Punjab showed the most consistent improvements in the last 14 years, whereas the situation in Baluchistan has changed only slightly in that period.

The 1990/91 survey did not show any significant differences between male and female children. However, around 47% of rural children were estimated to be underweight, compared to 33% in the urban areas.

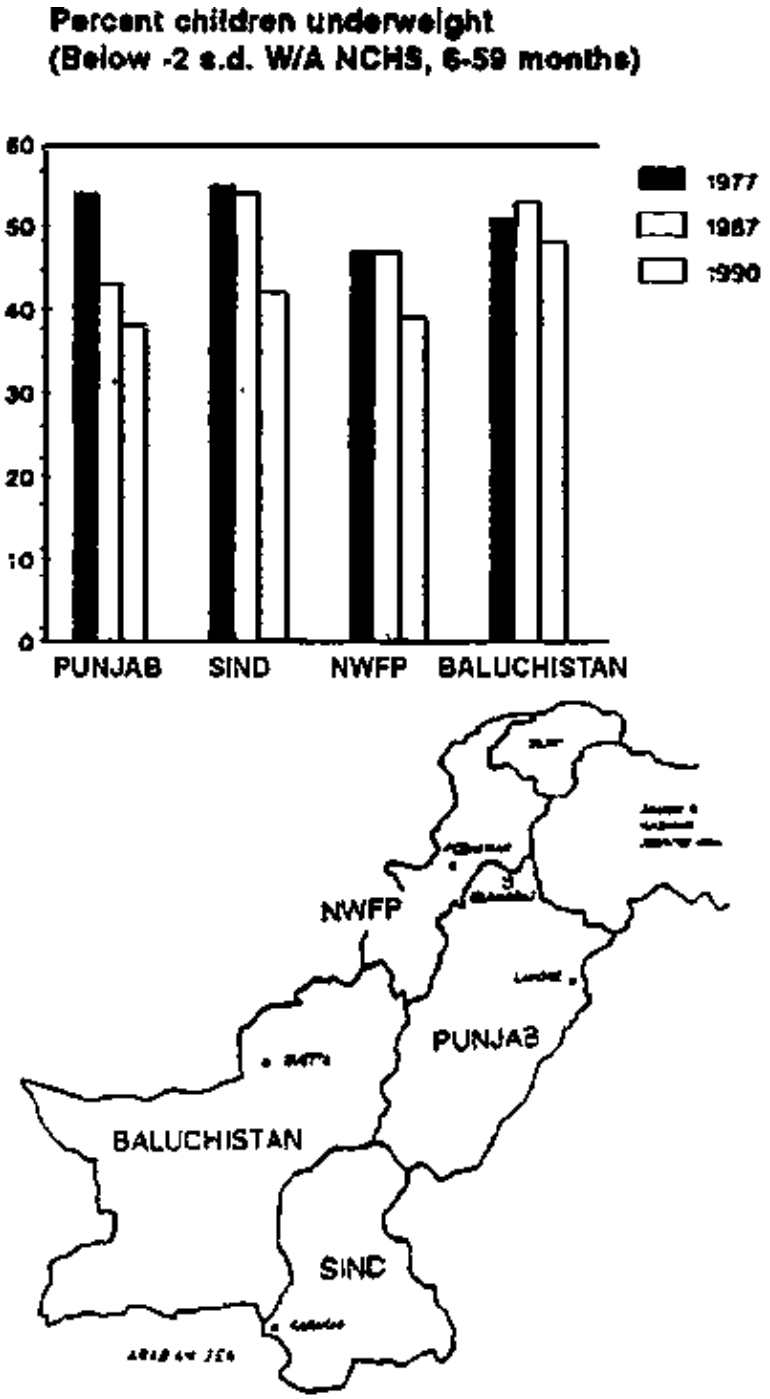


Figure 2.15: Pakistan: Regional Nutrition Trends

Source: ACC/SCN (1993) p.25

In 1990, Pakistan's infant mortality rate (IMR) was estimated at 104 per thousand live births, down from 138 in 1975. The present level is high compared to its neighbours and countries with similar levels of economic development. Rural–urban differences in infant mortality rates are significant, with the former showing much higher levels; the Pakistan Demographic Survey found that the urban IMR fell from 105 in 1981 to 79 in 1987, while in the rural areas the IMR showed a smaller decrease, from 135 in 1981 to 113 in 1987. The under–five mortality rate is estimated at 162 per thousand live births for 1991.

Malaysia

The impression is clear that "various nutrition–related indicators such as infant, toddler, and maternal mortality rates, low birth weights and prevalence of malnutrition have been improving steadily over the years since the country gained independence" (Mal p.13). Indicators comparable through time are, however, scarce. One set of results is shown in Table 2.5, taking data from MCH clinics and from the National Nutritional Surveillance System, which covered approximately 1.2 million 0–7 year old children (about 25%). Changes in the estimated incidence of low birth weight were also shown in the table, as are the prevalence estimates from the SCN model, in the last column. This would indicate that the prevalence certainly improved over the period, although the estimate of –1.6 pp/yr for 1983–86 may not be an accurate estimate of the long–term trend. Probably a better estimate is of the order –1.2 pp/yr, as taken from the model.

Disaggregation of anthropometric data by area, urban–rural, or income group was not given in the case study.

Table 2.5: Malaysia: Estimates of Underweight Prevalences (<80% W/A)

Year	Age	Source		LBW	Model[1]
		MCH	N.Svl		
1978	0	–	–	10.5%	–
1980	0–5	–	–	–	29.8%
1981	0–7	25.9%	–	–	–
1981	(0–5)	(27.5%)[2]	–	–	–
1982	0	–	–	9.9%	–
1983	0–7	–	26.6%	–	–
1985	0–5	–	–	–	24.1%
1986	0–7	–	21.9%	–	–
1990	0	–	–	8.2%	–
1990	0–5	–	–	–	17.6%
1992	0–5	25.6%	–	–	–

Rates:			
	MCH:	1981 – 1992	– 0.2 pp/y
	N. Svl:	1983 – 1986	–1.6 pp/y
	Model:	1980 – 1990	–1.2 pp/y
		1985 – 1990	–1.3 pp/y

Notes:

[1] ACC/SCN Model, see Second Report on the World Nutrition Situation, Volume II, p.104.
[2] Prevalence for 0 – 5 y estimated from 0 – 7 y prevalence.

Source: Karim, R. et al. (1993), Table 2, p. 14, and text p. 13.

Chapter 3: Economic Growth, Poverty, Equity and Food Security

Economic growth is an integrated concept which includes increasing income and productivity, generation of employment, and economic diversification. The type of policies that drive economic growth include those on employment and agricultural production; in many poor countries agriculture is especially important. Growth generates resources which are potentially available for development, including the development of human

resources. The actual control and use of these economic resources within countries, in addition to their quantity, is a critical determinant of their impact on human development, and thereby, on nutrition. This nutritional impact is indirect in that it will be mediated by effects felt at the underlying level of the framework in Fig. 1.2 – particularly through private purchasing power hence household food security, through the capacity and resources for adequate care of women and children, and also through public action in the areas of health and environment, including water and sanitation.

In this chapter, we consider first economic policies in relation to growth, equity, poverty alleviation and household food security, and secondly, whether nutritional improvement can move ahead of economic development. A third area of concern is the "influenceability" of broader economic and food policies by nutritional considerations, which also relates to the political economy of nutrition, and will thus be dealt with later, in Chapter 6.

Summaries by country of the various types of economic policies, poverty alleviation programmes and household food security–related actions are provided in the section 'Comparing Country Experiences'. Table 3.1 provides some summary variables essentially describing the outcomes of such policies and programmes with respect to economic growth, poverty, equity and food security (national and household–level). Countries are ranked in ascending order according to their *per caput* GNP values in 1990. The data used to compare the economic performances of countries are the GDP *per caput* values, expressed in purchasing power parity units hereafter referred to as real *per caput* GDP. These are *per caput* GDP figures that have been adjusted for local purchasing power, thus legitimating comparisons across time, and across country.

In an attempt to gain a picture of the changes in economic circumstances of the poorer sections of society, trends in poverty and income distribution are given in Table 3.1, using, where available, data from the individual country reviews. It should however be noted that these data are very patchy across time and definitions may differ, rendering comparisons difficult[4], although a rough sense of the changes through the last two decades for most of the countries is possible. National food security is proxied by *per caput* dietary energy supply, which is based on Food Balance Sheet data calculated by FAO by country. This represents the amount of food potentially available for human consumption and takes into account production, imports, changes in stocks, exports, livestock feed, seed use and non–food uses and losses. An indication of household food security is provided by the percentage of household expenditure allocated to food (although trends are not available).

> [4] It should be stressed that measures such as the head count measure of poverty are measures of proportions below an arbitrarily defined line that do not take into account the intensity of poverty below that line. They are also obviously *objective* measures of "poverty" with all the limitations that this suggests. It is at the household level, that the subjective perception of what it is to be poor better reflects the reality of poverty – as including aspects of material deprivation, isolation, alienation, dependence, lack of decision–making power and freedom of choice, lack of assets, vulnerability and insecurity. The fact that quantitative national–level indices are merely proxy aggregates of these should always be borne in mind.

Equity and poverty are related but quite different concepts. Minimum inequality (where all are equal) is possible with either zero poverty or maximum poverty; at maximum inequality on the other hand, one person has everything, and poverty as well is maximum again. Both equity and poverty need to be considered when relating economic growth to nutrition. The degree of equity and the poverty–reducing effect of the economic growth process is likely to determine to a large extent its nutritional impact. Available measures of equity, as shown in Table 3.1 (in the column headed 'income distribution') generally point to considerable stability. In most countries, little change occurred over time in income distribution.

If economic growth directly includes the poorest sections of the population then there will be an immediate economic benefit as their incomes rise. Raising poor people's incomes is likely to result in large benefits to nutrition (certainly relative to additional income in richer groups). This is because the additional resources purchased with this extra income are more likely to be basic necessities, including food and health care, which have large nutritional pay–offs. This may be termed 'equitable growth', or 'growth–with–equity' (Dreze and Sen (1989) call it 'growth–mediated security'). As the major asset of the poor is their labour power, growth which is labour–intensive is more likely to be equitable. Equity is promoted through improving access of poor people to land, credit, technology, infrastructure and services. Equitable growth improves income distribution within countries e.g. Indonesia, where the percentage share of income of the poorest 40% increased by nearly 50% in the decade from 1976. On the other hand, growth in which a relatively even income distribution is not maintained, or in which pre–existing income maldistribution is not reduced, is not equitable and is likely to be less beneficial to nutrition e.g. Brazil. Labour–intensive, equitable growth will also be more efficient in

alleviating poverty than a more conventional 'trickle down' growth strategy in low–income countries (i.e. the unit decrease in poverty incidence will be greater per unit GDP increase).

As mentioned, a large part of the nutritional impact of economic policies will be mediated by effects on household food security – one of the three underlying preconditions for adequate nutrition (see Fig 1.2). It should also be noted that poverty, when defined in relation to the minimum income deemed necessary to purchase a household's calorie requirements, is implicitly related to household food security. Poor households spend a large proportion of their resources on food purchases (see last column in Table 3.1) and nutritionally–vulnerable population groups are likely to be concentrated in poor, food–insecure households. Consideration of how growth has affected the situation of poverty, hence household food insecurity, in these countries is needed, in order to understand its effect on nutrition outcomes.

Poverty alleviation is an especially important policy objective of economic growth in relation to nutrition. This is in contrast to some past approaches such as "redistribution with growth" and the "basic needs" approach, which both emphasized the consumption of the poor rather than their productivity. These latter tended to rely on a dual–track approach (i.e. tacking on compensatory programmes to trickle–down growth) rather than aiming to embed poverty alleviation within the development process itself. In the early 1990s, new development thinking (see e.g. World Bank 1989, Lipton and Maxwell 1992, Jazairy *et al.* 1992) conceived of poverty alleviation not just as a mechanism to get the poor to cross a given threshold of income or consumption, but as a sustained increase in their productivity through their integration into the process of growth. The poor operate at such a low level of productivity that even quite small investments in skills development and some improvement in their access to productive resources and services can have a significant effect in raising their output and incomes. As poverty is reduced, in addition to private income gains, entitlements are promoted, and the need for welfare and subsidies lessened; the increased demand also stimulates development of domestic markets. Such an approach calls for an increased access of the poor to resources (land, labour and capital) and appropriate institutions and policies for fostering this integration.

Trends in nutrition outcomes for the case study countries were described in Chapter 2. What has been their economic experience? Comparing the real *per caput* GDP in 1970 with 1990 (see Table 3.1), it can be seen that average purchasing power increased substantially in all except the African countries. Growth rates in real GDP are shown for 1973–1980 and 1980–88; in all cases except India and Pakistan the growth was slower in the 1980s, and was negative in the African countries and Mexico. (A similar picture is given by the standard GNP growth rates.)

In Latin America, the Mexican and Brazilian economies prospered in the 1970s before stagnating or declining in the 1980s. In sub–Saharan Africa, Tanzania and Zimbabwe saw little progress, while the Nigerian economy collapsed in the 1980s following its growth in the previous decade. In South Asia, the economies of India and Pakistan were stagnant in the 1970s, before achieving moderate growth in the 1980s. In South East Asia, rapid growth in the 1970s for Indonesia and Malaysia faltered in the early–mid 1980s, while Thailand maintained steady progress throughout, albeit at a lower rate (although in 1988 and 1989 growth accelerated).

Table 3.1: Economic Resources, Poverty, Equity and Food Security

	GNP per caput (US$)		**GDP per caput ($PPP) % Growth**				**Poverty % (urban/rural)**	**Income Distribution**		**Di**
	1990	**% Growth 1980–90**	**1970**	**1990**	**1973–1980**	**1980–1988**		**% share of lowest 40%**	**Gini Coefficient**	**197**
Tanzania	110	–0.07	379	572	3.0	–0.5	30 (15/27) 1980	8.1 1991	0.45	194
Nigeria	290	–3.0	1237	1215	1.1	–5.3	38 (33/40) 1978	–	–	213
India	350	+3.2	666	1072	0.0	2.8	48 (38/51) 1977–78	20.4 1983	0.30	202

							29 (19/33) 1987–88	21.3 1989–90			
Pakistan	380	+2.9	1154	1862	1.3	4.0	54 (50/56) 1969–70 37 (34/39) 1979 30 (28/31) 1984–85	20.2 1969–71 19.0 1984–85 21.3 1991	0.37 0.34 –	2027	2190
Indonesia	570	+4.1	803	2181	6.7	2.3	40 (39/40) 1976 29 (29/28) 1980 15 (17/14) 1990	14.4 1976 21.2 1987 20.8 1990	0.41 0.30 –	2013	2424
Egypt	600	+2.1	795	1988	8.4	1.5	30 (30/30) 1981–82 34 (34/34) 1984	16.5 1974	0.38	2499	3013
Zimbabwe	640	–0.8	1006	1484	2.4	–1.3	60 1988 rural	–	–	2117	2119
Thailand	1420	+5.6	1487	3986	4.2	3.8	39 1968–69 24 1981 24 1988	15.2 1975–76 15.5 1988	0.40 0.47	2258	2316
Malaysia	2320	+2.5	2441	6140	6.0	0.8	29 (13/42) 1990 17 (8/22) 1987	10.6 1970 13.9 1987	0.48 0.42	2410	2634
Mexico	2490	–0.9	4061	5918	3.7	–1.8	76 1960 45 1981 51 1987	10.3 1977 11.9 1984	0.47 –	2703	2903
Brazil	2680	+0.6	2540	4718	4.0	–0.2	58 1970 27 1980 35 1989	7.0 1972 8.1 1983 7.0 1989	0.57 0.53 0 64	2472	2631

Source: World Bank (1992);GDP Growth Summers, R. & Heston, A. (1991); GDP/PPP UNDP (1991); GDP/PPP UNDP (1993); poverty (country reports), income distribution Jazairy et al. (1992).

Note: % growth GNP, GDP, and kcals is annual.

This describes the rate of growth or decline. However while poor and richer countries alike had hard economic times, it should be remembered that the poor were already at a low level of economic development. In terms of real values of the economies in 1990, there was a tenfold difference between the highest (Mexico with $5918 real *per caput* GDP) and the lowest (Tanzania with $572).

The Asian countries of Indonesia, Thailand, Malaysia, India and Pakistan were most successful in reducing poverty. Indonesia managed to reduce poverty from 40% in 1976 to 15% in 1990 during a period of improving equity and rapid economic growth. Except Thailand and Malaysia, these were also the only countries to succeed in channelling more than 20% of national income to the poorest 40% population. Thus, poverty alleviation tended to correlate quite well with such relatively equitable economic growth.

In contrast, the worst statistics for poverty and equity were those of Brazil and Mexico where in the late 1980s, one third to one half of the population were subsisting under the poverty line – a mean which moreover disguised the pronounced regional inequity. While this situation occurred despite the high economic growth

rates of the 1970s, it was a direct consequence of the type of economic policies pursued that emphasized growth *per se* with disregard for equity.

While poverty may be alleviated during the course of economic growth providing it is equitable (e.g. Indonesia) where a more conventional approach to growth is undertaken, a government may decide to implement specific poverty alleviation programmes. These may take the form of targeting assets, credit or employment to poor groups as a means of generating income. India is an example, where growth and equity were both development objectives, but in effect pursued through different policies (see Box 3.1 and Ind p40–43).

Having considered levels and trends of some indicators, let us turn to review the policies for economic growth and food security in the countries studied. (More country–level detail is provided in the section at the end of this chapter.) Those countries in South East Asia with sustained economic growth – Indonesia and Thailand in this case – had reasonably equitable land distribution, and vigorously pursued policies of increasing production in the whole rural population. Particular priority was given to rice, building on green revolution technologies, and the benefits were fairly widespread. Indonesia was in the 1970s the largest rice importer in the world, and became self–sufficient in rice by 1988. Fast equitable growth in rice production was achieved, the proceeds of which were used to refuel agricultural growth through reinvestment of part of the surplus, to the benefit of both poverty reduction and food security. At the same time, the Government agency BULOG provided for price support and stabilization, and contributed substantially to eliminating food crises which had been a feature in the country up until the mid–1980s. Thailand became one of the world's largest exporters of rice in the late 1980s, through a somewhat similar policy of support for agricultural production for the benefit of the large part of the rural population. The investment in agriculture and human resource development tended to be protected during adjustment in Indonesia. This emphasis on human resource development no doubt helped to sustain the economic growth in both countries, and indeed a similar picture was seen in Malaysia and other countries in the region.

India and Pakistan also benefitted from increased food production using green revolution technology, but perhaps with less widespread benefits to all sections of the rural population. In contrast to South East Asia, both countries tended to use a two–track approach to development, favouring industrialization and large–scale production, with poverty alleviation (e.g. public works) to try to improve the position of the poor. In India, there are definite signs that future growth will need to be designed to be more labour–intensive for it to be sustainable. Population pressure on finite land resources is becoming increasingly significant and the proportions of landless households, who are at greatest nutritional risk, are rising (with wages for such surplus labour being kept down). Continued support of poverty–alleviation programmes requiring a sustainable flow of resources, generated through growth, may consequently be a relatively inefficient, and unsustainable, means of reducing poverty (and the poverty–related causes of malnutrition) when opportunities for a more equitable labour–intensive growth strategy are still not being exploited. Indonesia has shown that a substantial dent can be made in rural poverty through equitable rural–based growth, without resort to specific poverty alleviation programmes. For both regional and social equity in India, there is also a need for agricultural research to be more pro–poor, focused on rainfed crops (Reddy *et al.* 1992). There are still vast areas of the country where households are engaged in rainfed agriculture, cultivating various coarse–grains such as millets, for which there has been no emphasis on yield enhancement.

Box 3.1: Poverty Alleviation Programmes in India: Some Issues

While equitable growth is ultimately the most effective and sustainable long–term strategy for alleviating poverty, specific poverty alleviation programmes are likely to be warranted in the short to medium term until the poor are brought into the overall growth process. The existing poverty alleviation programmes in India are relevant to nutrition, in that they are intended to be targeted with respect to a poverty line that is intrinsically based on caloric requirements. Although nutrition outcomes of such programmes are not routinely monitored, their potential impact is considerable, particularly if women are preferentially involved. There are several important areas of debate regarding the design of some Indian programmes, with relevance to other countries:

Asset Endowment or Wage Employment? Can a significant fraction of the poor be given assets without land and property reform (which is the only guarantee for a mass base to growth)?. Asset endowment programmes, such as the Integrated Rural Development Programme (IRDP) in India, are said to strain administrative and financial capacity, and are more open to corruption e.g. asset capture by untargeted elite groups (Kakwani and Subbarao 1990). Employment provision is now thought to be more effective, certainly from a nutrition perspective. Examples are India's National Rural Employment Programme (NREP, since

renamed Jawahar Rozgar Yojana or JRY) and the Maharasthra Employment Guarantee Scheme. These can be self–targeting and increase consumption linkages more than asset endowment. They may also preferentially benefit the incomes of women who often form a majority of the workforce. Wage differentials between sexes can be eliminated, with possible knock–on effects on local labour markets. The assets built in these employment programmes may include roads, drainage and irrigation channels, which could themselves provide a long–term source of employment, through repair and maintenance as well as stimulating rural non–farm activities, especially trades and services. Reforestation, erosion control and the rehabilitation of agricultural land are other possibilities. There have as yet been no direct studies of the nutritional impact of NREP, although it is likely to influence nutrition insofar as nutrition outcomes are partly related to problems of poverty and household food insecurity among the poorest. Furthermore, the high relative participation of women would suggest a particular benefit for nutrition if it increases the income they earn and control (Leslie and Paolisso 1989).

Selective or Blanket Provision? The issue of beneficiary selection is not clear–cut. The argument in favour hinges on the efficient selection of the most needy reducing overall programme costs. However, selection is not in itself cost–free, for the following reasons: the application of certain criteria is costly to administrate; those selected (usually the poorest groups) do not have sufficient political power to ensure the services they receive are of sound quality; the notion of selection implies passive acceptance of a benefit, and can be demeaning for the recipient; the system of selection may be actively distorted by the non–needy (e.g. income under–reporting) to qualify for eligibility; there may be an disincentive element whereby borderline eligible cases reduce their output/status to qualify; and selection can be invasive involving constant probing and policing. This is not at all to suggest that targeting is not a good idea, just that the question of how far the process of selection should be pushed, needs to be considered carefully. The costs above need to be weighed against the overall costs of universal coverage of a programme. One option with great potential is self–selection of the beneficiary. This can be done, for example, through subsidizing less–preferred coarse grains – normally the staples of the poorest groups (i.e. commodity targeting in India's Public Distribution System), or providing guaranteed work at wage rates that, while providing for a decent livelihood, are not sufficiently high to attract less–poor groups (e.g. the NREP).

Brazil and Mexico, starting in any event much richer than the other countries, went for modernization and industrial development, which while raising incomes in the modern sector, maintained or even exacerbated regional disparities. Both these countries are distinctly divided into modern, largely urban populations, albeit with massive poverty in the slums, and deprived rural areas with characteristics of much less developed countries.

In Tanzania economic development was slow, for a country which started among the very poorest in the world. Farmers in most of Africa, including Tanzania, have not experienced anything like the green revolution of Asia. Zimbabwe, on the other hand, had a burst of economic vigour after independence in the early 1980s, which benefitted the poor, before running into serious problems of adjustment and drought in the late 1980s and early 1990s. In both cases, as perhaps in much of Africa, it cannot be said that economic policies have been successful in bringing about economic growth that benefitted the food security, welfare and nutrition of the poor. But, as discussed later, both Tanzania and Zimbabwe did succeed in other programmes that more directly benefited nutrition, and it is probably from these that important lessons about nutrition are to be learned for Africa.

Programmes aimed directly at employment and poverty alleviation of the poor have in most cases had short–run benefits, but it is probable that those which were embedded in the overall development policy had greater long–term effects. Thus, as mentioned above, Indonesia and Thailand village development schemes together with an emphasis on decentralization and human resource development, have probably been extremely important in improving welfare and nutrition for the poor. Public works programmes have been common in many of the other countries, both in South Asia and in Latin America, but how far their targeting has really reached those most in need and their effects been sustainable, is open to some doubt.

Policies and programmes aimed directly at increasing food consumption through stabilizing prices, and targeted or untargeted subsidies (including feeding programmes in Brazil) have been common. In the South Asian countries, distribution schemes using ration (or "fair price") shops increased and stabilized consumption for many of the rural poor. These were inefficiently targeted, and in the case of Pakistan, phased out in the late 1980s. A massive general subsidy was in place in Egypt, which undoubtedly contributed to high levels of calorie consumption amongst most of the population. Nonetheless, the urban areas tended to benefit more, and the rural poor lagged behind. Very large schemes for food production and distribution were periodically carried out in Mexico, effectively as targeted subsidies, but again were more beneficial to the urban areas. Brazil, Mexico, and Egypt, all had major regional disparities in food security. Brazil in particular relied heavily

on feeding programmes, aimed particularly at children, amounting to a very substantial expenditure per beneficiary (Musgrove, 1991). Although not really evaluated, it is likely that these had a protective effect on nutrition, although whether sustained or cost effective is another question.

Nutrition Improvement and Economic Growth

A direct comparison of economic and nutritional outcomes can be done and is likely to be illuminating in that it suggests where to look for other major contributing causes of the nutritional changes observed. Thus, in Figure 3.1, the percentage change in *per caput* GDP is compared with percentage point change in preschool underweight prevalences with data from the last two decades. Those countries which grew most rapidly can be seen to have also made good progress in nutrition. India, Egypt, and Pakistan for example did somewhat worse than might be expected, while Zimbabwe and Malaysia did better. The relationship between economic growth and rate of change in nutritional outcomes was strong. The linear fit to the data is used here to calculate residuals; the quadratic fit is due substantially to the low right hand data points. Of the case studies, only for Thailand does the residual change significantly between the two models, so for this purpose the choice makes little difference.

We cannot however ascribe deviations from this directly to the type of economic policies adopted themselves, because we need later to look at the effects of human resource development policies (Chapter 4) and nutrition programmes (Chapter 5). The deviation might be explained by such factors as the degree of equity in the economic growth, its poverty–alleviating effect, the priority attached by the government to social support (reflected in its spending on health, education and welfare) and the effect of more direct nutrition–related programmes. Zimbabwe for example, achieved significant nutritional improvements during the 1980s despite economic decline. Clearly, nutritional improvement can move ahead of economic development, due to the type of factors mentioned above. Moreover, in Mexico and Brazil, the nutrition situation continued to improve during a period of economic stagnation (as it had done during the 1970s boom) but much more slowly. Nutrition does seem to be resilient in the face of economic decline.

Comparing Country Experiences

In this section, the experiences of the case study countries are compared with respect to the following variables: economic growth (in real per caput GDP), poverty and income inequality, national food security (per caput dietary energy supply) and household food security (proxied by percentage expenditure allocated to food). The economic and food security policies that related to these outcomes are also described.

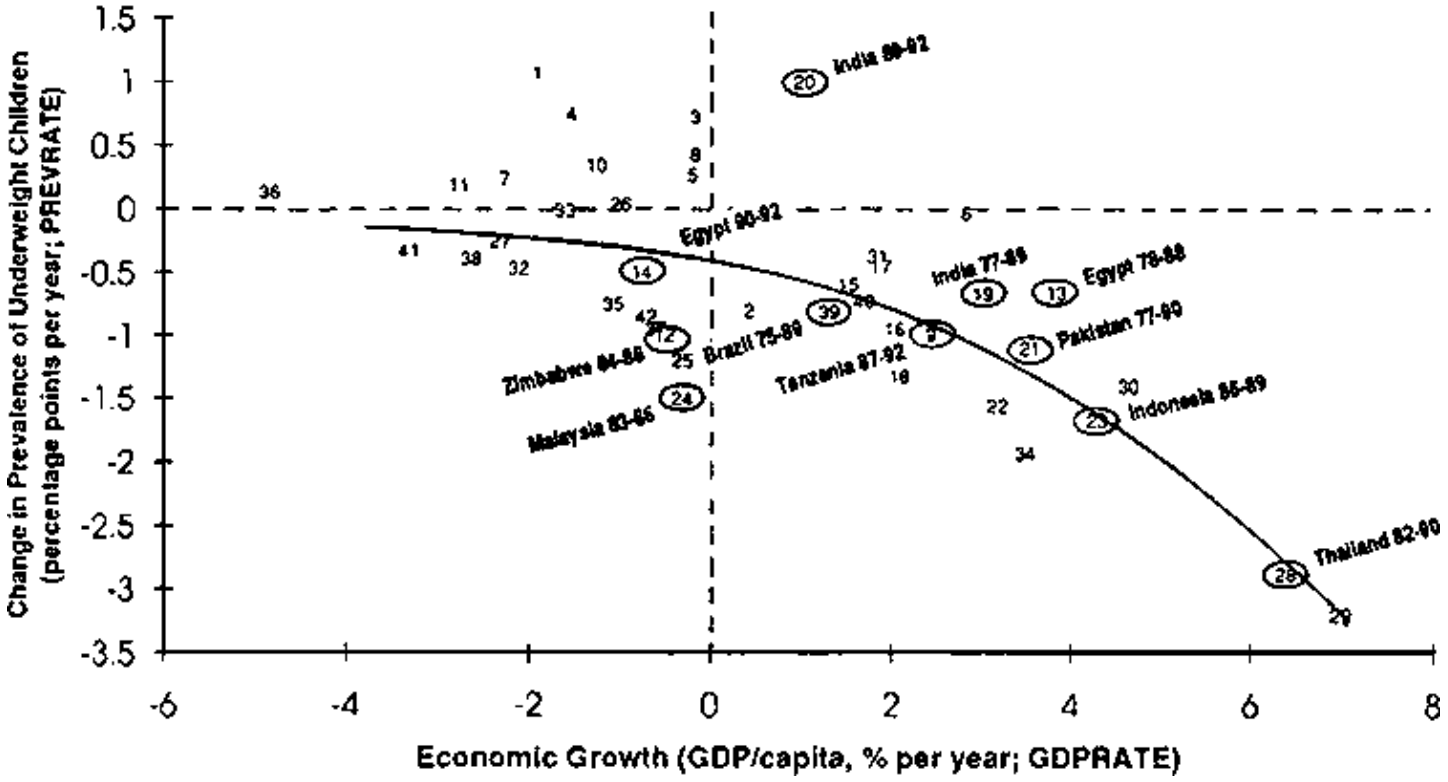


Figure 3.1: Plot of Change in Underweight Prevalence by Economic Growth Rate

Key

Country	*From, To*
1. Ethiopia	1983, 1992
2. Kenya	1982. 1987
3. Kenya	1987, 1993
4. Madagascar	1984, 1992
5. Malawi	1981, 1992
6. Rwanda	1976, 1985
7. Rwanda	1985, 1992
8. Senegal	1986, 1992
9. Tanzania	1987, 1992
10. Togo	1977, 1988
11. Zambia	1984. 1992
12. Zimbabwe	1984, 1988
13. Egypt	1978, 1988
14. Egypt	1990, 1992
15. Morocco	1987, 1992
16. Tunisia	1975, 1988
17. Bangladesh	1981, 1989
18. Bangladesh	1990, 1993

19. India	1977, 1989
20. India	1989, 1992
21. Pakistan	1977, 1990
22. Srilanka	1980, 1987
23. Indonesia	1986, 1989
24. Malaysia	1983, 1986
25. Myanmar	1982, 1990
26. Philippines	1982, 1990
27. Philippines	1990, 1992
28. Thailand	1982, 1990
29. Viet Nam	1987, 1990
30. China	1987, 1990
31. Costa Rica	1982, 1992
32. El Salvador	1975, 1988
33. Jamaica	1978, 1985
34. Jamaica	1985, 1989
35. Panama	1980, 1992
36. Nicaragua	1982, 1993
37. Trin/Tobago	1976, 1987
38. Bolivia	1981, 1989
39. Brazil	1975, 1989
40. Colombia	1980, 1989
41. Peru	1984, 1992
42. Venezuela	1982, 1987

Model 1

GDPR2 = (GDPRATE + 6)
PREV2 = –PREVRATE

PREV2 = 0.3547 – 0.1984 GDPR2 + 0.03148(GDPR2.GDPR2)

(p = 0.22) *(p = 0.01)*

R squared = 0.56
F = 24.9
n = 42

Model 2

PREVRATE = –0.494 – 0.237 GDPRATE

(p = 0.000) *(p = 0.000)*

R squared = 0.47
F = 35.9
n = 42

Model 1 is equivalent to: PREVRATE = −0.2976 − 0.1794 GDPRATE − 0.03148 (GDPRATE.GDPRATE)

Source: ACC/SCN (1994) p.5

Indonesia

A high real annual per caput GDP growth rate of 6.7% was sustained throughout the 1970s, before dropping to 2.3% between 1980−88. Per caput GDP grew by 110% in real terms between 1970−88 (indicating more than a doubling of real per caput income), a rate surpassed only by Egypt (120%). Growth also was relatively equitable − the incidence of poverty declined from 40% population in 1976 to 15% in 1990, while the ratio of income of the richest 20% to the poorest 20% population dropped slightly from 5.1 in 1981 to 4.7 in 1990. These achievements resulted from a growth strategy based on a labour−intensive approach to agricultural development, with massive investments in rural infrastructure and a programme focusing on providing income−earning opportunities for the marginal poor (Soekirman *et al.* 1992). The proceeds of oil resources were channelled towards development, particularly into agriculture, where the Green Revolution programmes in rice production transformed the country from a rice importer in the 1970s to self−sufficiency by 1984. Agricultural development was based on appropriate production incentives (through price protection, fertilizer subsidies and a sound credit policy), large−scale investment in irrigation and new technologies that successfully raised both labour demand and agricultural incomes in rural areas. Price policy on rice was crucial to attaining and maintaining self−sufficiency. The government−run food marketing agency (BULOG) ironed out any inter−seasonal and inter−annual fluctuations in rice production by establishing floor and ceiling prices to contain the market, at some cost. This economic performance flourished against the backdrop of political and social stability in the country.

A series of external oil shocks occurred between 1982−87 which stabilized the poverty rate at between 27−29% during this period. In response, a range of structural reforms and adjustment policies were adopted and the government mitigated adverse effects on the poor by re−allocating development expenditure to important social and economic programmes, including agriculture. Between 1987 and 1990, the poverty incidence continued its decline from 27% to 15%. While socially equitable, economic growth was however less regionally so − in 1987 the incidence of poverty in Eastern Indonesia was 25% as compared to 19% in Java and Bali, and less than 10% in the Western islands.

The per caput food production index in 1988−90 of 123 (relative to 1980) was second only to Malaysia, with the mean daily calorie supply of 2750 kcals in 1989 being on a par with Brazil, and up from 1947 kcals per caput in 1968−70. However, the consumption of meats, fish, fruits and vegetables is low in Indonesia which partly determines the high levels of micronutrient deficiencies which exist (Soekirman *et al.* 1992).

Thailand

Thailand has been transformed from a subsistence agrarian society into a rapidly industrializing country in less than thirty years. Sustained economic growth was achieved in both the 1970s and 1980s, with some of the highest GDP growth rates in the world during the late 1980s, reaching 12.0% and 13.2% in 1988 and 1989. By 1988, real per caput GDP had grown 90% since 1970, equivalent to Malaysia's performance. Growth in the 1960s and 1970s was fuelled by the introduction of predominantly capital−intensive, large−scale technologies, which failed to benefit the majority of semi−subsistence farmers and also those urban poor who moved from the rural areas hoping for a better life. Some benefits of growth did trickle down to the poor, but income distribution and poverty became a major concern in the 1980s. The Gini coefficient of income inequality which was 0.41 in 1962/63 had risen to 0.50 by 1986, approximately that found in Malaysia. Income gaps are widening between agriculture−dependent workers and the rest of the nation and also between regions, with the North and Northeastern regions being poorer than Bangkok and its vicinity (in 1988, per caput income for the Northeastern region was two−thirds the national average). Poverty incidence declined from 57% population in 1962−63, to 39% in 1968−69,31% in 1975−76 and 24% in 1981, when the Poverty Alleviation Plan (PAP) was initiated.

The Poverty Alleviation Plan included programmes that focused on rural job creation, village development, provision of basic services and agricultural production − all targeted to areas with relatively high incidences of poverty. The World Bank estimated that the percentage reduction in poverty was 33% between 1962 and 1986 (World Bank 1991), lower than the figure for Indonesia (41 %, 1970−87) but higher than that of Malaysia

(23%, 1973–87) and Singapore (21 %, 1972–82). Poverty incidence however increased by 6% during the recession of 1981–86 in Thailand. Economic gains in the near future are thought more likely to benefit the already better–off households, reliant more on non–agricultural occupations, as a result of foreign capital inflows which largely finance development in non–agricultural activities.

With respect to national food security, Thailand is not only self–reliant in rice, the country's main staple but also one of the world largest exporters (35% of world market in term of quantity, ranking first in 1986). Although food production has been expanding faster than population growth, agriculture's share of GDP had declined to 15% by 1989 compared to 27% in the late 1960s. Food security at the household level is determined in large part by price policies (particularly rice) of the government. Rice contributes 40–90% to calorie intake, and accounts for nearly 20% of the household budget. As one of the largest exporters of rice in the world, Thailand collects a substantial amount from export taxes and uses export control to regulate domestic prices. This has been successful in keeping domestic rice price low –thus, benefiting net purchasers who are predominantly the poorer households. In 1980–85, on average just 30% household expenditure was allocated to food purchases – a lower proportion (indicating stronger food security) than any of the countries studied here, except Malaysia. The latest 1989 estimates put daily caloric supply at 2316 per caput.

Brazil

The economy in Brazil grew at a relatively high rate in the 1970s (averaging 4.0% annual growth in real per caput GDP) before completely stagnating, to –0.2% between 1980–88. Brazil has been characterized as an example of "unaimed opulence" (Dreze and Sen 1989) whereby the overriding objective is a higher per caput GNP, regardless of the means adopted or their results. The findings of Iunes and Monteiro (1992) to a large degree bear this out. For example, while real per caput GDP in 1990 was 3.4 times that in 1960, the proportionate share of the poorest 40% of the population remained at around 7% during this entire period. The ratio of the income of the highest 20% of the population to the lowest 20% was 26.1 for Brazil in 1990 compared to 4.7 for Indonesia (World Bank 1991). The Gini coefficient increased from 0.50 in 1960 to 0.64 in 1989 – among the highest values recorded. The Gini for landholding is even higher, at 0.86 in 1980 (UNDP 1993, p29). This high degree of social and regional inequality resulted from a capital–intensive, regionally–biased route to growth. There was however a decline in the proportion of Brazilian population living below the poverty line[5], from 58% in 1970 to 27% in 1980 mostly driven by the huge growth of the 1970s. As growth stagnated in the 1980s, poverty worsened, and the proportion of the population below the poverty line rose to 35% by 1989. In the poor Northeast, the poverty decline in this period was from 77% in 1970 to 50% in 1980 and 60% in 1989, while in the rich Southeast the corresponding figures were 38%, 12% and 24%. Much rural poverty in Brazil translated into urban poverty with rural–urban migration accounting for the fall in the proportion of the rural population below the poverty line. Thus, regional disparities increased although significant improvements in growth–mediated poverty reduction occurred in all areas of the country in the 1970s (Iunes and Monteiro 1992). The nutritional achievements of the past two decades in Brazil can considered in the light of two important outcomes of the growth of the 1970s – the substantial reduction in the proportion of people living under conditions of extreme poverty, and the increase in resources available for social investments (see next section).

> [5] This poverty line uses the minimum wage of May 1980 as a basis, and controls for the possibility of the government choosing to hold the minimum wage below the rate of inflation.

Food entitlements acquired through non–income channels apparently have had a limited influence on the nutritional improvement observed in Brazil, due largely to the low effectiveness of the Brazilian nutritional programmes. The behaviour of food prices, in aligning very closely to inflation, while not a contributing factor to the improvements, did not represent an obstacle either (Iunes and Monteiro 1992). Per caput dietary energy supply in 1990 was 2751 kcals (equivalent roughly to Malaysia and Indonesia), up from 2472 kcals in 1970.

Mexico

Like Brazil, the economic growth of the 1970s (mean annual per caput real GDP growth of 3.7%) began to be reversed in the 1980s (–1.8% between 1980–88), although both the increase and decline where less dramatic than in Brazil. Real per caput GDP in 1988 was 20% higher than in 1970, compared to Brazil's 70% real growth in this period. Poverty incidence dropped from 76% of the population in 1960 to 45% in 1981, before rising to 51% in 1987. In 1984, 50% of income was owned by the wealthiest 20% population, just over 10% was owned by the poorest 40%, and only 1.3% by the poorest 10% – proportions that have changed little since the late 1960s. By the mid–1970s, the Mexican government's high level of social expenditure was increasing rapidly ahead of public sector revenues, and external borrowing became an important source of

revenue. The country's foreign debt grew from US$ 4.5 billion in 1970 to US$ 85 billion in 1990, implying a per caput debt of close to US$ 1,000. Fiscal austerity measures were first implemented in 1976, but the discovery of new oil reserves soon thereafter encouraged the government to maintain high levels of public spending. Inflation, however, continued to soar, reaching 98% in 1982. Moreover, Mexico became increasingly dependent on oil–export revenues while non–oil exports deteriorated. By 1982, the recessionary conditions of the developed countries, falling oil prices, and rising interest rates, led to massive capital flight and further economic decline. The country faced the most serious economic crisis since the Great Depression. Mexico declared a moratorium on its external debt, precipitating a major debt crisis. The government responded by implementing a three–year stabilization programme formally agreed upon with the IMF in late 1982. With lower investment, on the one hand, and restrictive demand management, on the other, there was no cumulative real growth between 1982 and 1988, and per caput GNP continued to severely fall. The country finally showed signs of recovery in 1987/88. Wage earners suffered severe economic hardships during the 1980s: surveys carried out by the National Consumer Institute and the National Nutrition Institute show that in 1988, the purchasing power of wages was 50% less than in 1980.

As well as social inequality, regional biases operated against the southern largely Indian population during its growth process (Chavez *et al.* 1992). About 29% of the Mexican population reside in rural areas, and of these, 80% population are below the poverty line, and 40% in 'extreme poverty' – the latter group comprises most of the Indian population, migrating workers, cane sugar cutters, coffee pickers, and small unirrigated landholders. In the 1970s and 1980s, various rural development programmes were implemented, albeit concentrated in the richer irrigated north. The National Solidarity Programme (PRONASOL), implemented by the present administration is a multi–faceted poverty alleviation programme targeted to the rural and urban poor, and Amerindian communities.

Agriculture accounts for only 9% of GDP but employs around 26% of the total working population, mainly smallholders. The agricultural sector decelerated in growth in the 1950s, was stagnant in the 1960s and 1970s and had negative growth in the 1980s, reflecting the urban biased pattern of development in Mexico. Corn is the principle staple and Mexico was able to export large quantities in the mid–1960s. Since the early 1970s, food imports of corn and other cereals have steadily grown. In 1990, the country imported 4 million metric tons of corn out of a total consumption of 18.6 million tons, which permitted the maintenance of a relatively high dietary energy supply – 3052 kcals per caput in 1990 –albeit at a high price.

Regarding household food security, hyperinflation rose rapidly in the late 1980s and caused serious hardships for workers since wages did not keep up with these price increases (although the food price index rose more slowly). The purchasing power of the minimum legal wage in Mexico City dropped steadily throughout the 1980s, hitting its lowest level in 1988 when it bought only one–half the value of 1978. The proportion of families that spent more than 60% of their wages on food increased from 22% in 1981 to 35% in 1987. The government has taken some action to help the food insecure during the late 1980s phase of structural adjustment, through eliminating many general food subsidies which were not reaching the poor, and emphasizing instead the use of income–targeted subsidies. By 1989, more than one–third of the $1.4 billion devoted to food subsidies was used for targeted programmes such as these, despite criticisms of inefficient targeting.

India

Since the late 1970s the Indian government's economic policies have tended towards liberalization of trade, with flexible exchange rates to encourage the growth of exports. Foreign debt has risen due partly to a disappointing export growth, and reluctance on the part of the government to raise taxes, thus creating the need to borrow from other countries for revenue. IMF–induced cuts on fertilizer subsidies have caused food prices to rise in the 1990s. The economic growth of India during the 1970s was nil (with a mean annual real per caput GDP growth rate of –0.0%.) This improved significantly in the 1980s to 2.8% (bettered only by Pakistan and Thailand). The real per caput GDP in 1988 however was only 20% higher than in 1970 (the second lowest aggregate proportionate growth in this period behind Nigeria). Government expenditure has been burdened with major commitments to defense, which curtails investment in production and the social sector.

Agricultural policy is one of the main development policies in India and particularly relevant to nutrition. In the early days of the Green Revolution there was a considerable degree of "betting on the strong" – focusing the new technologies on the richer farmers (through preferential access to credit and institutions) who would be in a better position to make rapid gains. Now however, as a result of the polarization between the rich and poor that this initially caused, the application of technologies has become more scale–neutral. Poorer farmers now find it somewhat easier to obtain credit to purchase the new technological package of fertilizers, pesticides

and irrigation, and the degree of social inequality has declined to some extent. Landless labourers also benefit in that agricultural demand has increased and cropping can be done year round.

Alongside this conventional agriculture–based growth strategy, the public food distribution system (PDS) and a battery of poverty–alleviation programmes have been aimed at maintaining equity and social security. While the Government of India has continued to be guided by the principle of economic growth with equity, in practice the economy has been two–track – with conventional growth on the one hand and special poverty alleviation programmes ostensibly for those groups not benefiting, on the other. The latter included the National Rural Employment Programme (NREP) since renamed Jawahar Rozgar Yojana, and the Integrated Rural Development Programme (IRDP) – the former based on wage employment on public works, the latter on income–generation through asset and credit endowment. Along with the PDS, these programmes however did tend to suffer from a common paradox in that they existed and tended to work better where they were least needed. This was partly a consequence of their top–down nature, being demanding on an centrally–controlled administrative structure for implementation. Decentralization to block levels has been recommended to increase their relevance for the poor. Nevertheless, the PDS and the NREP are likely to have made a significant contribution in terms of the observed reductions in poverty and inequality in rural India, and to buffering the food security of the most nutritionally vulnerable households (Reddy *et al.* 1992).

This two–track strategy led to the incidence of poverty dropping from 48% population in 1977–78 to 29% in 1987–88. Income distribution also improved, with the poorest 40% of the population owning 21 % of income in 1989–90 (and the Gini coefficient dropping below 0.3). Kakwani and Subbarao (1990) argue that the poverty and income inequality reductions between at least 1977 and 1983 were associated with these poverty alleviation programmes, rather than any trickle–down effect of economic growth via increases in aggregate foodgrain production. In contrast, economic growth in the mid–1980s was felt to have been the main driving force behind the more recent change.

Since the mid–1970s, the National Nutrition Monitoring Bureau (NNMB) have shown that, at the household level, calorie and other nutrient consumption has remained more or less unchanged on average, at 2,300–2,400 kcals per adult equivalent in the 1980s. There was some indication of reduced inequality of consumption as the energy intakes of landless labourers increased slightly during the decade, unlike other occupational groups. The calorie intake of preschool children also increased, suggesting an intrahousehold adjustment. Thus, although there has been a reduction in the incidence of rural poverty and inequality, the household food security situation in India has not changed since the mid–1970s.

As social inequality may be lessening in India, however, regional inequality seems to be worsening. 'Green revolution' technologies were only effective if a constant supply of water and fertilizer could be assured. In the (usually poorer) villages dependent on rainfed agriculture, there was no "revolution". This was also reflected in comparisons by state, with the Punjab, Maharasthra, Andhra Pradesh, and Karnataka benefiting most from the new technologies. At state level, a strong positive relationship between agricultural growth and poverty reduction has been demonstrated in studies in Andhra Pradesh, Gujarat, Haryana and the Punjab (Jazairy *et al.* 1992). There are likewise marked inter–state variations, with percentages 'in poverty' (in 1987–8) ranging from 41 % in Bihar to 7% in the Punjab. A poverty belt stretches across central–eastern India with the states of Uttar Pradesh, Bihar Orissa and Madhya Pradesh containing high concentrations of poor people.

Pakistan

At the time of independence in 1947, Pakistan had a very small industrial base. During the 1950s, a successful policy of import–substituting industrialization was pursued. During the 1960s, the government embarked on an export promotion strategy, while maintaining high protective barriers for its domestic industry, and private investment broadened into new areas, such as chemicals and fertilizer. In 1972, wide scale nationalization took place and public investment increased rapidly while growth in private industry stagnated. Growth in manufacturing fell to less than 4% per annum during this period. In 1977, the government sought to de–regulate the economy. The new planners relied heavily on privatization, the elimination of subsidies and promotion of large–scale manufacturing. Economic growth was slow in real terms in the 1970s, with an annual growth of real per caput GDP of 1.3%. In the 1980s, however, growth took off (with a mean annual rate of 4.0% between 1980–88 – the highest of all countries reviewed in this period). The economy thus grew by 40% in real per caput terms between 1970 and 1988, proportionately twice the growth in India.

While structural transformations occurred, with an increasing role played by the manufacturing and service sectors, the economy experienced healthy growth rates in nearly all sectors. Increasing real wages brought about by the expanding domestic economy and the strong demand for agricultural labour following the 'green revolution' and the migration of the rural workers to the Middle East in the 1970s has managed to spread the

gains from this growth. These trends in income have been translated into reduced poverty in the country as a whole. Poverty alleviation strategies also sought to improve the productivity and growth of the rainfed agricultural regions, improve cottage industries, strengthen rural social services and invest in rural infrastructure. The national–level population incidence of poverty declined markedly from 54% in 1969–70 to 30% in 1984–85, with rural incidence being slightly higher than that for urban areas. The income share of the poorest 40% of the population in 1991 was 21%, similar to the India figure. The Gini coefficient for landholdings was quite high in 1980 at 0.54 (UNDP 1993, p29), indicating greater inequality in land than income. As in India, these positive proportionate trends were offset in absolute terms by the rapid population growth rate. Pakistan has also had a major burden of defense spending.

Pakistan remains a predominantly agricultural–based economy, with about 50% of its population directly dependent on agriculture for its livelihood. The agricultural sector experienced low growth until the mid–1960s when the green revolution' initiated an era of rapid output expansion. The early phase of agricultural growth depended on expanding the extensive marginal lands, made possible by large scale canal irrigation projects and tubewell irrigation. By the early 1970s, the best cultivable land was brought into cultivation, and further gains in output growth had to come from improved yields. This has occurred in the last ten years with improved water management, greater use of fertilizer and availability of credit. The early gains associated with the 'green revolution' continued, with production increasing by 50% between 1978–81 and 1990. Compared to most developing countries, Pakistan has a low level of agricultural production instability, which is due mainly to its extensive irrigation system. The government's involvement in the agricultural sector has been successful in maintaining stable wheat prices. The wheat storage and stabilization policies were able to move wheat from surplus to deficit years and from surplus to deficit seasons, to ensure a flow of supply at most times. High population growth rates have however placed a burden on per caput dietary energy supply, which has remained between 2000–2200 kcals for the last two decades (as in India). A food distribution system using ration shops, started in 1947, continued in various forms until 1987 when it was eliminated, as a result of ineffective targeting of the rural poor. The system was replaced with a more general subsidy on wheat, which reduced the price of wheat and increased consumer welfare as well as reducing the unauthorized rents that accrued under the old system.

Egypt

The real *per caput* GDP growth rate in the 1970s was greater than that achieved by any of the other countries studied (8.4% mean), while growth slowed to 1.5% between 1980–88. Overall, however, the economy of Egypt grew by 120% in real per caput terms between 1970 and 1988. This was achieved through following a regionally–biased pattern of development which concentrated growth in a few sectors. The economic policies involved the protection of the urbanized sector of the economy at the expense of the rural poor; in the mid–1980s, rural incomes, on average, were only a third of urban incomes. After experiencing rapid economic growth in the late 1970s, Egypt's economic position started to deteriorate in 1981, when the oil–related sources of foreign exchange started to fall. From 1985 onwards, the country faced significant difficulties in covering its debt service obligations, and the economy took a downturn in the late 1980s. Since 1986, the government has been gradually implementing structural reforms to reduce its deficit imbalances, involving social sector cutbacks, designed to reduce inefficiency in current social programmes. In contrast to Indonesia though, Egypt was less successful in translating these gains into reductions in the incidence of poverty – which remained between 30–35% of the population between 1958–59 and 1984. It should be noted however that the poverty line is based on the level of income necessary to purchase a minimum nutritionally–adequate food basket, at official market prices. Thus, the effect of the massive food subsidies is not taken into account in this measure of poverty – consequently poverty, in this case, may not be strongly correlated with nutrition. The Gini coefficient for landholding, however, was quite low at 0.35 in 1984 (UNDP 1993, p29). Poverty alleviation programmes included measures for the redistribution and reclamation of land, and subsidies on agricultural inputs such as seeds, fertilizer and credit. Although very costly, the massive general food subsidy programme undoubtedly has had a positive impact on nutrition (although the opportunity cost is unknown).

Regarding national food security, the government's exchange rate and trade policies which encouraged imports of food, particularly wheat, led to a relative decline in the country's ability to feed itself (production was less than a quarter of the consumption of wheat in 1988). In spite of this decline in food self–sufficiency however, dietary energy supply rose from 2500 per caput kcals in 1970 to over 3300 kcals in 1990 – at a high cost in foreign exchange for the food imports. The government's commitment to low food prices for consumers led to the imposition of tight regulations placed upon agricultural producers which acted as production disincentives. Under a liberalization programme, launched in 1986–87 in connection with an IMF Stand–by Arrangement, the government reduced its intervention in crop planting decisions, opened up marketing channels, and raised producer prices for some commodities, which raised production of some crops in the latter half of the 1980s. Liberalization measures however also meant increased food prices and thus

increased expenditures for net purchasers. Until the early 1990s, Egypt had one of the largest food subsidy schemes in the world, which successfully increased per caput dietary energy supply to levels comparable to developed countries, as mentioned. A 1981 survey of actual food intake of the population showed levels of consumption in excess of requirements; on average, caloric intake per caput was 2840 kcals. In 1989, approximately 93% of the population received some form of ration card, with wheat, flour, and bread being sold at a fixed subsidized price, uniform throughout the country, in unlimited quantities. As part of the structural adjustment programme, attempts were made to identify targeted interventions to more efficiently benefit low–income consumers who would otherwise be significantly hurt by the increased prices.

Tanzania

The poorest of the countries reviewed, Tanzania emerged slowly from prolonged economic decline during the 1980s. Real per caput GDP in 1988 was just $488 – only 30% higher than the 1970 figure. Annual real per caput GDP growth averaged 3.0% in the 1970s, before becoming negative (–0.5%) in the 1980–88 period. The first half of the 1980s was characterized by a severe economic crisis when production in all major sectors declined steadily, leading to a decline in per caput incomes, while in the second half, a structural adjustment programme was implemented. There is no trend data in the incidence of poverty, although World Bank data on income distribution show a deterioration between 1970–75 and 1991 when the share of the poorest 40% population dropped from 16% to 8%. Future growth is said (Kavishe 1993) to require an increasing return from the country's main cash crops – coffee and cloves, although world prices for both of these products have been low and remain unreliable.

Although not a famine–prone country, Tanzania cannot be described as food–secure. For the majority of Tanzanians, agriculture is the main source of livelihood, engaging some 85–90% of the country's labour force on mostly small–scale farms. Although well–endowed with land resources, Tanzania imported huge amounts of grain every year, and growth in the agricultural sector was slow, with a rate of only 1.4% on average between 1978–88. Despite the occasional maize and rice surpluses, there were severe internal food distribution problems. Most of the production occurs around the borders of the country, necessitating transport into the central populous urban centres, creating problems of transport and seriously questioning the long–term economic viability of such an approach to national food security. The situation is compounded by the growing urban population resulting from high birth rates and migration from the countryside.

In the 1980s, per caput dietary supply dropped from 2461 kcals in 1980 to 2206 kcals in 1990. In the early 1980s, scarcities of basic food staples became widespread, leading to extensive government controls, with essential goods rationed through special permits. Prices of food outstripped the growth in the overall consumer price index. On average, Tanzanians allocate 64% of their expenditure to food (the highest proportion of countries reviewed) indicating the high cost of household food security. The real value of formal sector earnings depreciated by 20% during the 1980s. Whereas in 1980 a days minimum wage could buy nearly 13 kgs of maize flour (the basic urban staple), in 1990 it could buy less than 2 kgs. The situation was made worse by the scarcity of commodities including food during the first half of the 1980s.

Zimbabwe

Economic growth was 2.4% (mean annual per caput real GDP growth) in the 1970s, before dropping to –1.3% between 1980–88 (second lowest behind Nigeria). Real per caput GDP in 1988 was just 30% higher than the 1970 figure, and the economy's decline has accelerated in the early 1990s (per caput GNP from $640 in 1990 to $450 in 1992). Data for poverty and income distribution are virtually non–existent, although one national poverty survey in 1988 gave a high figure of 60% rural population below the poverty line.

Zimbabwe inherited an economy with structural problems characterized by high levels of inflation and government deficit. Some economic growth occurred during the early post independence years primarily as the result of successive good agricultural seasons. Real incomes for the majority of wage earners increased substantially in 1981–82 as the result of minimum wage policies and subsidies on a number of basic food commodities. Drought and international recession however soon led to decreasing per capita GNP from 1983. In 1983, the government began to implement a series of economic stabilization and adjustment measures to improve the economy, including devaluation of the Zimbabwe dollar, restrictions on government spending and the removal of consumer subsidies. At independence, the agricultural sector reflected colonial policies of segregation and preferential treatment of whites, resulting in the creation of a dualistic farming system. Large commercial farms on fertile land were owned by a small white minority, while less–fertile land owned by Africans was given over to subsistence production. While the government attempted some resettlement programmes, more extensive effort was made to raise production on smallholder farms, through high producer prices, input subsidies and extension services. During 1980–86, smallholder producers increased

their contribution to total agricultural production from 15% to 35%, to marketed maize from 10 to 40%, and to cotton production from 7% to 53%. The agricultural sector grew by 4% per year in real terms during this period. However, the eroded productive base for maize since 1986 can no longer guarantee a national surplus, even during a normal rainfall year. The serious drought conditions in 1991 exhausted the country's stocks. The drought continued into 1992 (when agricultural sector output dropped by 40%), requiring substantial food aid from donor countries. Trends in calorie availability per caput had been fluctuating between 2100 to 2300 in the 1980s – generally lower in the drought years.

The Zimbabwean government's main policy response to chronic and transitory (seasonal) food insecurity has been drought relief food transfer programs, which currently feed over a million people per month. The need for these costly short–run programmes became apparent only after long–run food policies had failed. The manifestation of this failure was the absence of direct trade between grain surplus and deficit areas and its replacement with circuitous grain flows featuring redundant transport routes, overcentralized and high–cost milling operations, and artificially inflated consumer prices of staple food. This appears to be a major cause of food insecurity and loss of real income among the rural and urban poor. If national maize shortages persist, the government's ability to cushion vulnerable groups through conventional food and income transfers will be affected.

Nigeria

In the 1970s, the Nigerian economy grew at a mean annual per caput real GDP growth rate of 1.1%, before it collapsed to –5.3% in the 1980–88 period. In 1988, real per caput GDP was 80% what it had been in 1970. As one of the major oil–suppliers in the world, Nigeria experienced huge windfall profits from the high oil prices of the late 1970s. Exports were boosted from US$ 4 billion in 1975 to US$ 26 billion in 1980. The per caput GNP rose from US$ 440 in 1975 to over US$ 1,000 in 1980. The oil boom, however, did not significantly contribute to manufacturing or agriculture, but rather saw the rise of the urban service sector. This contributed in turn to an increased rate of rural to urban migration, and a significant rise in imports. The end of the oil–boom started in 1981, when Nigeria was forced to reduce extraction to boost oil prices. The government dealt with declining government revenues by public sector borrowing, running down international reserves, and accumulating large payments arrears on external trade deficits. Real wages declined severely by more than 50% between 1982 and 1986; a statutory wage freeze in both the public and private sectors, introduced in 1982, was compounded by salary cuts in 1985 of up to 20% for public sector employees.

When the oil price collapsed in 1986, the Nigerian economy went into a slump. The GNP per capita fell to US$ 370 in 1987 and US$ 290 in 1990. The new government in 1986 was prompted by the IMF to undergo a structural adjustment programme, which included devaluation of the naira, and stringent debt management among other reforms. Many Nigerians faced a decline in their standard of living during the 1980s. Expansionary policies in 1987–1988 exacerbated a weather–related drop in food production, resulting in a 40% increase in the rate of inflation. Until 1991, the government refused to adjust the minimum wage, although food prices were rising rapidly. While Nigeria has somewhat reduced its dependence on oil, this still accounts for 95% of foreign exchange earnings and 80% of government revenue.

In the 1960s, Nigeria was self–sufficient in food, except for wheat and dairy products, which were imported. Since 1972, however, food shortages became common due to neglect of the agriculture sector, and food imports rose dramatically throughout the 1970s. The structural adjustment programme in 1986 raised producer prices, removed input subsidies and, as a result of shifts in relative prices, induced some farmers to shift from food crops to cash crops. In 1985, the government banned imports of food items such as maize, rice, and wheat in order to stimulate local food production. Despite large price rises (about 300% between 1988 and 1989) however, production has not kept pace with demand.

Trends in calorie availability per caput show a deterioration over the last 20 years. The calorie supply reached 2412 per caput in 1974, declining to around 2147 in 1990. Households earning less than 450 naira (urban) and 300 naira (rural) a month are defined as living below the poverty line. The 1985–86 data showed that 22% of urban households and 17% of rural households have expenditures of less than 250 naira per month. It is widely accepted that the urban areas of the country are more food–insecure than the rural areas, due to rising food prices. Retail prices of all food crops increased at a tremendous rate, by 250 to 700% between 1986 and 1989. For most of the last two decades, the food price index increased more than the general consumer price index. While this benefited producers of cash crops such as cocoa and cotton, and, to a smaller extent, cassava and rice, it caused serious hardship for consumers as incomes did not rise correspondingly.

Regionally, the Southern part of the country is the most vulnerable; it has the highest rates of urbanization and the lowest average landholding size per caput. This is reflected in estimates of average calorie consumption in these regions – the 1985–86 surveys showed that the Southwest and Southeast regions had daily per capita calorie intakes ranging from 1830 to 1860 compared to over 2000 for the Northwest regions.

Chapter 4: Human Resource Development and Nutrition

Human resource development essentially refers to strategies that lead to well–informed, well–nourished, healthy, empowered people. This chapter will focus primarily on the allocation and use of public resources in the social sectors, particularly health and education. Such allocations offer one means of addressing social inequities and enhancing human capabilities and resources in that they provide the poor with access to services and opportunities they would otherwise not have. Nutrition is one important *outcome* of such an investment in human resources, as well as an *input* into the development of future human (and economic) resources, as illustrated in Figure 1.4.

The associations between economic and nutrition trends at national level were shown earlier Figure 3.1. The residuals[6] of these associations, for each country, plotted against their respective percentage government allocations to health and education combined are given in Figure 4.1. The underlying reasoning is that the part of nutrition change not accounted for by economic growth might be expected to be related to the degree to which government resources are channelled towards health and education. In addition to this, other nutrition–related activities (not funded through health and education) would need to be taken into account to get a clearer picture, and this is discussed in Chapter 5. The expectation that countries improving more than expected (i.e. with negative residuals) tend to have a greater emphasis on human resource development (measured here by higher health and education allocations) is generally borne out. The expected association is present, if weak. Those points substantially below the residual *0–line* indicate countries with prevalence changes better than expected from economic growth; these include Malaysia, Thailand and Zimbabwe. Those countries in Figure 4.1 below the *regression* line (whose slope is different from zero at P=0.08) may have some further prevalence improvement to be accounted for, possibly through direct nutrition programmes (see Chapter 5).

[6] The definition of residual is given in Box 4.1.

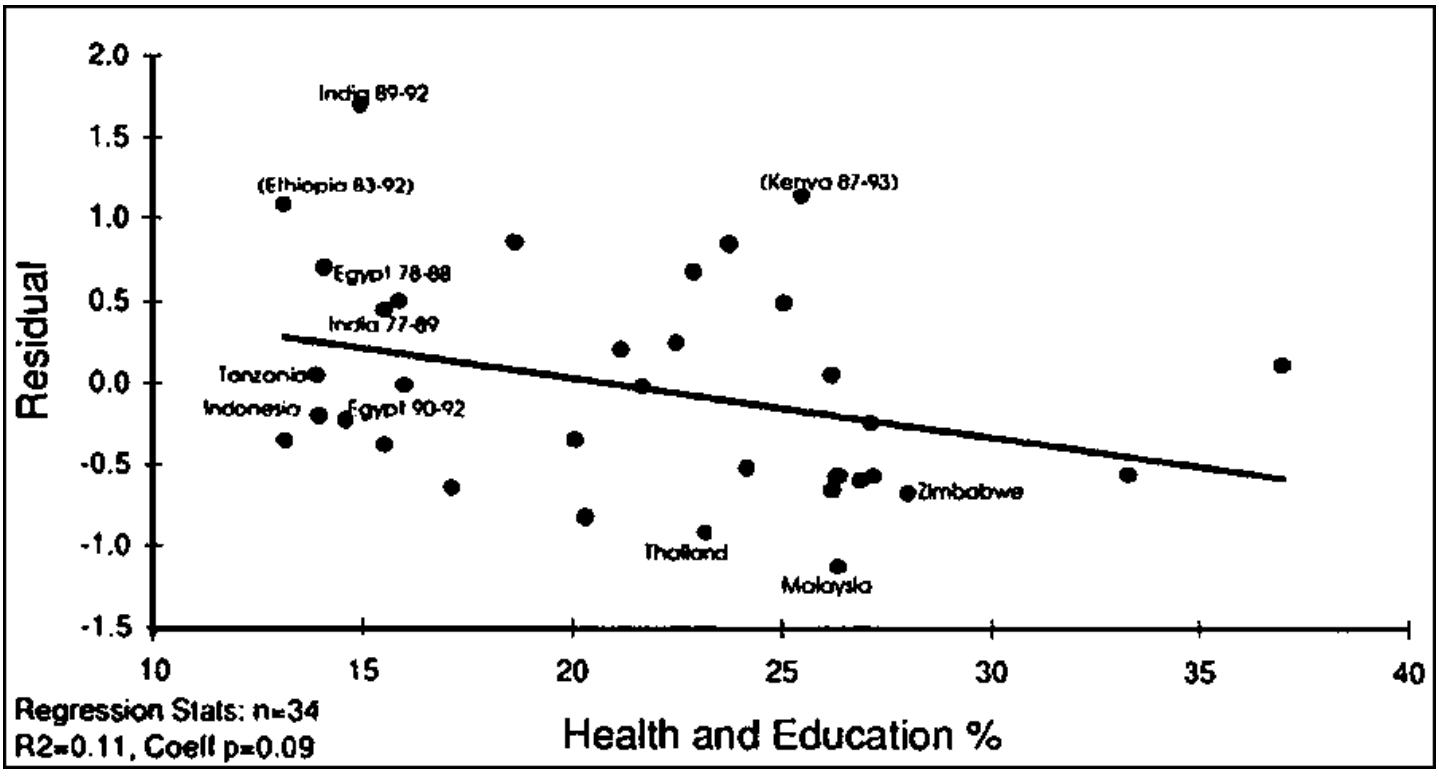


Figure 4.1: Residual Change in Underweight Prevalence (after removing economic growth effect – see Figure 3.1) with Share of Government Expenditure on Health and Education

Box 4.1: Prevalence Change, Economic Growth, and Health/Education Expenditures

The residual is defined as the difference between the observed value and that predicted from the regression equation. It is the vertical distance between the point and the regression line. For example, in Figure 3.1, the observed value of PREVRATE for data point 1 (Ethiopia, 1983–92) was 1.1, the predicted value from the regression (linear model, 2) was –0.1, thus residual = 1.2; for point 28 (Thailand, 1982–90) these values were –2.8 (observed) and –1.9 (predicted), residual = 0.9. Thus Ethiopia's rate of prevalence change was 1.2 pp/yr worse than predicted from GDP/capita change; Thailand's –0.9 pp/yr better.

The relation of prevalence change with health and education expenditure, taking account of economic growth, can also be examined by including the variable for health and education expenditure in the economic growth model shown in Figure 3.1 Results were as follows.

Dependent variable = PREVRATE (see Figure 3.1) n = 35. Coefficient (p)

	Model		
Variable	**1**	**2**	**3**
GDP growth rate (see Fig. 3.1)	–0.38 (0.07)	–0.26 (0.00)	–0.23 (0.00)
% gov. exp. hlth/edu	–0.04 (0.06)	–0.04 (0.07)	–
Interaction (GDP rate * hlth/edu exp.	–0.006 (0.5)	–	–
R^2	0.48	0.47	0.41

This further indicates the role of health plus education expenditure, taking account of GDP growth (model 2), and shows these effects do not interact (model 1). The effects of kcal availability, and change in kcal availability, were also tested but not found to be significant.

Social expenditure has short–term (e.g. health) as well as important long–term inter–generational effects (e.g. education) on human well–being, including nutrition. Of particular interest here are the long–term effects of current investments in nutrition, health and education on the nutritional status of the next generation. The educational status of mothers is known to be a consistent predictor of the quality of care their children receive and of their nutritional status and survival prospects (Cleland and van Ginneken 1988, Cochrane *et al.* 1980). In India as in many other countries, the variable with the strongest relationship with child nutritional status in the National Family Health Survey 1992–93 was maternal education (IIPS 1995, Gillespie 1995).

As well as the inter–generational effects of education on nutrition, there are effects in the opposite direction. Improving nutrition may improve educability – that is the returns in terms of learning for a given investment in education (Pollitt *et al.* 1993). A better nourished, less hungry, child is more attentive and able to learn more easily. A better educated person is in turn likely to be more receptive to innovation and to seek out and benefit from opportunities for change more readily. There are many other positive mutually reinforcing or virtuous cycles involving nutrition, education and health that operate both through the life cycle and over generations (e.g. see Figure 1.4). One example at a more immediate level is the positive link between the height and body composition of the mother (which is in turn affected by nutrition throughout her early childhood growth period) and the birthweight of her future offspring (Martorell *et al.* 1996).

Governments that invest in health, education and welfare can thus anticipate long–term benefits in both nutrition and economic productivity. Such a channelling of economic resources by the state into the social services of health, education, welfare, water and sanitation, housing, etc, has also been referred to as "social support". Developing countries that do not wait for growth before strengthening social services to protect the poor and nutritionally–vulnerable within the population, nave been described by Dreze and Sen (1989) as adopting a "support–led security" approach to development. These authors have shown that the "economic growth equivalent" of well–planned social support in its effect in reducing infant mortality rates (and probably improving nutrition) is very large.

In another study of social support and economic growth, von Braun (1990) found that in the mid–1980s, low–income countries (with *per caput* GNP below US$ 500) spent about 11 % of central government budgets on social services. As a country's *per caput* GNP increased, both its absolute and relative social expenditure also increased. A "threshold" appeared to exist at around US$ 500–600 *per caput* GNP (e.g. Indonesia), above which both the absolute *per caput* social expenditure and its relative share of GNP appear to rise considerably. At this threshold, 5–10% of a country's GNP, on average, was allocated to social expenditures, amounting in practice to between US S25–50 *per caput* per year. By the time a country had reached the upper middle–income bracket of approximately *per caput* GNP of US$ 2200 (e.g. Malaysia), about 25% government expenditure was on average allocated to social services. The threshold is relevant for nutrition in that it represents the point in the economic growth process above which a relatively sudden increase in the *potential* to improve nutrition through social support appears possible.

Obviously this potential may or may not be utilized, depending on the priority a government gives to equity in social expenditures as well as the amount and *type* of such expenditure. Nutritionally–vulnerable sections of the population are unlikely to benefit much from increasing the numbers of doctors in cities, for example, nor through an emphasis on higher as opposed to primary education. There are many countries, e.g. Brazil, where health expenditure, although substantial, is skewed towards curative health care in large hospitals in developed urban areas, rather than improving outreach of good quality primary health care to marginalized communities. The quality of social support, and its coverage of sections of the population where malnutrition is most widespread and severe, will ultimately determine in large part its indirect nutritional impact. Access to primary health care services of adequate quality through well–stocked, well–run centres is fundamental, in addition to access to adequate water and sanitation systems. The promotion and preferential support to basic primary health care interventions such as immunization, growth monitoring, oral rehydration therapy, essential drugs, and the promotion and support of breastfeeding are other priorities for nutrition.

Government Policies in Health and Education

The absolute and relative amount of resources a government spends on health and education (or indeed other specific nutrition–relevant actions) will depend on its overall fiscal situation, balance of payments, political commitment to human resource development viz a viz other concerns, as well as the perceived extent and severity of related social problems including malnutrition. In Table 4.1 health and education expenditures are shown with certain other indicators. Table 4.2 gives trends in indicators that describe women's status, including gender–disaggregated school enrolment and literacy rates, contraceptive prevalence, fertility rates, low birthweight incidence and maternal mortality rates. Together these variables help describe the situation with respect to two of the three main underlying preconditions for adequate nutrition (see Figure 1.2) – namely, health services and healthy environment, and care for children and women. (The third pre–condition, household food security, was referred to in Table 3.1 and discussed in Chapter 3).

In the 1980s, the percentage of government expenditure allocated to health was generally in the range of 20% to 6% – the latter in Brazil, Zimbabwe, Tanzania and Thailand.[7] Compared to 1980, half the countries (Tanzania, Pakistan, Malaysia, Mexico and Brazil) had by 1985 reduced somewhat the proportionate government support to the health services. The others increased the health sector share, most notably Thailand. In order to understand what this translates to per head of population though, the absolute values *of per caput* expenditures (in 1980 purchasing power parity dollars) can be examined. These figures (comparable across time and across country) show the large differences between countries in real *per caput* public health spending. Figures for 1986 range from bout $2.5 in Pakistan and India to $54.9 in Brazil. With increasing *per caput* GNP, both the proportion (of government expenditure) and the absolute per *caput* health expenditures can be seen in Table 4.1 to increase. There are however notable exceptions to this trend. On the positive side, Tanzania maintained its priority to health with about 6% spending on health, despite the 1980s economic crisis. Zimbabwe likewise suffered hard economic times in the 1980s (see Figure 3.1) but nevertheless increased its proportion of health spending during this time. By contrast, in Mexico the health

share, already low at 2.4% in 1980 apparently dropped to 1.3% in 1986 at which time, with approximately the same *per caput* GNP figures, Mexico spent 30% less than Brazil. Thailand's proportionate allocations to health increased as its economy steadily grew in the 1970s and 1980s.

[7] It should be noted that several of the larger countries e.g. India, Indonesia, Brazil, Nigeria and Pakistan have federal systems of government with sub–national as well as central government expenditures on health and education (see also Parker & Jesperson, 1994, p20). For India and Indonesia the total (national plus state or province) is reported; for the others not, so the estimates are low.

Table 4.1: Social Support and Health Outcomes

	Health Expenditure (% Govt. Total)			Health Expenditure (1980 $PPP/caput)[3]	Education Expenditure (% Govt. Total)			Education Expenditure (1980 $PPP/caput)[3]	Immunization Coverage at 12 Months (%)		Health Services Access (%)	Safe Water Access (%)
	1980	1985	1990	1986	1980	1985	1990	1986	1981	1988–90	1987–90	1988–90
Tanzania	6.0	5.7	–	3.4	13.3	8.3	–	4.9	65	86	93	52
Nigeria[1]	–	–	–	–	–	–	–	–	32	66	67	46
India[2]	3.5	3.8	3.4	2.5	11.7	11.6	12.3	2.7	17	92	–	75
Pakistan[1]	1.5	1.0	1.7	2.4	2.7	2.2	2.7	6.9	5	97	85	50
Indonesia[2]	2.6	2.8	2.8	4.0	11.0	13.0	12.3	4.0	55	89	43	42
Egypt	2.2	2.6	2.8	12.7	8.6	11.3	14.0	60.0	76	87	99	86
Zimbabwe	5.4	6.5	7.9	19.7	15.5	21.0	24.1	65.6	49	71	71	36
Thailand	4.1	5.7	6.8	25.5	19.8	19.5	20.1	81.4	48	91	59	72
Malaysia	5.1	4.7	5.2	–	18.3	20.1	19.4	–	69	93	88	78
Mexico	2.4	1.4	1.9	15.0	17.9	11.6	13.9	105.1	50	78	91	78
Brazil[1]	6.6	6.4	6.7	54.9	3.4	3.0	3.1	25.7	70	83	–	96

[1] Federal system, but state expenditures not available.
[2] Federal system, state expenditure estimates are included.
[3] May not include sub–national funding, where applicable.

Sources: Expenditure data from IMF (Government Finance Statistics Yearbooks, various years); World Bank (Kakwani et al. 1990), IMR from World Bank, World Development Reports (various years), immunization coverage (UNDP 1992) and health and water access (from UNDP 1993).

A similar general relationship holds between relative spending on education and a country's *per caput* GNP (see Table 4.1). Zimbabwe, Malaysia and Thailand allocated around 20%, the highest proportions of government expenditure to education, followed by Egypt, Indonesia, India, Mexico, and Tanzania at around 10%. The data for Pakistan and Brazil are for certain allocations only, but are likely to be low in total.

In terms of absolute *per caput* expenditures, a threshold at $500–600 per *caput* GNP was indeed very evident, above which *per caput* education expenditure rose markedly. The exception was Brazil which spent about 25% the amount Mexico did (in contrast to the direct comparison with health expenditure between these two countries)

Regarding *quality* of expenditure, UNDP's *Human Development Report* (1991) permits some comparisons. Here countries were ranked according to the proportion of GNP allocated to primary health care and primary education (the "human expenditure ratio"). Of the countries reviewed, Zimbabwe came out very high indeed, with a human expenditure ratio of 12.7% in 1988. For the same year, ratios for other countries (which had available comparable data) in declining order were: Malaysia (6.3%), Brazil (4.2%), India (2.5%), Thailand

(2.5%), Tanzania (2.4%), Nigeria (2.2%), Pakistan (0.8%) and Indonesia (0,6%). In the latter two countries, more than 25% of national income was spent by the government, yet less than 1% went on human priority concerns. A preferred option, according to the report, is to keep government expenditure at around 25% GNP, but then allocate more than 40% of this to the social sector, and at least 50% of this social sector expenditure in turn to human priorities. The report concludes by suggesting a target human expenditure ratio of 5% of GNP towards human development.

In 1994, the "20/20" initiative was launched in an attempt "to secure adequate and predictable funding for basic social services from national and international sources" (Parker and Jespersen 1994). Its objective was to promote the allocation of at least 20% of developing country government spending to social sector activities including primary health care, basic education, water and sanitation and nutrition support. This 20% should in turn be matched by donor funding. Their ratio is similar to the UNDP ratio, with the denominator being government expenditure not GNP. Of the case study countries, Zimbabwe (25%), Indonesia (23%) and Thailand (20%) achieved the target, with most lying below 10%.

The effect of structural adjustment on total social sector allocations can be examined. Seven of the eleven countries experienced adjustment during 1975–1990 – Brazil, Mexico, Pakistan, Tanzania, Thailand, Zimbabwe and Indonesia. Of these seven, only Mexico and Pakistan significantly reduced the proportion of government expenditure allocated to health, while only Mexico and Tanzania cut back proportionately on education (Kakwani *et al.* 1990). Health and education may often be relatively protected as governments cut back the social sector. This was found to be the case in a study of 27 countries in the 1980s where little difference was found between adjusting and non–adjusting countries with respect to trends in social indicators (outcomes as well as inputs) in the 1980s, although significantly progress was found to be slowest in those countries which needed it most (Kakwani *et al.* 1990).

Table 4.2: Women's Status

	Female Primary (Secondary) Enrolment (%)		**Female (Male) Literacy (%)**		**Total Fertility Rate**		**Contraceptive Prevalence (%)**	**Low Birth Weight (%)**	**Maternal Mortality Rate per 100,000 live births**	
	1970	**1990**	**1985**	**1990**	**1970**	**1990**	**1989**	**1986–90**	**1980**	**1988**
Tanzania	27 (2)	63 (4)	–	–(–)	6.4	6.6	–	16	370	342
Nigeria	27 (3)	63 (17)	31	40 (62)	6.9	6.0	6	17	1,500	800
India	56 (15)	83 (33)	29	34 (62)	5.8	4.0	45	30	500	–
Pakistan	22 (5)	26 (13)	19	21 (47)	7.0	5.8	12	30	600	270
Indonesia	73 (11)	114 (41)	65	75 (88)	5.5	3.1	50	8	800	450
Egypt	57 (23)	90 (71)	30	34 (63)	5.9	4.0	38	12	500	–
Zimbabwe	66 (6)	116 (46)	67	60 (74)	7.7	4.9	43	6	150	77
Thailand	79 (15)	85 (32)	88	91 (95)	5.5	2.5	66	10	270	37
Malaysia	84 (28)	93 (58)	66	70 (87)	5.5	3.8	–	8	59	26
Mexico	101 (17)	110 (53)	88	85 (90)	6.5	3.3	53	–	92	
Brazil		– (45)	76		4.9	3.2	65	15	150	140

	82 (26)			80 (83)						

Sources: World Development Reports 1992–3, except breastfeeding data (from UNDP 1993).

Women's Status

Women's status may be investigated by comparing countries with respect to the type of variables in Table 4.2. The total fertility rate can be seen to be broadly related inversely with a country's wealth. Poorer countries generally had higher fertility rates, although India is an example of some success in family planning, having a low fertility rate (4.0 in 1990) for its *per caput* GNP, and a relatively high contraceptive prevalence (45% in 1989). The rapid reduction in Mexico and Brazil's fertility rates (from 5.8 and 4.9 respectively in 1970 to 2.9 and 3.2 in 1990) is an example of a demographic transition attributed to the economic gains of the 1970s, that partly fuelled a long–term beneficial impact on nutrition. The large drops in fertility rates of Thailand (5.5 to 2.5) and Indonesia (5.5 to 3.1) in the same period, occurred in a period of sustained and rapid economic growth in both decades, during which time family planning efforts also had some success (reflected in contraceptive prevalences in 1989 of 66% and 50% respectively). Such mutually beneficial trends, leading to lower household dependency ratios, are likely to have a positive effect on nutrition – from the household to the national level.

In terms of the ratio of female/male literacy rates, Brazil, Thailand, Indonesia and Zimbabwe are successful examples of relative gender equity, with female rates being 96%, 95%, 85% and 81 % of male rates respectively in 1990. Counter–examples include Pakistan, India, Egypt and Nigeria where female literacy rates are 45%, 55%, 55% and 65% of male rates respectively. Gender discrimination is probably holding back human resources development, and limiting the potential for nutritional improvement in these latter countries. Female primary and secondary enrolment rates to a large extent mirror these inter–country differences. In Pakistan, only one young girl in four enrolls for primary school.

Low birth weight incidences can be seen to be highest where women are particularly disadvantaged (even allowing for economic and social support factors) e.g. India and Pakistan (both 30% in 1986–90). In contrast, Zimbabwe, Malaysia, Indonesia and Thailand had low birthweight incidences of 10% or less.

Maternal mortality rates (for 1988) were particularly low in Malaysia (26 per 100,000 live births), Thailand (37) and Zimbabwe (77). The greatest improvement was seen in Thailand, where the rate declined by a factor of more than seven between 1980–88. The highest maternal mortality rate in 1988 was seen in Nigeria where 800 women out of every 100,000 live births died. Indonesia had the second highest maternal mortality rate of 450 in 1988.

Conclusion

Investment in human resource–promoting factors such as education, health, women's status and family planning should generate momentum leading to sustained nutritional improvement. This is borne out by the results in most countries that show quite a surprising resilience, and momentum, in improvement in child growth (see Figure 3.1). A note of caution is that the underweight prevalence trends are in most part derived from only two or three points, and therefore the steadiness of the improvement may be something of an illusion. For example, in Brazil it is probable that most of the improvement between 1975 and 1990 took place in the late 1970s, thereafter the situation remaining steady. On the other hand, it does seem likely that the effects of 1980s recession on child underweight prevalences in the case study countries in Latin America and Africa (Brazil, Mexico, Tanzania and Zimbabwe) were less than might have been expected.

Long–term investment through appropriate health and education policies are both important pre–requisites for catalyzing a long–term trend of improving nutrition, as well as being important in their own right. The recent debate on the role of caring practices in nutritional improvement has suggested that maximal nutritional gains from increases in household food security, for example, would probably not occur without such human investment, particularly via female education and literacy. Maternal educational status has been related to positive deviance in child growth i.e. a better situation than would be predicted by the household's economic situation. In a UNICEF study of success factors in 23 South Asian nutrition–related projects (Jonsson 1995)

female literacy was a contextual factor common to most of these success stories. Even if other factors improve only slowly, female literacy tends to build a powerful momentum towards improved nutrition.

Although ultimately economic growth is essential for sustained allocations to the social sectors, there have been experiences of successful delivery of health care on very low budgets e.g. Zimbabwe. Other notable examples in the past have included China, Sri Lanka, Kerala (India) and Costa Rica (Hal stead *et al.* 1985). Appropriately targeted social support can have a relatively rapid effect on human resource development in general, and nutrition in particular – via accessible and appropriate health services now, as well as sowing the seeds for sustained future improvement via education and empowerment of deprived communities, and particularly women. The successful examples of human resource development in the face of limited economic growth, examined in the context of *"Good Health at Low Cost"* by Halstead *et al.* (1985), were found to be made possible through several common factors, notably high literacy rates with small gender differentials, political commitment (whether generated from the top down or bottom up) and some nutritional improvement.

Without economic growth, human resource development policies cannot be sustained in the long–term. Thailand provides an example of an appropriate development strategy that appears sustainable; where growth was steady through the 1970s and 1980s, but not remarkable, and the proceeds were partly reinvested in agriculture, and partly used to support improvements in social services. For the poorer countries, and those suffering economic crises, public expenditures may be better targeted to the most needy – both geographically, to the poorest communities, and socially through preferential support for a package of essential services that self–targets to the poor.

A further link between human resources and equitable growth is likely to run in the opposite direction, as it is likely that the poorest groups may need food and health services first (as argued in Chapter 3) if they are to be enabled to fully respond to labour–intensive growth incentives (through the economic productivity–enhancing effects of human resources development). There are thus likely to be important synergisms between social support and economic growth, particularly for the poorest communities, and within these, poor women.

Social discrimination against women in their multiple roles appears to be a major block to sustained nutrition improvement in countries like Pakistan, Nigeria and India. What can be done to alter deeply–rooted gender relations that result in such practices? A holistic approach has been suggested (Reddy *et al.* 1992) as necessary for changing such a complex system of values about girls and women, and extensive study of the underlying social dynamics (such as marriage payments, marriage links among villages, women's economic opportunities, etc) would be helpful in constructing needed pro–female policies aimed at raising the social and economic status of women. Gender relations are not set in stone. One example of beneficial change in Tamil Nadu (South India) was women's use of their voting power to reinstate prohibition. Scholarships for women, special emphasis on women in poverty alleviation schemes, reservations in local community organizations for women are other possibilities.

Comparing Country Experiences with Human Resource Development

Zimbabwe

Following independence in 1980, the new Zimbabwe government invested heavily in the social sectors to try and redress the inequities of the past (Zim p71). The following measures were taken: health care became free to the majority of the population under an income cut–off point; immunization coverage was expanded; a rural health centre building programme was initiated; a diarrhoeal disease control programme was launched; and the Department of Nutrition was established in the Ministry of Health and managed nutrition and health education, nutrition surveillance and a national supplementary feeding programme. Regular growth monitoring activities and education on child nutrition were provided from the health centres, as well as from mobile immunization stops. At the community level, 7000 health workers were deployed in the areas of nutrition education, water and sanitation, immunization, family planning, etc. (Zim p31). These rapid strides, particularly with immunization, diarrhoeal disease control and general health care outreach and affordability, may have been the main driving force behind the rapid reduction in wasting rates among young children in the early 1980s. A similar type of restructuring got underway in the education sector (Zim p71) which received nearly 10% GNP in 1990, and this was reflected in a marked expansion in primary school enrolment, even during the period of economic adjustment (see Table 4.1).

Thailand

Following a sustained period of growth in the 1970s, Thailand increased its share of governmental allocation (and share of GNP) to health services reflecting the increasing priority the government placed on health services development (Table 4.1). The continuation of growth in the 1980s meant that per caput health expenditure accelerated upwards from $13.1 (PPP) in 1980 to $25.5 in 1986, and even more rapidly in the late 1980s. Regional inequality was a problem though – per caput government expenditures on health and education consistently lagged behind in the North and Northeast and were about half the level of those in the South and Central regions in the mid–1970s. In the 1980s, an emphasis on rural development led to the primary health care section of the Ministry of Public Health budget increasing from 49% in 1981 to 55% in 1988 as compared to the allocation of secondary and tertiary health care which decreased from 52% to 46% in the same period. However, the health care system in Thailand is not designed so that the government pays all health costs, although poor families are allowed to use the health care system free of charge. In the cities, private services play a very important role. The MOPH budget in fact only accounts for 18% of total health expenditure, with the largest proportion coming from private financing which in most cases is spent on secondary and tertiary levels of medical services in urban areas. In rural areas, however, the majority of the population use government–run health care services extensively. The health care system has expanded considerably in the last twenty years, making such extensive coverage possible, and now approximately 80% of the rural population in Thailand has "access" to health services.

Tanzania

Although many of Tanzania's socialist policies were abandoned in the 1980s, the emphasis on egalitarianism is still reflected in the remarkable lack of disparity in social services across rural and urban populations and income groups. In 1987–90,93% of the population had access to health services, 52% to safe water, and 80% to sanitation facilities. In the urban areas, coverage of these services is almost 100%. The most remarkable public health achievement in Tanzania since the late 1980s was universal child immunization. These impressive developments over the past two decades have been possible due to a number of factors which include an equitable rural based national health policy, government commitment for its implementation, donor support, cash and kind contributions by the community, and contributions of voluntary agencies. However, the severe economic crisis in the 1980s led to a decline in the government's ability to finance health care. Since the early 1980s, the health share of the budget has remained stable at around 6% of the total, slightly above the 5% average for sub–Saharan Africa, although in real terms, its value, like that of the total government budget, has been falling (the stable proportion for the health budget does however indicate the government's commitment not to cut health services). There were also significant problems with support to the education sector and its outcomes, with school enrolment and retention rates being particularly low. Thus, although its prioritization to primary health care and education continues, Tanzania has been severely constrained by the economic crisis it suffered in the 1980s, and resources have not been sufficient to make gains. However, if donor and NGO support is included, the financial, human and organizational resources to support nutrition during the last decade were in fact more than in previous decades (Kavishe 1993).

Brazil

In Brazil, per caput health expenditure increased from 1976 to 1982 before plateanuing during the economic crisis in 1983–4. Following this, a new and important upward trend appeared from 1985 until 1990, when the per caput health expenditure reached $70, an amount nearly 2.5 times greater than in 1975. Two points should be made here: firstly, in Brazil national averages seriously mask both social and regional inequalities (Shah 1993), and secondly, the intra–sectoral emphasis shifted from preventive and public health services to urban hospitals. In 1965, 64% public health expenditure was allocated to the former, as compared to 15% in the mid–1980s (World Bank 1993a, page 66) when hospitals absorbed 70% expenditure. There was a marked improvement in the access of the poor to health services during the last two decades, as measured by such per head population indicators as physician ratios, paediatric beds, health worker medical visits, as well as an impressive expansion of immunization coverage. Access to clean water and sanitation systems also improved. The political and social pressures that were emerging with a growing urban population led to the creation in 1970 of a National Sanitation Plan, and the proportion of the Brazilian urban population receiving clean water increased from 51% in 1970 to 84.5% in 1984, with expansion continuing throughout the 1980s to 96% in 1990. There were however regional biases operating against investment in the Northeast.

As with health, there was a clear and continuous increase in disbursements for education from 1976 until 1982 a tendency that was broken only in 1980. The consequences of the recession appear in 1983–84 when the per caput expenditures dropped before resuming growth in the second half of the eighties, reaching the peak in 1988 with US$ 55. It should be noted that the nutritional benefits of such expenditures will only materialize with a considerable lag in time, and their effects are likely to be resilient over time. Thus education, health, housing, sanitation, and particularly water all show important developments and a pattern of progress

closely related to the long−term nutritional improvement in Brazil. Moreover, with the exception of housing, these factors have presented increases throughout the 1980s, allowing for the continued improvements observed in this decade. These services were supported as a result of the demands of an increasingly vocal urban middle class, concentrated in the Southeast. The poorer rural Northeast population were however not so well served by the government in this time, and inequality worsened.

India

India ranks low among developing countries in per caput health expenditure, despite the relatively developed and widespread infrastructure. However, it is necessary to look at state−level as well as central−level spending − the former is more than twice the latter usually. There is also a strong relationship between state−level poverty and low state allocations to health as might be expected. While the central government's per caput spending on health and family welfare has been steadily increasing in absolute terms, the proportion of actual central government expenditure has declined from 2.4% in 1975 to 1.9% in 1986. (Factoring in the state−level spending, this comes up to 3.6% for 1986). Intra−sectorally, the structure of expenditure has been biased towards curative care in urban areas and away from rural−based primary health care. Family planning and hospitals and dispensaries have been priorities. Despite the number of primary health centres and the fact that health manpower and services are increasing in absolute terms, it is still not keeping pace with population growth. Similar to health, the proportion of central government expenditure allocated to education decreased slightly between 1975−86, from 2.3% to 2.0%. Education however is primarily a state−level expenditure; this proportion would come up to 11 % if state data were taken into account. The relative emphasis at all levels has remained on higher education at the expense of primary education.

Indonesia

In Indonesia, like India, government expenditure on health was consistently low during the 1980s, although estimates are uncertain because of the federal structure. While the five−year Repelita III national plan (1979−84) gave priority to the provision of health care services to low−income groups in both rural and urban areas, the Repelita IV (1985−90) aimed at increasing health care coverage and quality. Of the total government expenditure on health during this period, about 83% was allocated to three main programmes: hospital services (38%), public health centre services (28%) and communicable diseases and environmental sanitation (17%). However, it was intended that the objectives of Repelita IV be brought about through a more efficient use of existing, not additional, health sector resources which remained low. Access to health care and water did improve but remain at problematic levels, with less 43% and 42% population coverage in 1990 respectively. There was also social and regional inequity in the amounts and types of resources allocated. In 1990, rural households in the top income decile were three times more likely to live in a village with a health centre than those in the bottom decile. Also despite these attempts to target resources, in 1990 only 12% public spending for health went for services consumed by the bottom 20% households, while the top 20% obtained 29% of the government subsidy, which resulted from the urban curative bias that still prevailed (World Bank 1993a, p69). Immunization coverage however improved significantly from 55% in 1981 to 89% in 1988−90.

Comparing Country Experiences: Women's Status

The stronger socio−economic position of women in South East Asia (Thailand and Indonesia) is contrasted here with that of women in the Indian sub−continent and Nigeria.

Thailand

Women have traditionally had a very strong role in Thai society. Female labour participation (which relates to educational status) was relatively very high, at 44% in 1981, as compared to 26% in India and just 6% in Pakistan (World Bank 1989). In 1990, female literacy was at 91% compared to 95% for men. The government prioritized maternal health in the 1980s, and the results can be seen in the marked decline in the maternal mortality rate from 270 per 100,000 live births in 1980 to 37 in 1988. Approximately 80% of the births since 1982 have had some prenatal care, almost all administered by trained medical personnel. However, Thai mothers living in rural areas avail themselves of prenatal services less frequently than their urban counterparts. Approximately 74% of the rural mothers received at least one prenatal test, as opposed to 94% of the urban mothers. Moreover, there exist wide regional disparities; in Bangkok, *96%* of the mothers had some prenatal care, while the lowest use of prenatal care could be found in the South, 66%. By 1990,

throughout the country, trained personnel attend about two thirds of all births, traditional mid–wives deliver about one fourth, and the remaining 7–8% of births occur with either some other form of help, or none at all. These figures show that delivery care has improved greatly; in a national survey in 1969, 57% of the women who replied said that their latest birth had been attended by a traditional mid–wife, and only 28% indicated that trained health personnel had delivered their last baby.

Thailand also provides a good example of the demographic transition (Tha p6). Owing to extensive private and public family planning programmes, the population growth rate declined considerably from 3.2% in 1970 to an estimated 1.5% in 1990. The nation's total fertility rate has also dropped from 5.5 in 1970 to only 2.5 in 1990, while the crude death rate declined from 13.5 per 1,000 in 1960 to 4.4 per 1,000 in 1989. Thailand's infant mortality rate, in addition, has declined from 125 per 1,000 live births in 1960 to 20 in 1990. Child mortality (age 1 –4) has been declining from 3.1 per 1,000 in 1980 to 1.2 in 1990. While an obvious disparity exists between urban and rural, there is however no evidence of female discrimination since the male has a slightly higher mortality rate both in infancy and early childhood. Further, the life expectancy has risen from 60 to 63.2 for males and 66 to 67.3 for females during the period of 1980–1990. Cumulatively, these demographic transitions have created a changed picture in terms of Thailand's population age–structure from that of a broad base, pyramid–like shape in 1970 to columnar base, pagoda–like form at present.

Indonesia

In Indonesia, fertility rates also declined significantly since the mid–1970s, implying a gradual reduction in the reproductive burden among Indonesian woman. Indonesian women find less barriers to their participation in the labour force, education, and public life than many of their other Asian and Muslim counterparts. The Indonesian constitution, written in 1945, recognizes no differences between men and women as regards labour, health, politics, and law. Labour laws state that women should receive the same wages for the same work as men. They also outlaw discrimination based on sex in the work place. A fully paid maternity leave is allowed, as well as leave after a miscarriage, and time off to nurse infants. Women can take off two days a month during their menstruation. Although all these laws give women extensive rights and protection, many of them are not widely enforced, and they remain poorly used by women who are uninformed about their legal rights. Some gender discrimination does exist, which can be illustrated by the increasing predominance of males moving up through the education system – in 1987, for example, some male/female ratios were: 1.6/1 in secondary and higher education, 1.3/1 in literacy, 2/1 in the labour force, and more than 10/1 in the policy making levels of government (UNICEF/Government of Indonesia 1988). While educational standards are still lower for women than for men, the difference has reduced in recent years. While the adult literacy rate for men increased by 33% from 66% in 1970 to 88% in 1990, the female literacy rate increased by 79% – from 42% in 1970 to 75% in 1990. This rapid rise in female literacy is mostly due to the improvements in school enrolment and retention rates of both sexes, but particularly girls.

Pakistan

Women in Pakistan are highly disadvantaged and discriminated against. The starkest proof of this is the sex ratio – the number of females per 100 males. On average for low–income countries, this ratio was 95 in 1985 (World Bank 1989). In Pakistan, there were only 91 females per 100 males – even fewer than in 1965 when the ratio was 93. This compares with sex ratios of 101 in Indonesia and 99 in Thailand. Female life expectancy at birth is lower than many developing countries, including China and India. Pakistani women suffer from poor health partly because of an excessive reproductive burden; during their child–bearing years, women bear the physical stress of almost continuous pregnancy and lactation. The total fertility rate per woman in 1990 was 5.8. Contraceptive prevalence in 1989 was only 12%. The maternal mortality rate in 1988 was high at 270 per 100,000 live births, although it had dropped significantly during the 1980s (from 600 in 1980). This may reflect some improvements in antenatal care – in 1990, nearly 65% of pregnant mothers had access to antenatal care by trained health personnel compared to 26% in 1983. The relatively poor health of Pakistani mothers affect their offspring. For example, there are only three countries in the world with a higher proportion of low birth weight babies than Pakistan's 30%, and the infant mortality rate in 1990 was high at 103 per 1000 live births.

Female education is a key factor affecting the ability of mothers to provide adequate care for their families. Female primary school enrolment of 26% (in 1990) is extremely low and almost half that of their male counterparts. 80% women in Pakistan are illiterate (compared to 50% men) – a situation that has persisted throughout the 1980s. Apart from the high reproductive burden, this poor educational level has negative consequences for labour force participation: official female rates are only 6% overall (as compared, for example, to 44% in Thailand).

India

As regards education inputs (e.g. school enrolment and retention rates) and outcomes, there is a significant anti–female bias in India. Rural–urban and gender differentials are pronounced in school enrolment, although the percentage of scheduled castes/tribes out of the children enrolled at primary level is at par with their population proportions. Retention rates in primary classes are quite low, particularly for girls, worsening from lower to higher classes. Overall in India, at the end of the 1980s, the female literacy rate had just reached the level it had reached for males in the mid–1960s. Female literacy rates improved threefold from 1961 to 1991 (from 13.3 to 39.4%) while for males the level has gone up from 34.4% to 63.8% during the same period. Clearly though the gender divide is still pronounced. The regional variation is also striking, with illiteracy clustering in the some of the poorest states such as Rajasthan, Madhya Pradesh, Uttar Pradesh, Bihar and Orissa. Female literacy in India has been found to be strongly associated with age at marriage, fertility rates and child mortality (Reddy *et al.* 1992). With the beneficial multiplier effect exerted by female literacy on nutrition, this obstacle clearly needs to be addressed if future nutritional improvement is to be accelerated in India.

While women generally occupy a very underprivileged position in Indian society, there are significant regional variations. Discrimination against females is generally more pronounced in north India (Harriss 1990) and may not be significant in many parts of southern India. Where it does exist, it begins early in life, with more females than males dying in infancy and childhood. In contrast to most of the rest of the world, female mortality is greater than male mortality up until the age of 35. It has been shown that if India had had the female–male ratio obtaining in sub–Saharan Africa (around 1.02) then, given the number of Indian males, there would have been 37 million more women in India in the mid–1980s. Anti–female bias may manifest itself in many ways, but particularly important for nutrition are the biases in food provisioning, health care utilization and general care.

Nigeria

Women in Nigeria rarely have a legal title to land, the rate of female literacy in 1990 was only 40% (compared to 62% for men), and women farmers are far more constrained than men in obtaining access to credit, inputs, or extension services. Although schooling of females is rising and nearly comparable to males, the rates are still low – only 17% of girls of school age in 1990 were in secondary school. The education sector, in general, was drastically affected during the economic decline in the 1980s with per caput government expenditures for education dropping from US$ 9 in 1975 to $2 in 1988. Women suffer disproportionately from constraints on the labour supply, while the very uncertain rights of women in marriage and divorce highly limit their choices in life. Data on labour participation of Nigerian women shows a declining trend over the last two decades, although the rate of economic participation was quite high at 35% in 1990. In spite of the generally long duration of breastfeeding in Nigeria, there is increasing evidence of a progressive decline in the practice in urban areas. In terms of reproductive burden, Nigerian women are severely disadvantaged. The maternal mortality rate in 1988 was by far the highest for all countries reviewed, at 800 per 100,000 live births (down from a frightening rate of 1500 in 1980); the total fertility rate is high at 6.0 in 1990, when only 6% women used contraceptives. The incidence of low birth weight in 1986–90 was high for an African country, at 17%.

Chapter 5: Local Level Action to Directly Improve Nutrition

Previous chapters have examined how nutrition improves through economic development, and through health and education. Undoubtedly these have an important long–term effect. Nonetheless there is continuing interest in taking additional, more direct action to improve nutrition. In part, this stems from the perception that where there is a problem, something direct must be done – a valid perception provided there are effective measures that can be undertaken, as is indeed the case for nutrition. The reality is that those who are concerned with nutrition have some direct influence on how limited resources labelled "nutrition" are used, less direct influence on human development sectors such as health and education, and usually little influence altogether on economic policy (this concept of "influenceability" was discussed in Gillespie and Mason 1991, p15). Thus effective use of resources controlled by those responsible for nutrition represents an important – and often missed – opportunity, even if these resources are relatively small.

Direct actions to improve nutrition tend to fall between sectoral cracks. Health and agriculture, for example, generally give priority to mainstream health service delivery and agricultural development programmes, tacking on nutrition activities where there is opportunity and sufficient pressure. Thus breastfeeding promotion, micronutrient deficiency control programmes, and nutrition education – as three examples – are

often seen as more important by those concerned with nutritional problems than by those who are allocating resources in the health and agricultural sectors. One purpose therefore of defining a set of activities as "nutrition" is that it gives prominence and support to actions that may generally otherwise somewhat peripheral to health, agriculture, and education.

The impact of nutrition activities on a small or pilot scale has been known for a long time, often referred to as programme efficacy. Many studies have demonstrated that improving dietary intakes, and health, can have beneficial nutritional consequences in terms of effect on growth (preventing underweight in children), activity, cognitive development, and compensation of energy lost during illness (see ACC/SCN, 1993, p.36; Pinstrup Andersen *et al.* 1993). The impact has been shown not only on levels of underweight, but on mortality, and in the long−term on human development. Other studies have shown the direct impact of nutrition programmes on mortality rates (Rose and Martorell, 1993). Long−term effects of supplementation on educability and intellectual performance have been demonstrated particularly by work in Guatemala, where follow−up of supplemented children has shown that anthropometric gains were maintained into adulthood, and positive effects were seen in terms of body size and composition, work capacity, and cognitive function (Martorell, 1993; Pollitt *et al.,* 1993).

Thus the linkages among between direct nutrition interventions, improved child nutritional status, reduced mortality, and enhanced human capital are well established, at least at the pilot or experimental level.

The *efficacy* of nutrition interventions is thus known. The crucial issue is then whether such interventions are *effective* on a large−scale. A number of large−scale programmes, generally with substantial external input, have been studied. Some of the better known examples which were described in ACC/SCN, 1991 are: the Tamil Nadu Integrated Nutrition Project, and the Integrated Child Development Services in India; Iringa Nutrition Programme in Tanzania; Botswana Drought Relief Programme; Supplementary Food Production Programme, Zimbabwe; National Family Improvement Programme (UPGK), Indonesia; and the Nutrition and Primary Health Care Programme in Thailand.

Evaluations with varying degrees of rigour have been done on these and other programmes. In few cases (e.g. Tamil Nadu) have formal evaluations plausibly demonstrated net effects clearly attributable to the specifically nutritional activities (Government of Tamil Nadu, 1989). This is a problematic gap, and more priority needs to be given to impact evaluations of large scale projects. Nonetheless, the common pattern of underweight prevalence reduction associated with such projects is reasonably convincing – along with other evidence – that improvements of at least 1−2 pp/yr in underweight prevalence can be achieved in large populations through direct programmes. As examples, this rate of reduction (in moderate as well as severe underweight) was repeatedly seen, over a number of years, in the nine regions in Tanzania with CSD programmes (Kavishe, 1992), but not in others; nationally in Thailand the rapid improvement in recent years is attributed in part to the extensive nutrition activities, but only after several years of relatively less success (Kachondham *et al.* 1992). In Indonesia, Soekirman *et al,* 1992, p.21, regarded "a sustainable community nutrition movement such as UPGK as a necessary condition for dealing with complex nutrition problems...".

Examples of overviews of such programmes, which tend to show some effect, if not always impressive, are: "Managing Successful Nutrition Programmes", ACC/SCN, 1991; "Feeding Latin America's Children", Musgrove, 1991; "Targeted Nutrition Interventions", Pinstrup−Andersen, 1991; "How Nutrition Improves: A Synthesis of Findings from Studies of Nutrition−Relevant Actions in Ten Countries", Gillespie and Mason, 1993, 1995; "Overcoming Global Hunger" World Bank, 1993a.

A related approach has been to examine factors contributing to the success of programmes in improving nutrition. A recent series of rapid appraisals carried out in South Asia (Jonsson, 1995) concluded that under favourable pre−conditions – "contextual factors" – and with correct programme factors (of which community ownership was one of the most important) many of the small scale programmes examined had succeeded in improving nutrition. In fact, where data were available, they again indicated a rate of underweight prevalence change with median values around −2 pp/yr. The major issue, it was concluded, was not so much scaling up in the usual sense, but how such "small scale" activities could be replicated in many more places.

Nutrition programmes are now very widespread, covering millions of women and children in many countries. As examples, in Latin America 50% of preschool children (about 30 million) are beneficiaries; in South Asia about 15−30% are covered, and in some countries in South East Asia up to 70−80% (as per case study examples). Approximate costs per beneficiary of effective programmes are also becoming known, ranging from $5−30 per beneficiary per year (see below). Generally the health and education programmes have the lowest cost/person/year while those which include feeding have the highest (ACC/SCN, 1991).

In most cases, the activities that are regarded as nutritional are similar, across countries and continents. They generally include activities such as: growth monitoring, promotion of breastfeeding, nutrition education, promotion of adequate complementary feeding (sometimes including weaning foods), and micronutrient programmes. One distinct variation, with important resource implications, is whether or not supplementary feeding of malnourished children is included. Supporting activities then often include nutritional surveillance, associations with health activities (e.g. MCH, ORT), and inputs to local food production, e.g. kitchen gardens. How far the programmes themselves reach into health and agriculture, and indeed education, depends on the specific circumstances. A distribution of the components in programmes reviewed at the previous 1989 ACC/SCN workshop on this topic (ACC/SCN, 1991) is given in Table 5.1. This is in line with the conventional definitions used in estimating resource flows (see ACC/SCN 1995, which also includes UNICEF's and the World Bank's definitions in Table 1).

Table 5.1: Typical Components of Nutrition Programmes in 15 Examples

Component	Number	Frequency (%)
Nutrition education	14	93
Health–related services	11	73
Supplementary feeding	12	80
Growth monitoring	10	67
Micronutrient supplementation	4	27
Home gardens	3	20

Source: Gillespie and Mason, 1991

While there are certain activities, such as those shown in Table 5.1, that are clearly conventionally labelled as "nutrition", there is no clear line that can be drawn in practice. For example, a number of important programmes include items clearly related to nutrition, such as improving water supply and sanitation, which may not normally be counted as such; others still include rural infrastructure. In practice, this does not cause much difficulty. But it is worth noting that a number of the most successful community–based nutrition programmes, such as in Tanzania, are practically indistinguishable from community development programmes with explicit nutrition objectives. The activities in the five case–study countries with large–scale programmes reviewed here are described in Table 5.2.

What emerges from the present studies and other recent work is that it is the organization of activities and the process of carrying them out – how and by whom – not so much their content as such, that is of crucial importance. In particular, genuine community ownership of programmes, from their planning, initiation, organization and implementation, is a key factor to success.

At the same time, effective incorporation of nutrition activities within existing local services, especially health, education and agricultural extension, can be cost–effective, and for some reason remains to be widely exploited. The education system and health system already have extensive networks of well trained and dedicated people widely dispersed throughout many of the countries, reaching into all areas, and, moreover, particularly concerned with children. They have the contacts, the structures, and the skills to contribute to improving nutrition within their existing activities; but these are seldom fully utilized. Much could be done without major increases in the workload.

In education the opportunities include:

– incorporating nutrition and health teaching within the regular curriculum, so that the next generation has better knowledge on child rearing; children can also, through child–to–child activities, promote improved care of their younger siblings;

– more effective nutrition interventions within the school population – for instance, micronutrients, school breakfasts and snacks – to benefit the nutrition (and educability) of the current generation; promoting the development of school and community gardens and related small–scale productive activities;

– monitoring nutrition through schools: many schools already measure height and weight of pupils, and such data if compiled (e.g. as a school nutrition census) provide uniquely valuable information for geographical and social targeting and long term monitoring.

In health, where nutrition issues are usually more familiar, the opportunities for much more extensive nutrition activities are frequently missed. These have been put together (Gillespie and Mason, 1991) under the headings of:

– dietary *prevention* of disease, which include many of the measures for nutrition improvement discussed elsewhere here, taken through the health services;

– dietary *management* of disease: sometimes overlooked, as unfashionably curative, there are many nutrition activities that make a major difference to the outcome of disease episodes in young children; breastfeeding is a clear example, and dietary support and rehabilitation during and after chronic diarrhoea is another of emerging importance.

Agricultural extension services, in some countries, already promote home gardening (e.g. Zimbabwe, Indonesia) and focus specifically on small–scale farming of crops and livestock for home consumption. These activities could be more widely adopted. Further, more specific focus on products suitable for combatting prevailing micronutrient deficiencies could increase impact on malnutrition.

Table 5.2: Nutrition Programme Characteristics

Activities	Organization	Targeting, Coverage, Expenditure	Sources
Thailand			
PHC: Village health services, self help, information (PHC package). Training of VHCs and VHVs. *PAP (Poverty Alleviation Plan):* Rural job creation; village development projects (e.g. water, livestock); provision of basic services (health, nutrition, water, education); agricultural production (inc. crops for supplementary feeding). *BMN (Basic Minimum Needs):* Organizational process for integration of activities, through Tambon (subdistrict) Council Supporting Committee (TCSC)	Village committees, linked to TCSC (10:1). Training of 600,000 village health communicators (VHC) and 60,000 village health volunteers (VHV). Population per VHC approx. 100; extension workers approx. 25,000, thus VHW per extension worker approx. 24.	PAP initially targeted to approx. 20% of population, becoming 95% coverage of villages. Through BMN process, initial priorities (1987) were approx. 10% as backward or poor areas, approx. 50% as intermediate areas. Nutrition expenditure data not available, but nutrition division, approx. $1/head/year; MOPH approx. $11/head/year (1990)	Thailand case study pp. 39–444, tables 19–21; UNICEF/INMU; Winichagoon *et al.* (1992), pp. 52–70.
Indonesia			
UPGK: Nutrition education; home gardening; nutrition services through Posyandu, which are –MCH, immunization, diarrhoea control, family	Posyandu (=village health nutrition centre/weighing post), 2 to 3 per village, totalling 250,000 in 1990 covering 60,000 (out of 65,000) villages. Linked to subdistrict health centres,	90% of villages covered, targeting women and young children. Estimated expenditures from $2 to $11/head/year, depending upon supplementary feeding.	Indonesia Case Study, pp. 3–4 & 18–20; ACC/SCN, 1991, p. 108.

planning, nutrition. Nutrition is: growth monitoring, micronutrients, some supplementary feeding, referral, nutrition education, home gardens	approx. 6,000, i.e. one health centre per 40 Posyandus. Trained workers at village levels (Kadres) approx. 3 million. Extension workers 15,000, hence 60 people per village worker, and 200 village workers per extension worker.		
India			
ICDS – Andhra Pradesh, Tamil Nadu Growth monitoring, supplementary feeding, immunization, health and nutrition education, preschool education. Aimed at children under 6, but largely 3–6 year olds participate; pregnant and lactating women also targeted.	Focal person is Anganwadi worker, government paid, selected by community. Sometimes interacts with village women's groups, but often without local organization to interact with. Supervisory ratio 20:1.	Coverage (1990) about 10% in AP, 5% in TN. Generally negatively targeted with respect to need.	India Case Study (Part 2), pp. 16–20.
TINP– Tamil Nadu Integrated Nutrition Programme Nutrition services (nutrition education, selective supplementary feeding, growth monitoring, micronutrients) for 6–36 month olds; health services; communications; monitoring and evaluation.	Community nutrition centres staffed by part–time female community nutrition workers, assisted by women's groups.	Started in 1 pilot block in 1980, TINP–1 covered 177 of a total of 385 rural blocks by 1990. Area–targeting to poorest districts not covered by ICDS. 0.64 million children and 0.24 million women covered in 1989. TINP–2 covered a further 98 blocks by 1992. Supervisory ratio 10:1. Cost of $9.4/beneficiary/year (1984–85)	India Case Study (Part 2),pp. 21–26.
Public Distribution Scheme (PDS) Ration–book distribution of subsidized basic foods.	Approx. 30–40 kg/head/year distributed (1985, 89) in TN, AP. Organization is fair price shops, with ration books issued on the basis of income assessment.	85% population covered by 1990. Slight targeting by type of card, but generally negatively targeted with respect to need, with urban bias. Subsidy cost of approx. $5/beneficiary/year (1987).	India Case Study (Part 2),pp. 29–34.
Tanzania			
Iringa JNSP; Child Survival & Development (CSD): Systems development and support; communications; maternal and child health services support; village based growth monitoring and nutrition rehabilitation; water and sanitation; household food security; child care and development;	At the village level, village health committees organized under the party system, with 2 VHWs per village. Similar committees at district and ward level, with regional support team, integrating across sectors. GM results used at village for monitoring and targeting.	Iringa reportedly covers 70–85% of children; intention in other CSD areas (9 of 20 regions) is universal coverage geographically. Costs around $10/head/year Iringa, reduced to $2–$3/head/year in CSD projects.	Tanzania Case Study pp. 148–157, and ACC/SCN, 1991, pp. 117–120

income generation; research.			
Zimbabwe			
Child Supplementary Feeding Programmes (CSFP) – Supplementary Food Production Programme (SFPP): Community, mobilization and food production; growth monitoring; supplementary feeding; nutrition education; intersectoral management committees; monitoring and evaluation.	Food and Nutrition Management Committees set up at provincial, district, and ward levels; intersectoral, contacting villages through nutrition coordinator (too few), and at village level projects are supported, usually run by women. Extension workers liaise with community leaders. Technical advice from agricultural and other extension workers. No village organization as such.	Around 3,000 projects begun, 10–200 participants per project, thus perhaps 10% of population covered. Community–based GM coverage reported 60%.	Zimbabwe Case Study, pp. 39–45; Tagwireyi and Greiner, World Bank, 1994.

A number of nutrition programmes in operation tend to be self–standing, not run through existing services like health, although sometimes organized in a less effective top–down manner. These aspects of organization are discussed later.

Contribution of Direct Nutrition Activities to Nutrition Improvement

Disentangling the relative effects on nutrition improvement of actions ranging from those in the domain of economic policy, through social service provision to direct nutrition programmes, not to speak of long–term factors such as fertility change, represents an important and difficult area of future study. In the present context, we have looked so far at the association of economic growth with nutrition improvement (Figure 3.1) and then the element of nutrition improvement not accounted for by economic growth, in relation to health and education expenditure, in Figure 4.1. These data, from varying periods, with uncertainties both in prevalence change and the determining factors, are only at best indicative, but do provide a basis for discussion.

The final step conceptually here is to try to understand the further improvement observed in those countries that did better in improving nutrition than would be expected from economic growth, and from health and education investment – that is, those countries falling below the average line in Figure 4.1 (which used a linear fit to the data shown in Figure 3.1). For example, if the data were accurate, it would be observed that Thailand had a further percentage point per year improvement to be accounted for, as did Malaysia and Zimbabwe; while India and Egypt, in this example, did worse than might have been expected. Some of the deviations seen in Figure 4.1 can be accounted for by known set–backs – as examples, in Ethiopia during the 1980s where there was widespread destitution due to the civil war; or in Kenya in the late 1980s and early 1990s, when economic recession and unfavourable prices, coupled with drought, contributed to nutritional deterioration. Nonetheless, it is probable that part of the improvement seen in those countries doing better than expected is in fact due to direct nutrition actions.

In principle, therefore, the results from the different countries studied are consistent with there being an impact of the programmes in Indonesia, Tanzania, Malaysia, Thailand, and Zimbabwe; with less impact in India, Egypt, and Brazil. This is in line with the impressions put forward in the case study reports – impressions only, because none has nation–wide programme impact evaluations.

One initial question concerns where in the historical process of economic development do nutrition programmes have their most important role. This depends to a considerable degree on the extent of administrative and physical infrastructure, its outreach, and the extent of local organizational capacity. These then can allow flows of resources to help support nutrition activities at the local level. An attempt at proposing priorities in relation to levels of development is made here.

For very poor regions within countries with extremely limited infrastructure[8], the very first priority is likely to be to ensure access to adequate food, and to establish accessible and relevant preventive and curative health

care. Nutrition activities as defined here are probably secondary to this. At one step above this minimal level of community or government resources and infrastructure, nutrition programmes can become an affordable priority, and accelerate progress (e.g. Tamil Nadu, Iringa, Indonesia, Zimbabwe). Such countries or regions generally have levels of nutritional deprivation which warrant direct forms of action. Moreover, programmes have a role whether or not the underlying trend is one of nutritional improvement. Normally improving underlying trends, as seen earlier, are still too slow to solve malnutrition within an acceptable time; and deteriorating trends need to be counteracted. An analogy can be drawn with public health measures, which are still essential even when health conditions arc tending to improve as a result of socio–economic development.

[8] Infrastructure here generally refers to human, physical and organizational.

In lower–middle income countries (i.e. about *per caput* GNP US $725–3000), programmes are more feasible, but not so widely needed (as the magnitude of the problem is usually less). The social and regional *targeting* of well–organized, efficient, programmes is an increasing consideration, e.g. in Thailand, Malaysia and several Latin American countries such as Colombia, Chile and Costa Rica. Nutrition programmes in this group may also have important beneficial interactions (through human capital formation) with economic growth.

In higher income countries, nutrition programmes eventually merge with social welfare and health services. They may not be such a priority for the whole country, but will need to be targeted to reduce disparity where it exists and buffer any social groups marginalized during the economic growth process. As countries industrialize, food becomes more accessible and health care more extensive and better; social welfare and services and legislation will become relatively more important (and these may serve to nutritionally buffer vulnerable groups during economic shocks). In such countries, where there is the economic potential to do something about malnutrition, an overriding concern is often equity – both regional and social (this is certainly the case in the Brazil of the 1990s, for example).

Organization and Community Ownership

An issue that emerges strongly from reviewing most of the programmes is that the extent of genuine community involvement is a key feature of those programmes that work. What are the various parameters of community involvement, participation, ownership and empowerment? This has been summarized by Kavishe (1993): community participation is more than involvement in implementing certain aspects of programmes – it includes a full role in assessment, analysis and action. Participation is both a means and an outcome of empowerment[9], which in turn leads to community ownership – when people are prepared and committed to contribute or take risks to ensure the sustainability of the programme. Community participation in nutrition–related programmes has been measured with respect to factors such as needs assessment, organization, leadership, training, resource mobilization, management, orientation of actions and monitoring and evaluation/information exchange (Shrimpton, 1989, 1995). However, the data in the country case–studies do not permit such a detailed assessment here.

[9] Community empowerment has been defined as a social action process that promotes participation of people, who are in positions of perceived and actual powerlessness, towards goals of increased individual and community decision–making and control, equity of resources, and improved quality of life (Wallerstein 1992).

A commitment to improved nutrition at all levels was, when present, a significant factor in the countries reviewed. In Tanzania, egalitarianism permeates all levels of society as a result of sustained decentralization and applied democratic principles, and this supports the elimination of malnutrition. In Zimbabwe, the community spirit engendered during the war of liberation was maintained and channeled into actions that reduced disparity and deprivation. Indonesia already had an established system of mutual self–help, that made its adoption of a community–based nutrition programme easier. The nutrition programmes in Tanzania, Zimbabwe, Indonesia and increasingly Thailand showed elements of this approach: they used a variety of strategies to incorporate community participation at all project stages. Training local community members to fulfill some staffing functions, promoting community level organizations and linking these to higher levels of project and central government development structures, and the mobilization of community resources (labour, land, food production) were the key elements commonly found. Other important lessons include the importance of starting with the mother/child inter–relationship, the need for decentralization and flexibility, the need to work through and strengthen existing community structures and leadership, and the need to utilize any pre–existing mechanisms for community funding.

The organization of nutrition activities in the five countries where these were most extensive – Thailand, Indonesia, India, Tanzania, and Zimbabwe – is summarized in column 2 of Table 5.2. In Thailand, Indonesia, and Tanzania village structures existed to a considerable extent, based on religious and political networks, and women's organizations. This facilitated the establishment of village committees concerned with nutrition and health. An important factor in successfully establishing such programmes is the degree of cohesion of the society at the community level. In India, societies are more fractured, and there is less possibility of interacting with pre–established local structures. In Zimbabwe, during the Independence struggle grassroot village committees were created, initially to support the liberation effort, but later structured to perform essential social and economic tasks. After Independence this community–based infrastructure was used to implement and manage the nutrition programme. Later community–based growth monitoring, with volunteer mothers, seems to have succeeded in generating local groups concerned with health and nutrition.

Village committees or other focal points (e.g. *posyandus* in Indonesia) tend to be linked to subdistrict level groups, which are part of local government, in a ratio that reflects the government structure. Thus, for example, in Thailand there is one subdistrict support committee per ten villages on average, in Indonesia this is one per forty, and so on. This subdistrict (or ward in Tanzania and Zimbabwe) level provides important moral and technical support to the village committees, and is a channel for certain supplies, although in the successful programmes this latter seems a relatively minor point Indeed, a problem frequently cited in the ICDS in India is that supplies have tended to lead to the programme being regarded as a hand–out, and it is arguable that too much dependence on supplies from central levels is counterproductive. The subdistrict/ward level provides for the essential link in communication with the village committee, which in turn relies on volunteers, or workers paid primarily from local sources.

Training of village volunteers is a crucial element in successful programmes. The massive effort in Thailand, which resulted in some 600,000 village health communicators and volunteers (more than 1% of the population!) was probably a key step in the rapid reduction in malnutrition there. Indonesia too has a huge number of volunteers (3 *million* is a figure quoted) in villages. In all the successful programmes, training of village health workers, nutrition workers, or other designations is a key feature. Moreover, it represents a major opportunity for improving impact, through retraining and support for the front–line people.

The village worker, defined as coming from and living in the village, either as volunteer or with remuneration generally from the community, has recently been referred to as the "mobilizer". The relation to government (or sometimes nongovernmental) staff, themselves referred to as "facilitators", is a crucial means of communication and transfer of resources. The numbers of mobilizers and facilitators per population, and in relation to each other, gives some indication of the extent of programme outreach (see Table 5.2). Thus, in Thailand, there are roughly 20 volunteers per extension worker (mobilizers per facilitator) with approximately one volunteer village worker per 100 people. In Indonesia there are around 60 people per village worker, and 200 village workers per extension worker (mobilizers per facilitator). Similar data are not available for Tanzania and Zimbabwe, but it is clear that the coverage is fairly extensive. In contrast, in some other countries there is a substantial force of extension workers (potential facilitators), but with little or no presence of community organization, nor community based workers. In such cases, the priority should be to empower the extension workers rather than necessarily increasing their numbers, and move towards a village structure with local workers that can then begin to undertake activities to improve nutrition.

The link with extension services was not specifically explored in the case studies. It is becoming clearer that working with the extension services may present an important way ahead for developing and supporting community based programmes. A question is, what would be needed to enable the extension services to more effectively interact with communities? As noted earlier, another opportunity is to include nutrition activities within their regular work, in health centres and schools.

In the mid–1990s, there now exists a deeper understanding of the important elements and processes of successful community–based nutrition programmes. During 1995, a study was commissioned by UNICEF regional office in South Asia of 23 successful community–based programmes that had accelerated nutritional improvement where they were underway (not all were termed "nutrition programmes" however). A series of rapid appraisals pointed to the type of factors shown in Box 5.1 as being particularly instrumental in programme success. These were categorized as either contextual or programmatic – the former relating more to the conditions within which the programme was undertaken, the latter to the actual features of the programme.

Box 5.1: Success Factors in South Asian Community–Based Nutrition Programmes

Contextual Success Factors

1. Political commitment at all levels of society.

2. A culture where people, particularly women, are involved in decision making.

3. The presence of community organizations.

4. A high level of literacy, especially among women.

5. Infrastructure for the delivery of basic services, including committed and capable staff.

6. Empowered women.

7. A "local culture" with a "first call for children", including favourable child care practices.

8. Charismatic leaders in the community, who can mobilize and motivate people to do more for themselves in a genuinely self–reliant way.

9. The parallel implementation of poverty–reducing programmes, particularly where the nutrition–oriented programme/project is integrated with these.

Programme Success Factors

1. The creation of awareness of the high prevalence, serious consequences and available low–cost solutions of the nutrition problem.

2. The initiation, promotion and support of a process where individuals and communities participate in assessing the nutrition problem and decide on how to use their and additional outside resources for actions.

3. Clear identification and definition of time–bound goals (targets) at all levels of the programme/project.

4. Strengthening of the awareness and understanding of the causes of malnutrition, including the hierarchy of immediate, underlying and basic causes, and the need to address causes at all three levels.

5. The identification and support of facilitators and community mobilizers.

6. Community mobilization and participation.

7. Community–based monitoring was essential, as one of the processes described under factor 2.

8. Both the community and the Government felt ownership of the programme/project.

9. Income–generating activities, supported by low–interest credit arrangements for the poor, particularly poor women.

10. Capacity building through training and continuing education of facilitators, community mobilizers and community members in general, particularly women.

11. Good management of the programme/project, including effective leadership, supervision and coordination.

12. Increased cost consciousness and capability to estimate resource requirements.

13. The involvement of NGOs.

Source: Jonsson, U. (1995)

Programmes which are truly community–based generally involve a high degree of local–level organization and management of activities – often through village health or nutrition committees or women's groups. People involved are not just "beneficiaries" – they make it happen. This does not mean that these communities are to be left alone to carry out the programme without support. Table 6.1 in the next section shows those aspects that communities and the centre respectively are better at achieving. This is of crucial importance, since the interaction between the community–level and the government structure is often the weakest link. The administrative structure itself is needed for supplies, for providing certain types of knowledge, and for taking initiatives, in most of the programme areas listed above.

In sum, Tanzania and Zimbabwe offer good examples of effective community–based programmes, with strong community spirit and local organizational capacity – Zimbabwe as a result of its struggle for independence and Tanzania as a product of its sustained political commitment to community–based development and decentralized decision–making. The National Family Improvement Programme (UPGK) in Indonesia provides an Asian example of an effective community–based nutrition programme. An important precondition of UPGK was the Indonesia tradition known as *gotong royong* (Ins p18), a cultural pattern of mutual help in the community which was adopted as one of the 15 principal guidelines for the country's national development plan. Women are also very much involved in development activities in Indonesia.

In India the approach differs. Its programmes have historically had less of a community orientation and have tended to be more top–down. Communities in countries like India and Bangladesh are fractured by caste, religion and even gender, in addition to class. The notion of a homogeneous mass of people with a common set of values and objectives in daily life does not apply – there are several communities in any one village or slum (particularly in India) and often their values and objectives differ and may be antagonistic. For example, landless labourers want higher wages, while larger farmers threaten to displace labour through mechanization, and strive to keep their wage bill low. In aiming to reduce nutritional deprivation, the "community" should include those social groups who are most at–risk – usually the poorest. Attempts are being made to increase community ownership through forming women's groups, etc., but progress is relatively slow.

The systematic build–up of community based programmes in Thailand (Th Fig 1 p57), which is considered to have contributed substantially to the rapid reduction in malnutrition, provides a possible model for elsewhere. Activities began through Primary Health Care from 1979, then expanded first with the Poverty Alleviation Plan from 1982, then with the Basic Minimum Needs approach from 1983. This is discussed further under "Country Experiences" later in this chapter.

Programme Design and Implementation

The next set of issues considered is:

- problem definition and analysis leading to programme design (triple A process)
- coverage and targeting
- intensity (expenditure/head)
- management
- sustainability

Prior to design, relevant disaggregated information on who is malnourished, where and when will always be crucial. Also, how is malnutrition perceived locally? Is it even seen as important, a priority? This initial **assessment** of the problem, which should largely involve the community, leads to an **analysis** of its causes – why these children are malnourished –which in turn suggests relevant **activities** for incorporation in programme design. This "triple A" process then iterates, with the programme design being modified accordingly following later re–assessment of the malnutrition situation.

How often is this idealized process actually achieved? Again, and probably as no surprise, the more effective programmes do seem to be those that have achieved it. Thus in Thailand with the Basic Minimum Needs approach, and in Tanzania, through the village committees (which use growth monitoring data) there is a genuine involvement in local decision making. An earlier assessment (Shrimpton, 1995, based on observations up to 1988) considered that neither UPGK in Indonesia, nor Tamil Nadu in India had much involvement of the community in needs assessment, nor indeed in many other aspects (p.254, Table 13.2 in Shrimpton, 1995). However, we know that at least Thailand, also scored low by Shrimpton, has a local system, and it may be that the others have evolved as well.

An important aspect of design is thus flexibility. There can be no absolute statement about what programme works, no blueprint amenable to universal replication, because of the importance of the local context. Nevertheless, while the content of a community–based Iringa–style programme, for example, would be different in India, there are features of the *process* of designing community–based nutrition programmes which are replicable.

Experience remains that many programmes have outdated concepts underlying them. There is clearly a need for overhaul of messages for nutrition education, for priorities given for targeting different age groups, and a number of other concepts e.g. the importance of supplementary feeding practices in cases of chronic diarrhoea, energy density of weaning foods, etc. The experiences with social marketing offer some lessons regarding the importance of formative research (effectively an insider's perception of the problem) in clarifying the problem and hence design of remedial action. But the design should not then be done only by outsiders – a common shortcoming of the past.

Coverage can be extended either with a high degree of targeting, or with attempts at blanket coverage and less emphasis on targeting. In general programmes often start with some degree of targeting by area, whereby attempts are made to preferentially allocate resources to poorer regions. Often in practice the reverse occurs, as a consequence of the fact that areas with better infrastructure (facilitating implementation) are least likely to be those with the highest proportions of the worst–off groups. In cases such as ICDS in the two Indian States reviewed here, in the early 1990s the estimated coverage was less than one in three preschool children (and the targeting does not make these the malnourished). Thus, however effective, well–planned and managed the programme might be, its impact necessarily is constrained by such limited and non–targeted coverage.

While programmes may begin with some degree of geographical targeting to worse–off areas, they often evolve to aim for universal coverage. This is the case for all five of the countries summarized in Table 5.2. Thus in Thailand and Indonesia most villages had programmes going by the late–1980s; the expansion in Tanzania was to nearly half the regions in the country, based more on feasibility than targeting by need; equally, in Zimbabwe the aim was to cover as much as possible of the country although, in the early stages, the worst–affected areas were targeted. In India, with such a vast area and population, the ICDS of necessity began with a limited geographical outreach, but again, the intention is to cover as much of the country as possible. This is a change in emphasis from the previous conclusion, derived from the earlier review of targeting methods (ACC/SCN, 1991, p. 11) where almost all the programmes were reckoned to be geographically targeted.

A further progression can be seen, for example, in Thailand from late–1980s to early 1990s, of then evolving *again* from wide coverage to focussing resources on worst off areas. This happened with the Basic Minimum Needs approach (Kachondham *et al.* 1992), which involved self–assessment at village level using a series of predetermined indicators, followed by decisions within the national development plan to classify villages into three categories, as backward or poor (around 10%), intermediate, or advanced, with consequent focussing of resources on the backward areas. The lesson probably is that as programmes mature and achieve nearly universal coverage, malnutrition is reduced, and a relative focussing of resources becomes appropriate. In other words, at some stage during the process, almost all areas develop programmes, and improving conditions and organization then allow some renewed targeting.

The process of targeting at the second stage, of selecting individuals based on likely risk, and then the malnourished within these, is an important possibility (see ACC/SCN, 1991, p.11). A key decision may be the degree to which eligibility for supplementary feeding is based on screening for malnourished individuals. This is often a political issue, e.g. in ICDS where within project areas there is blanket coverage of certain age groups, versus TINP where there is selection with respect to a child's nutritional status. It can be seen, however, that where the community itself is aware of child nutritional status (e.g. Tanzania) there is apparently some degree of local level decision–making with respect to targeting children. There is no doubt that as the resources are still very limited for nutrition, decisions on targeting are among the most crucial; although where the prevalence of malnutrition is particularly high in the region, there may be less of a rationale for targeting individual children.

Concerning the level of *resources* allocated per caput, there seems to be some convergence (see ACC/SCN 1991) on around $5–10 per head per year being a workable, common level of expenditure in nutrition programmes, though generally not including supplementary food costs. ICDS, TINP, Iringa and UPGK all cost between $8–11 per child per year. The CDS projects in Tanzania run at around $2–3 per year (Kavishe, 1993, p.157). These are ongoing or recurrent costs (which also relate to a programme's financial sustainability); other costs include those incurred in starting and expanding programmes. It is unclear how far this level is

adequate – just that it seems in practice to be what is allocated in many instances. Equally, relating the expenditures to outcome indicators (e.g. underweight prevalence reduction) is hardly feasible. It can be broadly observed that effective programmes, with these levels of expenditure, seem to be associated with reducing underweight prevalences by around 1–2 percentage points per year.

Supplementary food, where used, roughly doubles (or more) the expenditure. The evidence available is inadequate on whether supplementary food itself is cost–effective. There is a danger of the supplementary feeding component overshadowing other important aspects of programmes that might aim to deal with important health or care–related causes of malnutrition. For example, the ICDS programme in India, despite being intended as an integrated health, pre–school education and nutrition programme, is often perceived as a food hand–out scheme only (see e.g. USAID 1994).

Given a certain level of per caput expenditure per programme, *management* issues become crucial. The impression is clear: again community involvement in programme management makes it more effective; and poor targeting and implementation is at least in part a matter of management in those programmes having less of an impact. In brief, other management issues include consideration of leadership, training and supervision. The need is not just for an appropriate mix of components, but for effectively administered components. As well as a sufficient period for initial training e.g. 2 months (TINP) or 3 months (ICDS), re–training at given intervals needs to be undertaken. Staff–to–client and supervision ratios need to be realistic. TINP had a worker–client ratio of around 1:200–300 families and supervision ratios of around 1:10. Process monitoring and evaluation is integral to effective implementation. Programme re–appraisal should be based on the results of the monitoring, with flexibility to modify where necessary. A lack of periodic evaluations may lead to the continuation of ineffective programmes and the wastage of scarce resources. A fuller discussion of programme design and management issues – including targeting, staff selection, training, supervision, monitoring and evaluation – for the nutrition programmes in India, Tanzania, Zimbabwe, Thailand and Indonesia, is detailed in ACC/SCN 1991 which is based on the 1989 ACC/SCN workshop at the XIV IUNS Congress in Seoul.

Finally, with regard to nutrition programmes, the policy issue is not primarily whether or not to have them – once above the minimal level most countries *do* – and the indications are that they are sustainable and worthwhile. The issue is more how to make the best use of the resources, through appropriate programme design, targeting, management, etc. With economic development, experience has shown that certain population groups in certain areas tend to lag behind or are marginalized – for example, in much of Latin America, Thailand, or Egypt – where appropriate area–targeting becomes increasingly important. In sub–Saharan Africa on the other hand, where there is less activity, we can distinguish three situations: firstly, where programmes are established, they need to be supported (e.g. Tanzania and Zimbabwe); secondly, in marginal situations where the infrastructure is becoming adequate, nurturing embryonic programmes will be important, avoiding early mistakes, through learning from success. Finally, there are countries where programmes have not yet been conceived. In many such situations, e.g. parts of Bangladesh and India (particularly remote tribal populations), the very first priority will be to ensure access to appropriate health care and adequate food, to provide a quick response to urgent problems. Following this, the potential for building an appropriate nutrition programme can be nurtured. Sustainability then will relate very much to ongoing availability of required resources (human, financial, organizational) from whatever level – community or more central – as well as the degree to which the programme becomes embedded as a part of life which is valued by local involved communities.

The value and success of direct nutrition interventions will, in sum, depend on factors such as their historical timing, their relevance to the extent, type and causes of malnutrition, the degree of community ownership of the programme, the infrastructure and management capacity for implementation, and the political will and resources to ensure sustainability.

Comparing Country Experiences with Nutrition Programmes

Thailand

Figure 5.1 lays out the time frame of the National Food and Nutrition Policy (NFNP) in Thailand along with other related policies. The following is extracted from the case–study (Kachondham *et al.* 1992) from various sections.

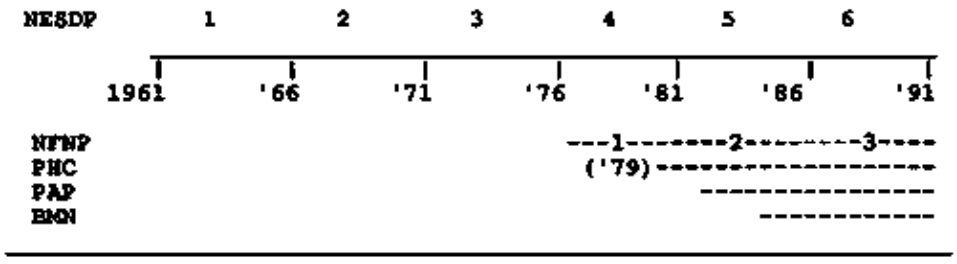


Figure 5.1: Time Frame of the National Food and Nutrition Plans and Related Policies (Thailand, 1961–1990)

Note **NESDP = National Economic and Social Development Plan**

NFNP = National Food and Nutrition Policy

PHC = Primary Health Care

PAP = Poverty alleviation Policy

BMN = Basic Minimum Needs scheme

Source: Kachondham et al. (1992) p.57

The first NFNP (1977–81) set out ambitious and comprehensive goals to improve the nutritional status of the population by tackling the problem from many angles, i.e., improvement of health care and hygiene; increasing food availability, nutrition education; and improving socio–economic conditions of the vulnerable groups. The plan targeted rural infants, preschool children (children under five), pregnant and lactating women, and, to a lesser extent, school children.

In reality, the nutrition programme was not fully implemented due to lack of inter and intra sectoral collaboration. Although some action plans were well defined, planning was entirely a top down approach. The planning, authorization and budget allocation were decided from the central or provincial level and vertically channeled to the grassroots, but no single agency was responsible for overall co–ordination and monitoring of programmes. There was no change in the programme planning and budget allocation structure to support multisectoral efforts. There was very little participation by the community. Many of the activities did not achieve the set objectives and depended totally on government–provided services, for example, the centrally produced supplementary food, and the nutrition rehabilitation in the villages.

It was not surprising that the first NFNP produced disappointing results. Malnutrition continued to be a serious problem, especially protein–energy malnutrition among infants and preschool children and iron–deficiency anaemia among children and pregnant and lactating women[10]. A 1980 nationwide survey showed that 53% of preschool children suffered from protein–energy malnutrition. However, the most significant accomplishment of this plan was the creation of a strong awareness of the nutritional problems both among the public and private sectors and at all levels, and led to a strong political commitment to the country's policy.

[10] Quoted from National Economic and Social Development Board. The Fifth National Economic and Social Development Plan (1982–1986). Bangkok, Thailand: The Royal Thai Government, 1981.

The main thrust of nutrition policy in 1981–1986 (Fifth NESDP) lay in the broader policy of poverty alleviation programme (PAP) and development of backward areas, and the primary health care approach (PHC). This was the important turning point in the developmental approach in the country.

Both PAP and PHC policies have nutrition concerns as a component. Multi–sectoral collaboration was promoted through community–level training sessions involving personnel from each sector. Thus, village organization and planning at the community level were strengthened. These bottom–up efforts appeared to function more effectively, to promote greater integration of the efforts of the various government sectors, and to use the potential of the community – through village committees – to address needs and possible solutions. In addition, there was an organizational change for rural development by having only one national committee instead of too many sectoral developmental committees in charge of development policies, with infrastructure

down to the village level. This was a striking organizational reform which combined macro– and micro–level structures to support both the top–down macro policy and bottom–up planning by the community and peripheral government resources.

Manpower development, management and community financing were facilitated. Village–based health volunteers called village health communicators (VHC) and village health volunteers (VHV) were trained nationwide. Growth monitoring programmes were carried out by health personnel and these volunteers in the villages. Simple and practical indicators and nutrition education for all age groups were introduced. The VHV and VHC were responsible for weighing, interpreting and communicating the results to mothers. The moderately and severely malnourished children received more attention, and their mothers were encouraged to participate in the activities. Supplementary food programmes were also financed through the MOPH, which introduced economic incentives by establishing village nutrition funds. Under this plan, MOPH provided target villages with a fixed amount of seed money for community efforts to improve nutrition. The community also determined whether the funding would assist people with immediate needs for supplementary foods (poor families with malnourished children) or would go towards starting a local supplementary food production unit. Development of village–based supplementary food processing allowed the communities to become self–reliant. Through these strategies, the community participation improved and people took more active roles in solving the problems within their own community.

By 1986, the nutrition situation of infants and preschool children had been dramatically improved, and severe PEM had practically been eliminated and only a small amount of moderate PEM remained. Weighing by simple beam balance and the use of growth charts by the village–based health volunteers (VHV and VHC, trained under the PHC strategy) and mothers were shown to be feasible and used for problem identification. Simple technology for village level processing of supplementary food was promoted to overcome the disruptive distribution of centrally produced supplementary food. Village self–financing schemes were also tried with some success.

An important feature of the NFNP from 1986 to 1991 was the basic minimum needs to approach to improve community participation and integration of sectoral development activities. This was implemented nationwide to strengthen the integration of sectoral efforts. Birth weight and weight–for–age of underfives and school–aged children were the nutritional indicators defined for measuring adequate nutrition. Thus, nutrition activities became a means to achieve the goal of quality of life. Through this iterative process, it was expected that villagers would increase their understanding and have confidence to participate. In these processes, local officers were expected to change their roles from being the agents of change to be facilitators or advisers.

By 1989, more than 500,000 village health communicators (VHC) and 50,000 village health volunteers (VHV) were trained, covering almost all the villages in the country. At the end of the Sixth NESDP, the most recent nutritional surveillance report (1991) has shown that the prevalence of severe malnutrition was almost nil, and moderate malnutrition had reduced sharply.

Four key programmes were implemented as part of the PAP, beginning in 1982:

i. *Rural job creation programme:* Jobs were created for rural people during the dry season to boost their income. Most of the employment was given to people in the locale so that rural people would remain in their communities and participate in community development activities.

ii. *Village development projects or activities:* The activities included village fish ponds, water sources, prevention of epidemic diseases affecting poultry, cattle and buffalo bank, and other development projects focused on rural poor to improve their economic status and household food security.

iii. *Provision of basic services:* Public services for rural poor such as health facilities and health services, nutrition, clean water supplies, and illiteracy education programmes were directed to the targeted areas.

Agricultural production programme: Important programmes included nutritious food production (especially crops used for supplementary feeding of young children), upland rice improvement projects and soil improvement projects. Income generation and household food security were the direct benefits.

To strengthen rural development, from 1986 on, the basic minimum needs approach (BMN) was used as the principle to achieve a good quality of life for rural people. In addition, the approach has been developed as a response to problems encountered in the course of actually implementing PHC programmes and projects. Two major problems were a lack of participatory orientation and the necessary skills among local government workers in promoting and supporting community participation; and inadequate opportunities for villagers to manage their own community development process i.e. data collection, planning and decision making. To

overcome these obstacles, an Intersectoral Social Development Project was launched under the auspices of the NESDB in 1981. The project's outcome was a set of Basic Minimum Needs (BMN) and their indices to be used by the villagers themselves. The indicators are shown in Box 5.2.

The BMN approach may be succinctly defined as a socially−oriented, community−based, intersectoral and scientifically−sound development process. It is also a process carried out by the people and community with support from the government aimed at fulfilling basic human and community needs. Eight groups of BMN indicators (32 measurable indicators) were developed and used as the tools for problem identification and setting up goals for development in the community − see Box 5.2.

The results from the process are used to formulate a village proposal and submitted to the sub−district committee. The extension personnel from the government agencies serve as a supervisory committee to the sub−district committee. The proposals which have been approved by the sub−district committee are then submitted to the district and provincial levels, respectively. The provincial rural development committee makes the final decision as to which proposals in the province are to be supported. The approved proposals are sent to the central level. The proposals from all provinces are considered and the budget allocation decided.

Through this entire process of problem identification, planning, prioritization of the types of activities and support needed, implementation, and evaluation by re−survey of the BMN status of the village, villagers, by themselves, are aware of their own problems and the level of their achievement. At the same time the district and provincial administration are able to effectively carry out their supervisory and supportive tasks and closely interact with villagers in trying to respond to their needs.

At present, more than 95% of the total villages throughout the country are using BMN indicators to gauge their development status and achievements. There have been some modifications, especially in some rapidly improved areas. Either new indicators were added or the criteria of success were lifted to a higher level. However, long term success still needs constant and persistent government support. Quality improvement in data collection by the people themselves, enhancing local capacity in planning and management, utilizing MBM indicators and supervision by government officers are important issues for sustainable success.

Box 5.2: Basic Minimum Needs (BMN)

Eight groups of BMN indicators were originally developed to be used by villagers themselves as well as local government officials as tools for problem identification, analysis, goal setting and action programme implementation. The indicators below were developed into checklists as a way to determine problems and their priorities as a basis for planning intervention activities as well as to monitor and evaluate their results.

I. *Adequate food and nutrition*

1) Proper nutrition surveillance from birth to five years and no moderate and severe PEM.

2) School children receive adequate food for nutritional requirements.

3) Pregnant women receive adequate and proper food, and delivery of newborn babies with birth weight not less than 3,000 g.

II. *Proper housing and environment*

4) The house will last at least live years.
5) Housing and the environment are hygienic and in order.
6) The household possesses a hygienic latrine.
7) Adequate clean drinking water is available all year around.

III. *Adequate basic health and education services*

8) Full vaccination with BCG, DTP, OPV and measles vaccine for infants under one year.

9) Primary education for all children.

10) Immunization with BCG, DTP and typhoid vaccine for primary school children.

11) Literacy among 14–50 year old citizens.

12) Monthly education and information in health care, occupation and other important areas for the family.

13) Adequate antenatal services.

14) Adequate delivery and postpartum services.

IV. *Security and safety of life and properties*

15) Security of people and properties.

V. *Efficiency in food production by the family*

16) Growing alternative crops or soil production crops.
17) Utilization of fertilizers to increase yields.
18) Pest prevention and control in plants.
19) Prevention and control of animal diseases.
20) Use of proper genetic plants and animals.

VI. *Family Planning*

21) Not more than two children per family and adequate family planning services.

VII. *People participation in community development*

22) Each family is a member of self–help activities.
23) The village is involved in self–development activities.
24) Care of public properties.
25) Care and promotion of culture.
26) Preservation of natural resources.
27) People are active in voting.
28) The village committee is able to plan and implement projects.

VIII. *Spiritual or ethical development*

39) Being cooperative and helpful in the village.
30) Family members are involved in religious practices once per month.
31) Neither gambling nor addiction to alcohol or other drugs by family members.
32) Modest living and expenses.

Source: Kachondham et al. (1992) p.110–111

Indonesia[11]

[11] In part edited from Ins, pp 6–7, 21–22.

Indonesia's commitment to improve the nutrition situation has been explicitly stated ever since the Second Five Year Development Plan (FYDP–1974). In the Fifth FYDP (1988–1994) the food and nutrition policies focussed on four objectives: (i) sustaining food self–sufficiency through increased food production; (ii) improving nutritional status for the population through increased diversification of food consumption; (iii) improving the nutritional status of infants, children and pregnant women; and (iv) improving the nutritional status of the population by reducing the prevalence of nutritional diseases such as protein and energy deficiencies, vitamin A deficiency, nutritional anaemia and goitre. National efforts to implement this policy involved intersectoral cooperation, particularly between health and agriculture. In particular, the fifth FYDP nutrition policy was indirectly related to poverty alleviation. Macro programmes to ensure food security by intensification, extensification, and diversification of food production had the following objectives: (i) to sustain rice self–sufficiency; (ii) to increase farmers' incomes; (iii) to provide sufficient and diversified food supplies to meet nutritional requirements.

These objectives were supported by a food marketing system that ensure stable food prices, both affordable for consumers and profitable for farmers.

Micro programmes in the agricultural sector were designed specifically to accelerate the poverty alleviation of small farmers in certain areas, as part of a national community nutrition programme called UPGK with emphasis on generating income from the family garden, as well as direct consumption purposes especially related to micro nutrient deficiencies.

One important precondition for the National Family Nutrition Improvement Programme (UPGK) (which started as the Applied Nutrition Programme in the 1970s) was the extensive grass–roots community participation – a natural outgrowth from a tradition known as gotong royong. This inherited cultural pattern of mutual help in the community was adopted as one of the 15 principal guidelines for the country's national development plan. In the early 1980s, the UPGK grew rapidly to cover 45,000 of the 65,000 villages in Indonesia. This growth was possible as a result of the active participation of a village women's organization known as PKK, which exists in most Indonesian villages. The members of PKK were responsible for establishing village nutrition centres called taman gizi, where growth monitoring, nutrition education and supplementary feeding activities were undertaken by village nutrition cadres, trained under the auspices of government nutrition programmes. Since 1984, the village nutrition centres have been gradually integrated with other primary health care services, and known as *posyandu.* The *posyandus* are designed to be managed by the community and serve as fora for communication, while the cadres are selected by the community and supported by sector workers. Interest is first aroused through the process of a baseline survey, before training and support from the health services is then used as a means of enabling full participation. By 1994, there were expected to be two *posyandus* per village in Indonesia. This rapid development was primarily due to the active participation of PKK and other women's organizations at village level.

A sustainable community nutrition movement such as UPGK is considered a necessary condition for dealing with complex nutrition problems (PEM, vitamin A and iron deficiencies). It requires a basic infrastructure for community participation, such as nationwide village women's organizations, like PKK, and a village–level community–initiated basic health and nutrition service such as *posyandu,* as the lowest referral system of district and sub–district health centres. Vitamin A capsules distributed via *posyandu* demonstrated cost effectiveness in a relatively "shorter" time in eradicating xerophthalmia and promoting child survival. Reducing the prevalence and incidence of PEM, especially of severe and moderate forms, seems possible without special supplementary feeding at a rehabilitation centre, provided there are sustainable economic activities benefitting the poor, coupled with the provision of basic services. In this case, growth monitoring as part of nutrition services at *Posyandu* is believed to play a key role as an entry point and for education purposes. The growth promoting "effect" of weighing is a complementary outcome of integrated inputs provided at *Posyandu* and the mother's care at home. Therefore, the effectiveness of growth monitoring should not be evaluated as an isolated activity. For iron deficiency anaemia however, there have been no significant benefits from using iron pills. A more effective delivery system will still have to be found.

Nutrition surveillance, developed in most critical areas on Indonesia in the 1970s is currently being redesigned for broader purposes such as the monitoring of children's growth at local, regional and national levels. This is to be part of the national social–economic household survey for national or regional policy and planning purposes.

India

Integrated nutrition and health programmes such as the Tamil Nadu Integrated Nutrition Programme (TINP) and the Integrated Child Development Services (ICDS) are particularly relevant although (particularly in the case of ICDS) their targeting, community involvement and implementation could be strengthened (Reddy *et al.* 1992, Ind pan II, p20). At present ICDS, like many other interventions in India, tends to exist and work best in those areas where it is in a sense least needed i.e. those areas with a more developed infrastructure for delivery. Area targeting to more remote, usually poorer, areas, could be supplemented with targeting to under–three year old children from the poorer households at village level. The case study suggests that the lessons learnt from TINP (regarding targeting, implementation, training, supervision, monitoring) could be utilized fully to optimize results. Both programmes are seeking ways of more effectively involving the community.

In Tamil Nadu during the 1980s, the Noon Meals Programme (NMP) was in operation, which is an example of an expensive, untargeted, top–down use of resources ostensibly allocated to nutrition. The NMP is a feeding programme for school children, not a nutrition programme for the malnourished. It does not start from the community's diagnosis of who are the malnourished. Rather, it disburses food to children at school, who

therefore arc unlikely to be in the most nutritionally at−risk age groups nor from the most at−risk socio−economic class who cannot afford to send their children to school. It may on the other hand provide an incentive to retention in primary schools which is a valid objective with possible pay−offs for nutrition in the long−term.

The country review (Reddy *et al.* 1992) has also demonstrated the need to balance needs, potential demand and available resources in order to reduce the types of mismatches seen with both the Public Distribution System (PDS) and the ICDS (hid part n, p47). A stronger integration between macro planning (resource allocation) issues and micro−level (programme design) issues is recommended in the review, with the overall objective of ensuring adequacy and efficient use of resources allocated to nutrition. This seems all the more important given the relatively low percentage of combined Central and State direct expenditure allocated to nutrition (approx. 1 % in 1986/7).

Flexibility is important. A programme like the ICDS needs to look different in Bihar than it does in Tamil Nadu, for example. Apart from the prevalence, causes and location of child malnutrition, states will differ in such factors as, for example, female literacy levels. Hence the differing levels of priority for the health education component of ICDS. Such flexibility might be brought about through a decentralization of planning and decision−making – a move away from the uniform supply of a blueprint ICDS throughout India – in order to foster a more active involvement of beneficiaries in the design, implementation and evaluation of programmes. Such a system could be backed up by a regularly up−dated data base on nutrition to keep track of areas of need as well as assessing programme impact (Reddy *et al.* 1992).

Tanzania

Ongoing programmes in Tanzania show a number of important characteristics (Tan p170−77).

> i) They are community−based with strong community participation and management through the Government and Party administrative structures. National, regional and district technical supportive mechanisms were strengthened or in some cases established.
>
> ii) There is a strong component of social mobilization through advocacy, information and communication which has led to the creation of community concern with the problem of child deaths and malnutrition.
>
> iii) Active participation has been sustained through improved management – the result of the systematic strengthening of the process of continuous assessment, analysis and action. The management systems emphasized improved information through quarterly child growth monitoring using growth cards and the understanding by both men and women of the child's growth pattern. Also management and decision−making was strengthened through training at all levels and discussing results from the information systems in the health and nutrition committees. More household and community resources are now being allocated towards the improvement of nutrition. Management was also strengthened through the provision of essential management tools like supervisory transport and other expendables. The management systems created helped also in monitoring programme impact.
>
> iv) An integrated multidisciplinary approach was used. Actions on the improvement of household food security, caring capacity, health services, education and water were carried out at the same time. In many cases extension staff from the relevant sectors continued to do the same things they used to do; but with an understanding of the consequences of their actions on the nutrition situation, they did them better. The explicit conceptual approach used facilitated dialogue and analysis of the causes and problems of malnutrition by those affected. The emphasis on the triple A approach prevented the intrusion of external "magic" packages of solutions. As a result emphasis was initially placed on the development of the process for the reduction of child and maternal mortality and malnutrition. Coupled with extensive internal and external technical contacts, this resulted in the creation of confidence and capacity in community and national institutions.

Zimbabwe

The Child Supplementary Feeding Programme (CSFP) in Zimbabwe was initiated by a consortium of national and international NGOs together with two government ministries in late 1980, before the country was hit by drought in the years 1982−84. In early 1982 the Department of Nutrition (DNN) in the MOH took the lead in

child supplementary feeding, with assistance from the Ministry of Labour and Social Welfare. The CSFP was successful in mobilizing various ministries, NGOs, and extension workers, to work with self–organized village committees to feed children in groups in the communal areas. The project also registered success in replacing imported biscuits and food products, traditionally used in emergency feeding programmes, with locally produced foods (groundnuts, beans, maize and cooking oil). The use of local foods to rehabilitate malnourished children had an important educational message for parents and informative posters placed at many feeding points and health facilities emphasized, and affirmed the value of, these local and cultivable foods. The CSFP also utilized locally–constituted committees to measure food quantities required, and receive and distribute the food to mothers who prepared the food at the group feeding points in the community. The success of community action led the programme to develop a production element, and the Supplementary Food Production Programme (SFPP) was born. Like the CSFP, the SFPP utilized a complex inter–ministerial management system (the National Steering Committee (NSC)) with equally structured community–based management committees (Food and Nutrition Management Teams (FNMTs)). Government extension workers (in health, community mobilization, agriculture, etc.) were mobilized and organized for this programme.

Targeting for the programme was achieved by using rates of malnutrition among under–fives. Initially, the CSFP used mid–upper–arm circumference measurements of less than 13 cm to include children in the programme; later weight–for–age measurements were recorded on master cards, identifying areas of high malnutrition prevalence. Extension staff responsible for managing the programme established community gardens where the rates of malnutrition warranted such action. Other components of the SFPP were i) nutrition education, ii) promotion of appropriate technologies for food preservation, processing and storage, iii) training of extension workers in planning and monitoring, iv) production of nutritious foods at communal gardens worked on by mothers of malnourished children, v) communal cooking and feeding of children using the food produced.

The mandate of the FNMTs evolved to go beyond food production; programmes on IDD, community–based nutrition surveillance, nutrition surveys etc. are handled by these committees. The NSC no longer coordinates the SFPP alone, but has taken the lead in the development of a National Nutrition Policy framework. These developments have taken place because as nutrition programmes developed, gaps became evident, and the NSC/FNMTs took up these roles. Evaluations by the NSC during the 1985–90 period indicated the need for the SFPP to address broader issues beyond community food production. The SFPP has thus now evolved into a Community Food and Nutrition Programme (CFNP) to reflect the broadening of its objectives. Community mobilization for nutrition, provision of agricultural extension support, nutrition and health education, linkages to local institutions for development planning, and extensive inter–sectoral collaboration remain the main features of this programme.

Brazil

Brazil has had a diversified experience with food and nutrition programmes – from food subsidies to the direct distribution of foodstuffs, through market channels or from public facilities (B p20–21). Such programmes have been almost entirely supported by national resources. The monetary values and volumes involved are substantial: a single programme of food supplementation for pre–school children distributed more than 1.5 million tons of food between 1976 and 1987. Expenditures with food and nutrition programmes increased from 0.06% of the GDP in 1980 to 0.21% in 1989 – the fastest growing area of the social sector. Despite such impressive figures and ambitious goals however, there have been several problems: firstly, programmes have not reached the poorest regions and income groups and the most vulnerable age groups (rather they target workers in the urban modern sector, and primary school children), and secondly programmes have been disassociated from health and educational efforts. Thus Iunes and Monteiro (1992) claim that food entitlements acquired through non–income channels have had a limited influence on the nutritional improvement observed in Brazil, due largely to the low effectiveness of these programmes (B p27). The behaviour of food prices, in aligning very closely to inflation, while not a contributing factor to the improvements, did not represent an obstacle either.

While food and nutrition programmes in Brazil were therefore not community–based, they provides an interesting example of the power of public action by the people for adequate basic social services. The rapidly growing urban population during the last two decades put pressure on the public sector not only to provide adequate social services and infrastructure, but also for political change, demanding political freedom and the restoration of democracy. As a consequence it became increasingly difficult for the government to contain the movements in opposition to the military dictatorship established in 1964. An example is the labour and grassroots movements that gradually, throughout the second half of the seventies, provided the freedom and voice to fight for better wages and public infrastructure; and the fight of the civil society for free elections.

While each and every government, even during the military dictatorship, stated that social areas were priorities, Brazil lacked a strategy to integrate its several social programmes into a consistent and coherent scheme that could be defined as a social policy. Areas such as food and nutrition, health, education, water and sanitation, housing, social security, etc. tended to fight for the same resources. This in turn led to the lobbying in the Congress for laws that would establish floors of expenditures as percentages of the government revenue or even the GDP.

Chapter 6: Political Economy, Institutional Capacity and Nutrition Policy

[12] Dr David Sanders, University of the Western Cape, South Africa, made a substantial contribution to this chapter.

The political economy of nutrition is here concerned with the influences on nutrition of economics, political and social institutions and ideas, and the values, perceptions and priorities of decision–makers. Political economy affects the control and use of resources available at different levels in society, and hence the type and extent of relevant actions for alleviating malnutrition. It will thus determine how nutrition outcomes are perceived, and how they promote action. Important questions concerning the political economy of nutrition are addressed in this section and include the following:

1. How important is the government compared to the community in facilitating nutritional improvements? Is a top–down (centrally–controlled) or bottom–up (community–based) approach preferred?

2. What type of institutional support is effective for nutrition? What has been the role of institutions in catalyzing a nutritional awareness and/or operationalizing nutrition–relevant actions within these countries?

3. Have nutritional considerations successfully influenced broader development policies? How far is nutrition a mainstream or marginal activity? What has been the role of trained nutritionists?

4. What is the role of information?

5. How important is it to formulate a nutrition policy?

These questions will be addressed using material supplied by the individual country reviews. Where appropriate, the experiences of particular countries will be incorporated illustratively.

Chambers (1983, 1992) has referred to an "ideology of reversals of the normal" which has been steadily gaining ground in development thinking over the last decade. The essential elements of this paradigm include: putting people before things, and poor people first; development through a learning process rather than a blueprint; decentralization, democracy and diversity (to value knowledge, participation and community action); and open and effective communications and access. These are all now becoming increasingly reflected in a new perception of opportunities in the field of nutrition too (see for example, Dreze and Sen 1989 and Jonsson 1991).

At a national level, there are major issues – such as peace and democracy – which are unquestionably crucial to long–term human resources development and thus, along the way, to nutritional improvement. Democracy is linked to equity. If people organize and make demands in a democracy, governments cannot risk ignoring them in the long run – the political will of the people helps the political will of governments. The development of a free press leads to a freeing up of information and towards consensus on what constitutes unacceptable deprivation. People thus become more aware of their social, political and economic environment and the means of changing it to meet their perceived needs. This forces governments to be more active, if they want to be re–elected (see for example the experience in India (described in Ram, 1990) – this may be the most important cause of success in preventing famine).

What is the Relative Role of the Government and the Community in Nutrition?

In the previous chapter, the issue of community involvement in nutrition programming was looked into, with examples from the case study countries. Here the role of the government, or more central levels, in nutrition–relevant actions is considered viz a viz that of the community – that is the linkage between the grassroots and the centre. What represents the best balance between top–down and bottom–up planning? Who should do what?

The country experiences show the strong association between active community participation in development and the workings of decentralized democracies. Decentralization is a necessary pre–requisite for empowered and active communities, but without a redistribution of power it may just end up empowering local elites. Thus a process of *local* democratization is crucial too – requiring both political will and flexibility at the top as well as administrative support at local level, including decision–making power and community organizational capacity to receive inputs. It needs the mobilization of people and resources, as well as organization, leadership and good management. A community orientation promotes empowerment, which begins to materialize when people share priorities, gain knowledge and acquire resources. Public action, or the ability to articulate a demand for extra resources from central sources is a further sign of empowerment, and an important linkage to be built on. This can be deliberately fostered, for instance in Thailand with the Basic Minimum Needs process.

As well as successes, the country experiences illustrated some pitfalls to be avoided in engendering community involvement. The response to the possibility that community objectives might not match programme objectives should be determined before the project is implemented. Methods to create awareness within the community of nutrition problems may be useful in bringing communities' and programme planners' goals closer together. Linking programmes to other means of addressing the felt needs of the community can encourage acceptance of nutrition goals. Management staff should beware of simplistic viewpoints that see the community as a homogeneous unit, and monitor programme implementation carefully to ensure that all needy community members benefit. Special efforts to enable women to have the time and means to participate in nutrition programmes should be considered as fundamental to any programme.

The process of community empowerment is often not without conflict, as it challenges vested interests and the *status quo* that may keep social groups divided. Existing village–based "community" organizations *(panchayats)* in India, for example, have tended in the past to be dominated by the more powerful larger farmers, usually from the higher castes, for whom egalitarian beliefs often extend only to the boundaries of their caste. Rapid success in empowering the most disadvantaged groups may lead to violence. This is well–known to many small NGOs working in India, as well as in Tanzania where, as local people became more empowered to act on their own behalf, they also became more likely to challenge authoritarian leadership styles sometimes evident in village and district leaders. Women were less likely to accept traditional discriminatory gender roles. At the same time as furthering grassroots democratization, such changes bring interim periods of tension and conflict, which need to be anticipated.

Where the state does respond to the threats perceived by richer groups to any organization of the poor, however, experience shows community participation may need to be sponsored by external agents. This may often be more effectively done by NGOs than governments and international agencies. The Bangladesh Rural Advancement Committee (BRAC) and the Grameen Bank are two excellent examples from Bangladesh. NGOs are also very active in India and becoming increasingly recognized by the government as a means of promoting more effective grass–roots development, including nutrition. Ultimately, for a country as large and diverse as India, the decentralization of power and responsibility, including that of NGOs, is probably the only sustainable route to long–term development.

In Table 6.1 some examples of the comparative advantages of the centre and the community are considered. A top–down approach would argue for the need to control funding, avoid low level administrative corruption, and ensure regional equity. The more top–down a programme is, however the more is 'unknowable', owing to the geographical, cultural and conceptual distance that separates programme managers from the beneficiaries. This in turn tends to lead to deficiencies in the information base for decisions and time lags in analysis and response. A bottom–up community–based approach on the other hand stresses the need for flexibility. Administrative capacity may be improved by an increase in responsibility at lower echelons, and the direct participation of beneficiaries is truly democratic.

But the notion of *either* top–down *or* bottom–up obscures reality, as it presents a false dichotomy. In practice, a mix of strategies is generally more pragmatic and appropriate. Immediate causes may need technical interventions that are predominantly top–down such as oral rehydration therapy and immunization, while more

structural basic causes may be better dealt with sustainably in the longer−term primarily by public action and empowerment. Promotion of specific nutrition goals may be top−down, but this does not pre−suppose that the strategies aimed at achieving them need be top−down − ends need not predetermine means. Top−down actions may include education or health care provision, food subsidies, micronutrient supplementation or fortification. On the other hand, behavioural changes must come about through bottom−up awareness raising e.g. appropriate diets, care factors, health care utilization, household resource allocation for food security, income−generating, workload reductions, supplementary feeding, etc.

Table 6.1: Relative Merits of Community (Bottom−Up) and Central (Top−Down) Implementation − Some Examples

Community is good at:	Centre is good at:
− mobilizing labour	− providing certain expertise e.g. infrastructure design
− identifying local needs and priorities	− providing supplies e.g. cement
− knowing what will work in local context	− providing equipment e.g. grader
− creating motivation	− providing high−tech supplies e.g. electricity, drugs
− local production and infrastructure development (if centrally−supplied inputs available)	− providing teachers and teaching materials
− credit guarantees (group collateral)	− micronutrient supplementation/fortification
− timely repairs e.g. radios, bikes	− legislation (e.g. breastfeeding, land reform)
− timely delivery of services (with community feedback/pressure)	− immunization
− relevant programme modifications	− ORT training
− growth monitoring and promotion	
− supplementary feeding	

Successful community−based nutrition programmes have tended to have had combinations of political will at central level, middle−level district (and more decentralized) administrative support, in addition to community−level organizational capacity. This reinforces the potentially synergistic relationship between the community and the government. Once bottom−up processes with their associated demands are facilitated, and communities empowered, the government has to provide more relevant, timely and appropriate support. The Triple−A process in Iringa (Tanzania) empowered and mobilized communities (through their shared priorities) to optimally utilize what resources they had locally, and demand extra support, as appropriate, from "above". The more central levels, for their part, ensured they had the flexibility to respond to these demands, and provide the resources and support as directed. Who controlled the use of resources was as important as their original source and quantity. This again reinforces the need for control of decision−making to coincide with decentralization.

There may also be other synergisms between top−down and bottom−up − for example, legislation on social or gender discrimination, bonded labour, caste discrimination, or land reform may effectively remove obstacles to full expression of bottom−up processes. Combined with increasing awareness of rights, a momentum and demand may be established for such self−fuelling changes.

What Type of Institutional Support for Nutrition is Effective?

Chapter 5 concluded that, in many countries, programmes identifiable as "nutrition" exist and contribute to nutritional improvement. The institutional arrangements can be seen in relation to the extent of such nutrition programmes − where programmes are extensive, resources are more readily available for institutions. In most cases (with or without programmes) one or more focal institutions for nutrition policy, monitoring, etc. are well

established (e.g. the National Institute of Nutrition (NIN) in India, the Tanzania Food and Nutrition Centre (TFNC) in Tanzania). Often university or research institutions are involved (e.g. Institute of Nutrition at Mahidol University in Thailand, Centre for Research and Development in Nutrition in Bogor, Indonesia). In other cases, this role is taken on by government departments (e.g. the Ministry of Health, Zimbabwe), commissions, etc. The function of these institutions varies depending upon the extent of government commitment to programmes. Often they have had an important role in fostering this commitment, through research and advocacy, and their role may change as programmes develop.

However, these are usually not the institutions that actually run programmes, which tend to be operational line agencies or organizations with the necessary administrative outreach. These vary in type, from for example the Department of Women and Child Development in India, to the multi–sectoral government and political party structure in Tanzania; in Zimbabwe there is an inter–Ministerial group at national and district levels, chaired by the agricultural sector (note that here the political structures were used for mobilization, while government structures were used for implementation); in Indonesia and Thailand the Ministry of Health takes a lead, with substantial reliance on volunteers. Generally, where there are successful programmes this duality between institutions for initiating, monitoring, research and advocacy, and the line agencies is often seen. The position in seven of the case–study countries is shown in Table 6.2.

The characteristics of the research/advocacy/monitoring institutions involved effectively with nutrition improvement are along the lines of previous SCN considerations (see Soekirman 1988, Greiner 1989). They require long–term support, including far–sighted investment in training and career development. They need good capabilities for producing sound information for advocacy purposes, and the necessary political links to use these. They are indeed involved in this way in nutritional surveillance (e.g. the National Nutrition Monitoring Bureau in the National Institute of Nutrition, India), and the considerations put forward under this heading (e.g. UNICEF 1992) apply.

In this context a key point concerns *how* the decision is made to commit significant resources – the transition between an institution whose role is primarily advocacy and information, to a broader institutional arrangement whereby programmes are delivered by line agencies. This is a very difficult question and the case–studies are generally not specific; it would be an important point for future research.

Institutional support for programmes has the usual requirements of operational administration, i.e. sustained government financing, full participation of the community, etc. As discussed, the interplay between community and central levels is not an option, it becomes integral – it is clear that the more the community owns the programme, the more likely it is to be sustained. The operational institution needs to combine decentralization of responsibility with decentralization of power – it must become increasingly reactive (less pro–active) to bottom–up demands for appropriate resources which are not available at local levels.

One crucial factor concerns the extent to which personnel at decentralized levels are salaried or waged. It is clear that those in health, agricultural extension, education and other services, need adequate remuneration – they provide services and act as facilitators for the community mobilizers. Often they may be paid, but lack funds for travel, and even minimal supplies, which needs to be tackled. The question of remuneration of community workers (mobilizers) is more complex, and views vary. Often, these are remunerated from community resources, which only provide for very part–time work. The point has been stressed from experience in Thailand (Tontisirin, pers. comm) that it is better to build on the sense of worth of the community volunteer, than to bring that volunteer onto the government payroll. Certainly, sustainable effective programmes have in some countries been built with major reliance on community volunteers' unpaid work (or with only token remuneration); in other countries, where the expectation is a waged job, this has not worked. More study, country–by–country, is needed on this crucial point.

Table 6.2: Examples of Institutional Involvement in Nutrition

Country	Research/Advocacy/Planning/Monitoring	Operational
India	National Institute of Nutrition (NIN), involved in research, training, advocacy and nutrition outcome monitoring through the NNMB (Ind part I, p5).	Dept. of Women and Child Development in the Ministry of Human Resource Development (ICDS). Nodal state directorates of ICDS are housed in the Women and Child Development, Welfare or Health sectors (Ind part II, p16–17).

		Dept. of Food and Civil Supplies runs the PDS (Ind part II, p29).
Tanzania	TFNC (MOH–funded autonomous parastatal). 1982 establishment of national ad–hoc planning group, which included representatives of Prime Minister's Office, Ministries of Health, Education and Agriculture as well as TFNC (Tan p199)	Households, cells, villages, ward, division, district, regional and national–level structures
Zimbabwe	National Nutrition Unit in MOH. University of Zimbabwe. National Steering Committee for Food and Nutrition (inter–sectoral central coordination). (Zim p61–62)	Inter–sectoral district–level nutrition programme management teams; agricultural extension services
Indonesia	BAPPENAS, Centre for Research and Development for Nutrition (Bogor). Also Schools for Nutrition (high–school training) and the Academy of Nutrition (undergraduate training). (Ins p18–19)	Nutrition Directorate, MOH Community volunteers in *posyandus* (integrated community health posts), established by PKK (women's organizations)
Thailand	Nutrition Division in Department of Health with technical, logistic and supervisory role (coordinates information systems and conducts operational research). Institute of Nutrition at Mahidol University (INMU) (Tha p29)	Different sectors/ministries (incl MOPH, MOA, MOE)
Pakistan	Nutrition Section in Federal Planning Commission involved in planning, coordination, monitoring and evaluation. Also the Nutrition Division of the National Institute of Health, involved in research.	Provincial health departments
Mexico	National Institute of Nutrition National Food and Nutrition Commission (CONAL), directed by the President.	Departments of Welfare and Health

Can Nutrition Considerations Influence Broader Development Policies?

Have nutrition professionals advocated effectively for nutritionally–aware policy–making? In the past, economic policies (while having a potentially major indirect effect on nutrition) have rarely considered nutrition outcomes *per se,* although a policy may be tailored so as not to harm the poor and food–insecure. However, now that many countries are undergoing or have undergone structural adjustment, there may paradoxically be a special opportunity for nutrition. Although the nutritional impact of their economies in free–fall remains unknown, the damaging short–term consequences of structural adjustment in Tanzania and Zimbabwe probably slowed the rate of nutritional improvement, although possibly making it more sustainable in the long–run (Tan p15–16; Zim p4). The growing global awareness of such adverse short and medium–term effects has meant that adjustment is often either deliberately designed to have less adverse effects on the vulnerable or there are compensatory programmes tacked on to buffer at–risk groups. Nutrition outcomes are increasingly seen as excellent indicators for monitoring the effects of such actions e.g. **Zimbabwe.** The position of nutrition as an outcome with many different inter–relating causes at different levels (in the domains of different sectors) may promote a more enlightened approach to sectoral policy–making. Indeed, the use of nutrition as such an indicator in Zimbabwe happened alongside the formulation of a national nutrition policy which involved different sectors in a prolonged dialogue on nutrition.

One basic reason for nutrition being protected during the 1980s economic decline in **Tanzania** was the country's political stability and ideological commitment to social action. Nutrition considerations have been built into sub–national and national development plans, and this politically favourable climate – backed up by an unprecedented grassroots structure for social mobilization from the national to the village level – has resulted in a kind of nutrition movement in Tanzania. The formation of the Tanzania Food and Nutrition Centre (TFNC) by an act of parliament as early as 1973 to coordinate and catalyze nutrition–related actions testifies to the priority that the Government has attached to nutrition. This in turn led to extensive donor support in nutrition–related actions (Tan p176–77).

In Indonesia, a national nutrition awareness has been successfully generated, as a result of what Soekirman *et al.* (1992) refer to as a "psychological readiness" on the part of policy–makers, which progressively built up as a result of a nutrition education process initiated in 1950 (Ins p20). Indonesian nutrition professionals no

longer have to fight for the political will or policy commitment for nutrition. In **Thailand,** by 1982, after earlier relatively unsuccessful attempt at multisectoral coordination of nutrition activities, nutrition–relevant actions became rooted in the Poverty Alleviation Plan, in which different sectors came to perceive the effect of their actions on nutrition and tailor them accordingly (Tha p37–39); the Basic Minimum Needs approach strengthened attention to nutrition (see Chapter 5).

No doubt awareness of nutrition at policy–making levels was successfully enhanced in India, Indonesia (Ins, pp 6,20), Tanzania (Tan p 143), Thailand (Th pp 33–34), and Zimbabwe by the implementation of successful community–based nutrition programmes. In Zimbabwe a concern with policy on nutrition followed the development of the CSFP and, particularly, the intersectoral SFPP. Here the dialectic between policy and programme is well–illustrated: this relationship – a two–way dynamic process – is important to recognize and exploit for the advancement of nutrition. Probably less was achieved in this way in the other countries studied, e.g. Egypt ("... nutritional concern is of minor importance in the socio–economic plans...", Eg p120), and Brazil, which relies more on extensive food distribution programmes (Bra p20). An important question concerns how much difference this awareness made beyond support for direct nutrition programmes.

Countries directly addressing poverty would probably have done so whether or not concern for malnutrition was successfully advocated. The same may apply to, for example, improvements in water and sanitation. Food distribution programmes may indeed have been motivated in part by concern for hunger and malnutrition, although their targeting has generally been inefficient in this respect. General food distribution and subsidy schemes (such as those in India and Egypt) are not reported to have been managed by taking account of nutritional impact, and anyway are not regarded as an efficient use of resources for this objective.

Where nutrition awareness has been high at policy–making levels, it may well have interacted usefully with poverty concerns, in terms of targeting, assessing outcome, and in lending general support to poverty–alleviating policies. Policy decisions in Indonesia and Thailand are probably examples of this. On the other hand, concern for nutrition may be translated into support for general food subsidies and distribution schemes, which can absorb large amounts of funds for little or no nutrition impact. A useful feature of policies aimed at nutrition improvement could be to avoid using resources ineffectively for this purpose.

The potential role of nutritional considerations in development policy and programming can be summarized as follows.

i) *Advocacy,* through demonstrating the potential or actual effects of non–nutritional policies on nutrition. Timely and appropriately disaggregated information (see below) has been important here. Nutritional outcomes were increasingly used as a measure of the degree of equity of overall development during the 1980s. Successful advocacy has led to policy–makers becoming cognizant of the nutritional implications of a range of policies. Nutrition professionals have built on this growing awareness and sought leverage to further influence actions that might have malnutrition as an outcome.

ii) *Influencing resource utilization* – or how best to use those resources earmarked for nutrition. This has usually taken the form of technical input into the design of national or sub–national programmes, information systems, training courses on management etc. A pragmatic emphasis has been on improved efficiency, quality and relevant coverage of services per unit expenditure.

iii) *Formulation of national policy on nutrition* and/or the integration of macro planning resource allocation and micro–level programme design, with the overall objective of ensuring adequacy and efficient use of resources potentially available for nutrition (e.g. TFNC and the Zimbabwe Nutrition Unit). This is the link between advocacy and resource utilization, and is discussed further in section 5 below.

What is the Role of Information?

In the 1990s, there has emerged a growing recognition (e.g. Pelletier 1991, FAO/WHO 1992, UNICEF 1994) that too much time in the past may have been spent on designing extensive information systems, relative to the little time devoted to understanding how such information could actually improve the decisions that led to good policies and programmes – and hence what core information was essential. The data user had tended to be seen as secondary to the data generator. As borne out by many of these case studies, there is now a

more widespread awareness of the need to consider what needs to be known, by whom and when, in order to change decisions on actions that affect nutrition. In order to strengthen the historically weak link between information and action, the starting point is correctly seen as the user not the generator of data.

Information is used to decide on priorities, make correct choices of action, allocate resources, and monitor outcomes. It should thus be functionally disaggregated so as to guide decision–makers, from the household level to the national level. Moreover, experience has shown that information tends to be more optimally used, in a more timely manner at the level it is generated, particularly when the people who collect the data are those who use it. Ideally, information should only be passed upwards from the community to more central levels when use has been made of it at the community level.

Information does not exist in a vacuum and actions are not purely determined by information – decisions may have powerful political and economic objectives which conflict and possibly outweigh social welfare considerations. In such a climate, nutrition information *per se* may have a limited influence. Experience (e.g. in Thailand) has shown that as nutrition becomes "good politics", a demand is created, decision–makers become motivated and accountability is strengthened. Information promotes responsibility, and the ability to make modifications where these are indicated. Steps towards building of national capacity for monitoring policies through the regular assessment and analysis tends to be one of the first priorities in institution–building or institution–strengthening, and this makes sense provided such institutions can take or promote action.

In **Thailand,** simple data about who was malnourished, where and why communicated during the late 1970s, served to raise a national awareness of the problem and provided pressure on the government to do something. A critical mass of concerned people in government sectors formed during this period, and the subsequent five–year plans built nutritional objectives into developmental goals, and promoted responsibility among sectors for considering the nutritional impact of their actions (Tha p30, 33).

In **Tanzania,** the Triple A process involving a continuous cycle of assessment, causal analysis, and action based on the analysis of available resources, was used successfully in the development of the Iringa Nutrition Programme. Information on child growth is routinely used to mobilize social action in Tanzania. The concept of growth monitoring, with its green (normal) children, grey (moderately underweight) children, and red (severely underweight) children was extended outwards to households, villages, wards and districts. As Kavishe (1993) put it: "the implication is that you cannot maintain a 'green child' in a 'grey' or 'red' household in which access to resources is not adequate to sustain the 'green revolution'" (Tan p149, 180).

In **Indonesia,** the UPGK used a monitoring and evaluation system which also acted as a built–in management information system. This was the "SKDN system," where S is the number of children under–five; K, the number with growth charts; D, the number who have attended a weighing session, and been weighed; and N, the number who have gained weight. Each *posyandu* examined and reported its coverage at first contact (K/S); participation in weighing (D/S); and outcome (N/S). Monitoring of the participation in weighing (D/S) was considered a measurable indicator of community participation.

What is the Role of Nutrition Policy Formulation?

One approach to institutionalizing a broader role for nutritional considerations in a country's development process has been through the formulation of a national nutrition policy.

A nutrition policy is usually considered as a coherent set of principles, objectives, priorities and decisions adopted by a government and implemented by its institutions as an integral part of its national development plans. However the approach that "policy is what it does" (Schaffer 1984) is needed to avoid 'implementation' being seen as something separate. A better designation might be "explicit policies and programmes for improving nutrition". In the past, where implementation was not seen as part–and–parcel of the policy process, accountability was reduced or absent and 'policies' often either failed (e.g. top–down planning in Thailand between 1977–81) or continued to exist only on paper. Many of the countries reviewed already have a nutrition policy or are working towards establishing one. We consider here their role with respect to nutritional improvement, how they originated, and the form they took – with experiences drawn from Zimbabwe, Tanzania, Thailand and India. These examples also show the institutional context that enabled these policies to develop.

The process of policy development was found to be very important. A culture of collaboration between sectors needs to be established before a comprehensive policy is discussed so that there is a practical understanding of what a policy means. The actual process of drawing up a policy through involving different sectors in a dialogue on nutrition may often be prolonged but it may serve to raise an awareness, or "nutritional literacy" among different sectors. As Tagwireyi *et al.* (1992, p64) in **Zimbabwe** put it: "The multifaceted dimensions of the nutrition problem and how it demanded intersectoral action was not understood by policy makers. The painfully slow process of creating awareness towards comprehensive action was necessary. But a policy document without the requisite level of understanding would be no more than a document. Policy development is itself a gradual process incorporating lessons learned in struggling with solving the problems of malnutrition in the local context."

In Zimbabwe, the evolution of nutrition programmes based on self–organized communities, with district–based interministerial management teams, led to the development of a national nutrition policy – in a bottom–up, rather than top–down fashion. The Supplementary Food Production Programme (SFPP) had demanded an inter–sectoral approach, and this paved the way in turn for an inter–sectoral approach to policy. The more usual sequence of a policy leading to programmes was inverted in this case (Zim p64–65). A Food and Nutrition Coordinating Committee (FNCC) was formed with multisectoral membership, to formulate a national policy. The FNCC is coordinated by the Ministry of Lands, Agriculture and Rural Resettlement (MLARR), and the process is leading among differing ministries to a wider awareness of nutrition, which was hitherto viewed as essentially a health–sector concern.

Zimbabwe provides an example of how nutrition can be improved in the face of adverse economic trends (Zim p73–74). As the economic situation further declined in the early 1990s, the prioritization and probable reallocation of resources was recognized as becoming increasingly critical. A balanced and intersectoral set of programmes and policies, guided by a strong food and nutrition policy and an improved system of nutritional surveillance was considered essential to avoid nutritional deterioration, let alone sustain the improvement. The national nutrition policy was seen a means of allocating responsibility for appropriate nutrition–relevant actions by sector, including financial support. It also aimed to help key sectors, policy makers, planners, and project managers to understand the broader food and nutrition context within which they were working. Synergistic effects appear to be achieved when several approaches are combined in the same area. The policy aims to build the momentum required to sustain nutritional improvement as well as to directly coordinate efforts on several fronts at once.

In **Tanzania,** TFNC was asked by the government in 1976 to formulate a Food and Nutrition Policy (Tan p144). The impetus was the same as that which led to the formation of TFNC itself – namely, the need to determine a strategy for implementing the 1967 Arusha Declaration which recognized peoples' development as the centre of all development, and disease (including "malnutrition"), poverty and ignorance as being the three enemies. The 1974–75 drought and food crisis provided added impetus. This was the political motivation stage of the process. Subsequent stages during the next 15 years included defining the problem, laying out alternatives, draft policy design, inter–sectoral review and implementation. The policy stressed the need to incorporate nutrition–relevant actions into sectoral plans, facilitate appropriate community mobilization and participation and promote sustainable and focused action.

As with Zimbabwe, the division between the process and implementation was viewed as arbitrary in the sense that implementation of the policy was going hand in glove with its development – the process of assessment, analysis and action continuing despite the absence of a formal declaration of the policy. The mobilizing effect of the process was more important than the elaboration of the document. The delay in the declaration of the policy was seen by TFNC as "a blessing in disguise", as it kept the policy on the agenda of many high level bodies until a critical mass of awareness and opinion was mobilized.

An explicit, isolated nutrition policy can be disadvantageous if there is no authority to enforce intersectorality. In the fourth National Economic and Social Development Plan (NESDP) from 1977–81 in **Thailand,** nutrition planning was largely top–down and overseen by a multi–sectoral national coordinating body, with little emphasis on community participation (Tha p12,34). Although implementation of programmes was later found to be problematic, this approach did have one specific benefit – it generated a national awareness of nutrition, as well as knowledge of who was malnourished, where and why. Lessons were learned, and in the fifth NESDP (1982–86), the incorporation of nutrition objectives into overall developmental goals was found to improve intersectoral efforts, both at central and community levels. The nutrition policy became rooted in the Poverty Alleviation Plan and a greater emphasis was placed on effective resource allocations through targeting and the integration of micro–level programme implementation with macro–level policy. A growing nutritional awareness came about during the 1980s, as different sectors came to perceive nutrition as one outcome of their activities, and one they needed to consider more (Tha p42–44). One of the strong points of

the policy was the catalysis of the assessment–analysis–action process at all levels (community, district, national as well as academic and NGO).

In **India,** nutrition is currently viewed as part of the social sector allocations in Five–Year Plans. These are allocations based on poverty criteria, not nutrition information; nutritional considerations are thus implicit, not explicit (Ind part II, p13). As regards information on nutrition outcomes, for such a large country, the National Nutrition Monitoring Bureau (NNMB) focuses mainly on southern and western states, and could benefit from linking with the National Sample Survey Organization (NSSO) surveys and an expansion to cover northern states (Reddy *et al.* 1992). A national nutrition policy was finalized in 1993, although the specified mechanisms for its implementation – including a National Nutrition Council, to be chaired by the Prime Minister – have not yet been activated some three years later. Nutrition is still perceived as being "soft". Moreover, there are often gaps between allocations to nutrition–related activities and actual expenditure due to diversion of funds; for example, only 11 % of the nutrition allocation was actually spent in Andhra Pradesh between 1985–90, due to the withdrawal of the expensive noon–meals scheme.

The means may be thus as important as the ends with respect to policy, at least initially. The process – sometimes prolonged – of building collaboration between sectors through raising awareness of the multi–causal nature of the nutrition problem, on the one hand, and the need therefore for different sectors to be involved, on the other, is essential. In the second half of the 1990s, as the need for decentralization becomes increasingly evident, the impetus for formulating a policy is likely to increasingly come from community–levels where the particular needs for extra resources from the centre are better understood e.g. Zimbabwe. At the central level, it is increasingly understood that a multi–causal problem does *not* necessitate a multisectoral centrally–controlled approach for its control. Lessons have been learnt from the failure of the 1970s style of top–down planning that aimed to simultaneously coordinate sectors in elaborate action plans. In the 1980s, bottom–up community action was complemented with relevant and often focussed intersectoral actions. Such a sectoralized approach was found to be politically pragmatic and generally more geared to organizational realities.

Conclusions for Other Situations

From the experience of policies, programmes and institutions reviewed here, the following conclusions may be applicable to other circumstances.

– the process of developing policies for improving nutrition, both indirectly through other policies, and directly through nutrition programmes, is worthwhile, and may take several years;

– it is important for this to sustain effective institutions to lead planning, analysis, advocacy and monitoring, linked to operational agencies (like ministries, NGOs);

– community–based nutrition programmes are needed, as a direct means of improving nutrition, and as a concrete focus for nutritional concerns and policies; without these, interest in nutrition has not been sustained, and most countries with improving nutrition have such programmes.

Chapter 7: Conclusions

What has been learned from the case–studies, workshop, and this synthesis about how nutrition improves? As expected no universally–applicable magic bullet emerged. What comes through clearly are the links and dynamics from macro–level economic and food policy, through social sector support for human development, to community–based nutrition programmes. Nutrition can be seen to improve through various processes that lie within the mixture, sequencing, and management of these development actions.

Detailed country case studies such as these provide lessons by illustrating what actually happened in countries that, under certain conditions, chose route X as opposed to route Y. By revealing the driving forces behind changes in nutrition outcome statistics, the policy and programmatic levers become clearer. Even though many such decisions may note be directly based on concern for a country's nutrition situation, they are nonetheless important for understanding where advocacy efforts may need to be strengthened in future.

Influenceability after all is a dynamic, not static, concept. Priorities may change as links and associations become clearer through better documentation of experiences and their outcomes.

Case studies, it has been said, tend to be especially useful in disproving generalizations, although this is not the main purpose here. One generalization that can clearly be disproved is the view that all that can be done is to wait for economic growth to bring about nutritional improvement. Although there does tend to be the expected broad relationship between a country's economic situation and its nutrition situation, there are clear examples of nutrition moving ahead of economic change, even among those countries that have experienced rapid growth. Conversely, nutrition is also often resilient in the face of economic crises, providing certain pre−conditions for stability obtain.

While many decisions that had a profound impact on nutrition outcomes where taken for non−nutritional reasons, many others were driven by nutritional concerns. Nutrition programmes can and do make a difference in many countries e.g. those in Indonesia, Tanzania, Thailand, and Zimbabwe. Programmes tend to work if they emphasize processes of empowerment and ownership and are thus community−based in reality as well as in name. Centrally−managed programmes tend to be expensive, top−heavy, difficult to manage and perceived locally as little more than hand−outs. A lack of community power over decision−making is matched by a lack of community involvement and ultimately a lack of impact, although many programmes still await formal evaluations.

The countries reviewed came from four regions − South East Asia (Thailand, Indonesia, Malaysia), South Asia (India, Pakistan), Africa (Tanzania, Zimbabwe, Nigeria, Egypt) and South America (Brazil, Mexico). The conclusions are considered firstly region−by−region, starting with the most successful region, South−East Asia, before finally suggesting some generic findings summarized in the last section.

South−East Asia

Child underweight prevalences in 1990 were 13% in Thailand, 38% in Indonesia and 18% in Malaysia. These three countries also fared best among all reviewed countries in terms of mean annual rates of nutritional improvement, as measured by declines in pre−school child underweight prevalences.

Thailand's experience was exceptional, with prevalences falling at an average of nearly 3 percentage points per year. Although all these countries achieved high economic growth rates in both the 1970s and 1980s (except Malaysia in parts of the 1980s), in each case the nutritional improvement surpassed what would have been predicted from such economic growth alone. As far as nutrition is concerned, as with other social outcomes, economic growth is a means not an end: it represents the potential both privately and publicly for something to be done to improve the situation − a potential that may or may not be fulfilled.

In Thailand, almost every social indicator including nutrition showed marked improvement at the same time as the economy was racing ahead. The Asian countries (including India and Pakistan) were most successful in reducing poverty, though the South−East Asian route differed from the South Asian one. Indonesia and Thailand went more for equitable labour−intensive growth based largely on maximizing employment of the rural poor. Both countries become self−sufficient in rice in the 1980s and by 1986 Thailand was the world's largest rice exporter. Rice prices were stabilized to eliminate the hitherto frequent food crises and agricultural re−investment became a high priority for both countries.

In Thailand, a large portion of the proceeds of this growth were channelled into human resource investments in health and education. Thailand's per caput health expenditure was doubled during the early 1980s, in contrast to Indonesia where it was cut back in real terms. Education was a priority for Thailand and Malaysia who each allocated about 20% government spending in mid−1980s, as compared to 10% for Indonesia. Thailand was in fact one of only two case study countries that had already succeeded in the early 1990s in reaching the 20% human development expenditure target of the 20/20 initiative supported by UNDP and UNICEF − with Zimbabwe being the other. And gains were seen in health and related outcomes with large increases in immunization coverage and access to safe water in the 1980s. In contrast, Indonesia did not score highly on human development expenditures.

Both Thailand and Indonesia demonstrated large drops in fertility rates during the 1970s and 1980s, which would have led to a nutritionally−favourable reduction in household dependency ratios. By 1989 contraceptive prevalence rates were 66% and 50% respectively. Gender equity is much more marked in disaggregated educational statistics in Thailand and Indonesia as compared to the poor situation of women in South Asia. However, while the maternal mortality rate in Thailand decreased by a factor of seven in the 1980s, Indonesian women reportedly remained at very high risk.

In South−East Asia, nutrition action is embedded within development policy and there is a widespread sectoral awareness of the problem of malnutrition and its multi−faceted nature. In Thailand, nutrition−related activities were included within primary health care programmes from 1979 before in 1981 becoming rooted in the Poverty Alleviation Plan and later the Basic Minimum Needs Programme. This evolution was characterized both by a progressive increase in the degree of community−orientation to planning and programming as well as a strengthening of links between micro−level action and macro−level policy. In Indonesia, the *posyandus* or community−level health and nutrition outposts are fora for communication and action, including growth monitoring and promotion, which are managed by community−selected cadres and backed by a network of women's groups.

South Asia

The highest 1990 national prevalences of pre−school child underweight were found in India (53%) and Pakistan (42%), and the rate of improvement was low (India) or moderate (Pakistan).

Economic growth in South Asia, in contrast to South−East Asia, was largely driven by agricultural development fuelled by selective adoption by larger farmers of Green Revolution rice−based technologies. Agricultural development was less labour−intensive and more regionally and socially skewed. Here a two−track strategy of conventional growth with tacked−on compensatory poverty alleviation programmes was adopted, with the latter being largely dependent on financing from the former. Food security has been pursued through systems of fair−price shops disbursing rations of staple foods. While these have been crucial as an insurance and buffer against drought, they have tended to suffer from an urban bias and lack of effective social targeting. In the past, South Asian poverty alleviation programmes have tended to be heavily dependent on central administration and management, although there are now signs of more concerted attempts to facilitate decentralization through empowering community−based organizations (e.g. in India through the village−based panchayati raj structures). Pakistan may have been slightly more successful than India in reducing child underweight prevalence rates due probably to a more widespread benefit of agricultural and hence economic growth during both decades.

India and Pakistan score poorly as regards human development, with relatively low per caput expenditures on health and education and a bias towards hospitals and higher education as opposed to preventive primary health care and primary education. For both countries, gender discrimination is evident from the sex ratios as well as educational and reproductive health statistics. More than twice as many men are literate in Pakistan than women and in India the ratio is hardly much better. Low birth weight incidences − which are indications both of women's health and nutrition during pregnancy as well as the infant's future survival, growth and development − are higher in South Asia (approximately 30%) than anywhere in the world. Fertility rates are particularly high in Pakistan (5.8 in 1990) and India (4.0) as compared to further east (e.g. 3.1 and 2.5 in Indonesia and Thailand respectively). Contraceptive prevalences remain particularly low (12%) in Pakistan.

India has the world's largest integrated nutrition and health programme, the Integrated Child Development Services (ICDS) which was initiated on a pilot basis in 1975 before being expanded. By 1998 the Indian government intends to have fully universalized the programme. The ICDS, run by a village−based worker, comprises growth monitoring, supplementary feeding, preventive and curative health, pre−school education to under−six year old children. It suffers largely from a lack of community ownership in its design and management − one symptom of which is its relative failure to prevent malnutrition occurring in the under−three year old child − and has yet to demonstrate a significant nutrition impact.

Africa

In sub−Saharan Africa, the fact that Zimbabwe and Tanzania achieved underweight prevalence declines of about 1 percentage point per year is particularly notable given the picture of economic stagnation and decline during most of the 1970s and 1980s. Egypt showed slight improvement, while Nigeria probably declined in nutritional terms. By 1990, underweight prevalences were 10% (Egypt), 14% (Zimbabwe), 24% (Tanzania) and 35% (Nigeria).

Zimbabwe's experience offers proof that nutritional improvement can move ahead of economic growth. The reason lies partly in the extremely high relative expenditures to social support of health, education and welfare, combined with the operation of a large community−based nutrition programme. Human development and mass educational and health improvements were priorities of the first Zimbabwean government following independence. Neither Zimbabwe nor Tanzania reduced health spending significantly during the economic crises of the 1980s; Zimbabwe actually increased its relative allocation. Both countries had extensive community−based nutrition programmes underway that, at least, prevented nutrition from following the

economy into decline. These programmes benefited from strong community–level organizational capacity and spirit which pre–dated their inception.

In contrast, Nigeria's economic collapse during the 1980s after oil–fuelled 1970s growth, probably repercussed on nutrition. Although trend data do not exist, there are indications from adverse trends in several related social indicators that nutrition was not as resilient as in Tanzania and Zimbabwe. Unlike the latter two, Nigeria did not have any community–based nutrition programmes, human development was not a governmental priority, and gender discrimination was more evident.

Egypt experienced very rapid economic growth in the 1970s which slowed in the 1980s when oil returns dropped. Development was urban–biased and concentrated on a few sectors. A massive general food subsidy increased food consumption levels for some of the population (particularly urban) but at a high price which ultimately proved unsustainable. Neither poverty levels nor child nutrition improved much. In contrast to South–East Asia nutrition concerns were of minor importance in the socio–economic plans.

South America

In South America, Brazil and Mexico suffered serious economic decline during the 1980s and had the worst statistics on poverty and inequity among reviewed countries. These were the richest countries reviewed and had among the lowest child underweight prevalences in 1990 (7%, Brazil and 14%, Mexico), although marked regional disparities exist in both countries.

The rapid growth of the 1970s was urban–biased and aimed at rapid industrial modernization. Brazil's strategy at this time has been referred to as unaimed opulence and was neither regionally nor socially equitable. Unlike Tanzania and Zimbabwe, during its economic crisis Mexico halved its already low relative health expenditure during the first half of the 1980s and cut back also on education. Both Mexico and Brazil however have shown significant fertility rate declines in the 1970s and 1980s.

Nutrition programmes were based on food distribution in Brazil and, albeit very expensive and with a high opportunity cost, probably did protect nutrition during the 1980s recession. But Brazil's nutrition improved in the 70s and 80s more than expected by many. This is ascribed by Iunes and Monteiro, who wrote the case–study, to the influence of population demand in getting access to services, to gradual liberalization and eventually to the return of democracy.

General Conclusions

Overall, while it is not easy to disentangle the effects of a web of interacting policies, programmes and actions on child malnutrition, this synthesis of eleven detailed country studies leads towards the following conclusions.

Nutritional status, especially of children, is crucial for health and survival in the short–run – through the interaction of nutrition and infection – and in the long–term, affecting individual human capital and hence the well–being of society. Good nutrition can be part of self–reinforcing cycles leading to more rapid development.

The interplay of complex factors in development benefiting nutrition can begin to be disentangled. Economic growth is important, but improvement can move ahead of that caused by growth – indeed must do so to tackle nutrition problems with a reasonable time–frame. Observations tend to confirm that investments in health and education, when reaching the malnourished, can help improve nutrition; again this feeds back into better health potential and educability. Finally, deliberate policies to improve nutrition through community–based programmes do appear to accelerate nutritional improvement. The studies illustrate the following points.

Economic development is positively related to nutrition improvement. The relationship is mediated by the effect of economic growth on poverty, equity, household food security, and on social support. Those countries that do better or worse than would be expected from their economic performance provide important lessons – both positive and negative.

An equitable growth strategy seems, as expected, to be more efficient in alleviating poverty (and indirectly improving nutrition) than compensatory poverty alleviation programmes, which are expensive, hard to target and administer, and which in any case depend on growth for their sustainability. Such a strategy should usually be labour–intensive, maximizing use of the poor's major asset, their labour power. Poverty–alleviating growth also hastens demographic transition, reducing dependency ratios and burdens on women.

With rising national income, governments tend to invest more in *health and education.* Both the absolute level of governmental expenditure on health and education and their share relative to overall expenditure tends to increase fairly rapidly after a certain economic threshold is reached (at about per caput US $500 GNP).

But as well as quantity, the quality of expenditure and its distribution are important. Support to strengthening and expanding primary health care and primary education benefits child nutrition more than allocations towards hospitals and universities, for example.

There are mutually reinforcing long–term effects on nutrition by investing in health and education, women's development, as well as direct effects of improved nutritional status on economic productivity – particularly in situations where widespread adult malnutrition coincides with high unskilled casual labour demand. Social discrimination against women is common to countries where nutrition has not improved as much as would be predicted from economic growth.

Direct nutrition interventions give constituency to nutrition and promote a broader awareness of the problem. Those programmes that lay emphasis on process and those that are strongly rooted at the community level tend to be more successful and more sustainable. Decentralized decision–making power, not just responsibility, is crucial. National–level impact of programmes in the 1970s and 1980s remained limited by coverage, which could now be expanded. Programme expenditures are effective around $2–10 per beneficiary per year.

Additional important programmatic issues include problem definition and analysis, design, infrastructure, coverage, intensity, management and ownership. A mix of top–down and bottom–up planning is pragmatic and effective, with beneficial synergisms likely between the two.

A duality of institutional support for nutrition (with the research/advocacy/monitoring/planning institutions separated from the operational agencies) seems to be effective.

Nutrition considerations have influenced broader development policies, generally through relevant functional information on the malnourished catalyzing an awareness of malnutrition, its linkages and indirect effects. Democratization and a freeing up of the media have supported this.

The process of developing a nutrition policy is at least as important as the immediate outcome. If the formulation of a policy does not take the time necessary to promote awareness and mobilize sectors it may fail to achieve a significant impact.

In sum, future policies for improving nutrition do need to be underpinned by sustained and equitable economic growth – even if nutrition considerations may have limited influence on economic decisions. As expected but now supported by data, macro policies that favour public resource allocations to the social sector – in this case notably health and education – and ensure that these reach people in need, pay off in improved nutrition. Policies that actively support and empower women are essential in most countries.

Direct interventions in nutrition seem to be effective and worthwhile when these are genuinely community–based. The *process* of communities taking these on is now more important than the content, which is well–established. Programmes need targeting in their early stages when resources are scarce, then usually move to universal coverage; they can and do mature to selection again, as malnutrition recedes and administrative capabilities improve.

Such policies have brought about rapid improvement in nutrition, and their vigorous implementation in the future can accelerate this process. Many countries could meet internationally accepted goals for nutrition improvement. Enough countries have succeeded to show that success is a reasonable ambition, and that the means to achieve it are broadly known. The end of malnutrition is coming into sight, on the horizon, and mankind really could get there in the foreseeable future.

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