Nutrition and Poverty – Nutrition policy discussion paper No. 16

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Papers from the ACC/SCN
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UNITED NATIONS – ADMINISTRATIVE COMMITTEE ON COORDINATION/SUB–COMMITTEE 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 are issued, and flows of external resources to address nutrition problems are assessed. Nutrition Policy papers are 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.

Further information can be obtained from the Sub−Committee on Nutrition, as follows:

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Foreword and Acknowledgements

South Asia has the highest prevalence rates of child underweight and stunting in the world. Because of the massive populations living in this region these rates translate into huge numbers. Indeed about one half of all malnourished children live in South Asia.

South Asia is also very poor, with a per capita GNP of US$345 in 1996; nearly 40% of the world's income−poor live in this region. Efforts to reduce child malnutrition in South Asia must be based on a clear understanding of the role of poverty as a cause and a consequence of malnutrition.

This report presents a collection of papers discussed at the 24th Session of the United Nations Sub−Committee on Nutrition, held in March 1997 in Kathmandu. The Symposium presenters and discussants traced the origins of child malnutrition to low birth weight, maternal deprivation and discrimination against girls and women in South Asia. Malnutrition in the early childhood years can have serious consequences for the school−aged child and well into adulthood. This argues unequivocally for policies directed towards adequate food, health and care for women, their families and their communities.

This Symposium saw the inauguration of the first Abraham Horwitz Lecture, in honour of Dr Horwitz' long and distinguished service to the ideals and objectives of the SCN. Dr Horwitz served as Chair of the SCN's Advisory Group on Nutrition from 1982 to 1986. He was appointed Chair of the SCN in 1986 and was renewed in this position repeatedly until 1995. Dr Horwitz' great energy, enthusiasm and good humour are felt by all of those who work with him. With John Mason as Technical Secretary for most of this period, Dr Horwitz worked tirelessly to put in place this series of Nutrition Policy Papers, referred to for many years as the SCN State−of−the−Art series.

We were delighted that Professor S.R. Osmani agreed to take on the challenge of giving the first Abraham Horwitz Lecture. Professor Osmani is Professor of Economics, at the School of Public Policy, Economics and Law, at the University of Ulster at Jordanstown.

This Symposium was organized locally by the UNICEF Regional Office for South Asia in Kathmandu, whose administrative and financial support is very gratefully acknowledged. We owe thanks to the seven speakers who presented their work, and gave freely of their time. Stuart Gillespie ably served as rapporteur for the Symposium and wrote the overview piece (chapter one), The publication costs were covered by the USAID. We are most grateful to Frances Davidson of the Office of Health and Nutrition of USAID, Washington, for early support for this Symposium and for securing funds for this purpose.

Many thanks are due to members of the SCN's Advisory Group on Nutrition who served as external reviewers for this publication. Lindsay Barrett provided us with the beautiful illustrations. Jane Hedley and Jane Wallace, in the SCN Secretariat, were patient and skillful with the handling of text and graphics.

This report provides new analysis and thinking from both nutrition research and practice. It is meant to stimulate discussion and inform policy setting. The intended audience is a broad constituency of professionals concerned with development, for which nutrition is an indicator of achievement and a central aim.

Chapter 1: An Overview, by Stuart Gillespie

The 24th Session of the ACC/SCN was held in Kathmandu, Nepal on 17–21 March 1997, hosted by the UNICEF Regional Office for South Asia. During this Session, the subject of the symposium held on 17–18 March was "Nutrition and Poverty" with a special emphasis on South Asia.

The present report of the proceedings of the symposium includes the various papers that were presented. This introductory overview is intended to summarize the main issues debated and the content of individual presentations, whilst weaving in the relevant plenary discussions. The main points of a synthesis, representing the consensus of the group, comprise the concluding section.

Objectives of the Symposium

Just as malnutrition and poverty have over the years been the subject of often intense conceptual debate, so by extension has the nature of their inter–relationship. Of the two common extreme positions, the first tends to state that poverty is the direct cause of malnutrition and that no nutritional improvement can be expected unless and until poverty is reduced. Proponents often refer to the common macro–level correlation between the prevalence of malnutrition in a country and its economic position or growth rate. The second extreme position holds that poverty is not necessarily a cause of malnutrition and that malnutrition can be eliminated without any reduction in poverty. Adherents to this view refer to the existence of "positive deviance" – the fact

that some very poor households have well–nourished children.

The symposium took as its starting point the premise that both these two common extreme positions should be rejected; that such a rigid "either/or" dichotomy is too simplistic and generally unhelpful. At the outset it was recognized that, over different time spans, poverty contributes to malnutrition and malnutrition contributes to poverty. The aim however was not to prolong the debate on definitions. Rather it was to clarify and raise awareness of the complex relationship between poverty and malnutrition in South Asia, thus ultimately facilitating an improvement in the nutritional impact of relevant policies and programmes.

South Asia is the poorest region in the world, with a per capita GNP of US$309 in 1993 (Haq 1997). Nearly 40% of the world's income–poor live in South Asia, while its share of global population is 22% and its share of global income is 1.3% (UNDP, 1997). This is also the region with the highest proportion and number of the world's malnourished children and malnourished women (ACC/SCN, 1996).

Extracts from recent Declarations and Resolutions

***Copenhagen Declaration on Social Development* (*from the 1995 World Summit for Social Development*):**

"More than one billion people in the world live in abject poverty, most of whom go hungry every day. A large proportion, the majority of whom are women, have very limited access to income, resources, education, health care or nutrition....."

"More women than men live in absolute poverty and the imbalance continues to grow, with serious consequences for women and their children. Women carry a disproportionate share of the problems of coping with poverty, social disintegration, unemployment, environmental degradation and the effects of war."

"We commit ourselves to the goal of eradicating poverty in the world, through decisive national actions and international cooperation, as an ethical, social, political and economic imperative of humankind. To this end, at the national level, we will focus our efforts and policies to address the root causes of poverty and to provide for the basic needs of all. These efforts should include the elimination of hunger and malnutrition; the provision of food security, education, employment and livelihood, primary health care services including reproductive health care, safe drinking water and sanitation, and adequate shelter; and participation in social and cultural life. Special priority will be given to the needs and rights of women and children, who often bear the greatest burden of poverty, and to the needs of vulnerable and disadvantaged groups and persons."

At the international level a commitment was made to:

"Focus attention on and support the special needs of countries and regions in which there are substantial concentrations of people living in poverty, in particular in South Asia, and which therefore face serious difficulties in achieving social and economic development."

***The Rawalpindi Resolution on Children in South Asia* (*from SAARC's Inter–Ministerial Conference in 1996*)**

Refers to: "widespread malnutrition in children, especially amongst those under two years of age, which is closely linked not only to poverty but also to inappropriate child caring practices and infections."

The Resolution reaffirms end–decade goals for severe and moderate malnutrition and contains an agreement to accelerate progress towards these goals by: "launch[ing] a comprehensive nutrition initiative in South Asia..."

The symposium was chaired by Dr Bal Gopal Baidya of the Planning Commission, Government of Nepal, and introductory remarks were made by Dr Naeem Hasan, (Secretary–General of the South Asian Association for Regional Cooperation, SAARC), Ms Caroll Long (UN Resident Coordinator, Nepal) and Dr Urban Jonsson (UNICEF Regional Director for South Asia). Following the opening session, Dr Richard Jolly (Chairman of the ACC/SCN) introduced the first Abraham Horwitz Lecture, which was delivered by Professor Siddiq Osmani of the University of Ulster, U.K. Subsequent presentations were made by Urban Jonsson, Richard Jolly, Rizwanul Islam (ILO, Geneva), Deepti Chirmulay (BAIF Research Foundation, India), Vijay Vyas (Jaipur Institute for Development Studies, India) and Rainer Gross (GTZ, Indonesia).

Introductory Remarks

Dr Bal Gopal Baidya welcomed all participants to Nepal and to the symposium before introducing Ms Caroll Long, who spoke of the important principle of collaboration followed by both the UN and SAARC in Nepal, and said she anticipated guidance from the symposium deliberations. Dr Urban Jonsson welcomed the group to what he considered the most important nutrition meeting of the year. He was pleased that SAARC was participating, and drew attention to the 1996 SAARC Inter–Ministerial Conference resolution which endorsed the need for a regional nutrition initiative. He anticipated that holding the meeting in Nepal would enrich the ACC/SCN deliberations and vice versa, Nutrition is at the heart of human development, which in turn is critical for economic development. Dr Jonsson argued that there was a need now to catalyse a perception of nutrition as good politics. Acting to reduce malnutrition is not a question of political will – it's a question of political choice in a democratic world.

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The SAARC Position

Dr Naeem Hasan, the Secretary–General of SAARC viewed the symposium as a timely initiative. SAARC is committed to ridding the region of malnutrition and poverty. Malnutrition remains a major problem, with more than half the young children in South Asia being malnourished. Half the global total of low birth weight babies are born in South Asia, and the stunting prevalence remains very high – in fact, double the rate in Sub–Saharan Africa. Malnutrition has short– and long–term adverse effects on intelligence, productivity and the pursuit of developmental objectives.

SAARC heads of state have recognized poverty as accentuating problems of malnutrition. It remains committed to accelerating broad–based economic growth and ensuring adequate social support to all vulnerable groups. A SAARC mechanism for information sharing has been institutionalized to encourage the dissemination of poverty–reduction success stories. It is hoped that pro–poor programmes, once they are better targeted, will reduce malnutrition. But additional action is needed – malnutrition reduction requires a multidisciplinary approach. With scarce resources, Dr Hasan stated, we need to know what works best and where to focus our resources. Strong advocacy is required at all levels.

SAARC has made malnutrition reduction a primary objective. At its August 1996 Inter–Ministerial Conference in Rawalpindi, Pakistan, all countries resolved to endeavour to halve 1990 malnutrition rates by the year 2000 and to then halve them again by 2010. Dr Hasan spoke of SAARC's undertaking to: i) monitor the nutrition situation and ensure sustained implementation of policies to reduce malnutrition (including micronutrient deficiencies) and to reduce household food insecurity; ii) initiate age–specific programmes for malnutrition reduction; iii) ensure institutional support for such programmes; and iv) encourage mass awareness of malnutrition and its effects through electronic and other mass media. There is a need to forge effective coalitions to this end. Dr Hasan stated that SAARC would welcome any suggestion for reinforcing the regional nutrition initiative through any proposal for malnutrition reduction that might emerge from this symposium.

Income and Nutrition

In the Abraham Horwitz Lecture on *"Poverty and Nutrition in South Asia",* Professor Osmani drew attention to the three predominant theories of nutrition improvement:

- the material well–being theory,
- the public health intervention (or technology–based) theory, and
- the cultural behavioural theory.

Many studies have linked changes in income (usually at the national level) with changes in health and nutrition indicators, though interpretation has often been problematic given the likely two–way causality. Osmani suggested that the evidence points to increased income leading to improved health, although studies nevertheless show that national income explains only a very small proportion of, for example, infant mortality

rate variation over a five year period. Private incomes in the hands of the poor explains only a small part of health change, and South Asian studies have shown increased female literacy to have a greater effect.

If women are not empowered with knowledge or time, any increased income may not be used to maximal nutritional benefit.

Income is not enough for nutrition to improve because more calories may not be bought with increased income, because important non–food factors such as environmental hygiene and health care may not be purchasable with increased income, and because much hangs on how food and non–food resources are actually used in households – particularly by women, who tend to be the main caregivers. If women are not empowered with knowledge or time, for example, any increased income may not be used to maximal nutritional benefit.

Even if incremental income is used to acquire more or different foodstuffs, these may not be the foods that provide the nutrients required for a balanced diet. If costlier refined cereals are purchased with extra income, then nutritional benefits may not accrue. But if the extra income translates into a more varied diet, for example, with some meat and dairy products, fruits and vegetables, then – although calories may not increase appreciably – micronutrient status (and with it, nutritional status) is likely to improve. Micronutrients have tended in the past to be ignored in discussing the food–income relationship.

Most studies concur in showing that calorie–income elasticity is high for households consuming very low initial per capita calories (the poorest of the poor), but lessens as mean consumption increases. Osmani concluded that on balance *the impact of income on calorie intake is unlikely to be negligible".*

The Nutrition–Infection Nexus

What matters ultimately for nutrition is not just the intake of nutrients but their utilization at a cellular level. The "nutrition–infection nexus" is well known as a powerful determinant of the ultimate nutrition outcome. Sickness can seriously hamper cellular utilization of nutrients, reducing nutritional status and thus, in the process, weakening any link between income and nutrition. The link between child nutrition and income is particularly weak, firstly because young children do not need much food (and hence income is less of a constraint) and secondly because they are particularly vulnerable to growth faltering as a result of infection and disease.

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Diet and disease, as Osmani stressed, have a two–way relationship, with independent and additive effects on a child's anthropometric status. Low calorie intake will thus adversely affect nutrition directly, but also indirectly through accentuating the effects of morbidity; diarrhoea, for example, may last longer or be more severe if dietary intake is inadequate.

Increased national per capita income (reflected in the GNP measure) provides the wherewithal, not only for increased food and health expenditure by individuals (private action) but also for increased state investment in public health infrastructure and other forms of social provision (public action). With regard to health provision, private actions and private incomes are more limited in their utility. Public action is needed, by communities, states and nations, in the form of health care provision, environmental sanitation, water and so forth.

The South Asian Puzzle

Given the importance of private income and public health provision, we are left with the "South Asian puzzle" – or the "Asian Enigma" as defined by Ramalingaswami *et al*. (1996). In a nutshell, the puzzle is this: how can the child nutrition situation in South Asia be so much worse than in Sub–Saharan Africa when, on balance, per capita incomes and public health provision in South Asia are better than in Sub–Saharan Africa?

This is where Osmani's third theory – the cultural behavioural theory – comes into play. He investigated the puzzle using national data from 45 countries in a multiple regression model with per capita income, income distribution, health service access, female literacy and a South Asian dummy as explanatory variables.

Female literacy is known to be a strong correlate of child nutrition and many South Asian national nutrition surveys bear this out.

One striking finding of Osmani's analysis was the highly significant dummy variable, suggesting that the answer to the puzzle remains elusive. Low birth weight seemed to meet the criteria for a missing factor (having a plausible impact on child nutrition and being particularly problematic in South Asia) and was thus plugged into the model. It fitted, proving that a very strong relationship exists between low birth weight and child malnutrition. But, Osmani continued, this begs the question – what causes low birth weight?

Moving further back in time, we know that maternal malnutrition is strongly related to low birth weight at an immediate level. Women in South Asia are most likely to be underweight and most likely to give birth to a baby who is also underweight when compared with women in other regions. In fact, one in three children in South Asia are of low birth weight and can thus be said to have actually been born malnourished. These children start life at a disadvantage and have less chance of recovering from this deficit in later childhood or even adolescence. Malnutrition is thus passed on from generation to generation.

Discrimination is rife in the allocation and control over food, health and other resources.

But again, what causes maternal malnutrition – and what causes it to be so bad in South Asia? At a basic level, Osmani concluded, the answer ultimately lies in the discrimination meted out to girls and women in South Asia, Discrimination is rife in the allocation and control over food, health and other resources. The overall weakness of women's role is reflected in low female/male literacy ratios, low age at marriage, limited opportunities – if any – to participate economically or socially and, above all, the imbalance in the sex ratio. The 74 million "missing" women of South Asia bear stark testament to the extent and severity of this discrimination and deprivation.

"If we want to know more about our nutrition and what to do about it, we must team more about our women and their deprivation", concluded Osmani.

Malnutrition in South Asia

Dr Urban Jonsson began his presentation on *"Malnutrition in South Asia"* by stressing that any appraisal of policies and programmes would require a solid assessment and analysis of the nature of the nutrition problem. This necessarily should go beyond a description of outcomes, such as underweight prevalences, to include an analysis of causes. Jonsson focused on all forms of malnutrition, but particularly protein–energy malnutrition[1] and particularly among young children who are most at risk and most likely to suffer serious consequences. Recent research has convincingly demonstrated that up to two–thirds of child mortality is associated with malnutrition (Pelletier *et al*. 1994)

[1] The most common measure of "malnutrition" is the anthropometric status of under–five–year–old children. A child's weight, height and age permit determination of the degree of underweight, stunting or wasting, and such measures are usually considered as proxies of "protein–energy malnutrition". Weight–for–age is the universally recognised summary indicator, albeit with the qualification that micronutrients as well as such macronutrients as energy and protein may affect child growth and hence the underweight measure. Protein–energy malnutrition is increasingly seen as potentially too restrictive a term when applied to the anthropometric status of a child.

In order to structure an analysis of the nutrition problem in society, different conceptual frameworks have been used in the past. Jonsson reviewed a selection of these frameworks before describing the UNICEF nutrition strategy framework, in which nutrition is clearly positioned as an outcome of causes which operate and interact dynamically at different levels in society (see Chapter 4, Figure 1, page 54). This framework is simple yet comprehensive in covering the multidisciplinary causes, flexible yet capable of providing guidance in what to look for to explain malnutrition in a given context.

more than half of the world's underweight children live in just three countries – India, Bangladesh and Pakistan

Jonsson reminded the symposium that the prevalence of child malnutrition is far higher in South Asia than in any other region in the world, with 85 of the 157 million underweight under–fives in the world living here. In

fact, more than half of the world's underweight children live in just three countries – India, Bangladesh and Pakistan.

The small improvement in percentage terms since the mid–1980s has only just kept pace with population growth and thus the absolute number of underweight children has only dropped by 2% in a decade (from 87 to 85 million). Nutrition is just not improving fast enough. The rate of improvement will need to be significantly accelerated if the goals of the World Summit for the Child, the International Conference on Nutrition and the Rawalpindi Resolution are to be achieved.

most of the 'malnutrition drama' is already over by the second birthday

There are significant inter–country variations. Of the five largest South Asian countries for which recent data are available, the percentages of under–fives underweight in decreasing order are as follows: Bangladesh (67%), India (53%), Nepal (49%), Pakistan (40%) and Sri Lanka (38%) (UNICEF 1996).

Table 1: Underweight Children (0–60 months) by Region, 1985–1995

Region	Percent underweight			Numbers underweight (mill)			Trend (pp/year)	
	1985	1990	1995	1985	1990	1995	1985–90	1990–95
South Asia	55.3	50.1	48.8	87.2	84.5	85.2	–1.04	–0.26
South–East Asia	39.8	34.2	32.4	22.3	19.8	19.1	–1.12	–0.36
China	22.7	17.8	15.0	23.0	21.1	16.6	–0.98	–0.56
Sub–Saharan Africa	25.8	28.0	27.2	20.9	26.0	27.8	0.44	–0.16
Near East/North Africa	13.0	9.9	9.6	4.1	3.4	3.4	–0.62	–0.06
South America	9.8	8.9	8.4	3.0	2.8	2.7	–0.18	–0.1
Middle America & Caribbean	18.1	15.3	15.2	3.3	2.9	3.0	–0.56	–0.02
TOTAL	34.3	30.7	29.3	163.8	160.5	157.6	–0.72	–0.28

Source: *ACC/SCN* (*1996*)

It is necessary to be specific about *who* is malnourished before an analysis is undertaken to determine *why* they are malnourished. Malnutrition is highly age–dependent and, as Jonsson pointed out, most of the "malnutrition drama" is already over by the second birthday. This points to causes as well as to possible solutions, as any preventive programme clearly will have to be targeted to children in their first two years of life.

With regard to causes, at an immediate individual level inadequate dietary intake and disease will adversely impact on young child growth – as elaborated by Osmani in his description of the nutrition–infection nexus. At an underlying level, there are three primary causes relating to household food insecurity: poor access to health services, an unhealthy environment, and inadequate care of women and children[2].

[2] Interestingly, the three theories described by Osmani can be seen to fit well into the UNICEF framework's triad of underlying causes – household food security relating to the material well–being theory, health services and environment relating to the public health intervention theory, and care of women and children relating to the cultural behavioural theory.

That third underlying cause – inadequate care – is usually the most neglected despite it being possibly the most widespread cause. Jonsson described several types of caring practices including those relating to feeding, home health care, hygiene, psychosocial stimulation. Breastfeeding may be almost universal in South Asia, but exclusive breastfeeding in the first four to six months certainly is not. In addition, complementary foods are usually introduced too late – only a third to a half of six–to–nine–month–olds in South Asia are receiving such foods. Growth faltering is virtually inevitable for such children, as they simply will not be able to acquire sufficient nutrients from breast milk alone at this age.

Moving back in the analysis, the fulfilment of the three underlying pre–conditions for adequate nutrition – food, health and care – is determined by the availability, control and use of various resources, which are in turn determined by technological/material conditions, social conditions, and political and ideological factors – the basic causes of child malnutrition.

The conceptual framework thus articulates the outcome or goal of any approach that aims to reduce malnutrition by combating its main causes. Process is as important as outcome, and any approach to dealing with these causes of malnutrition will have to be participatory, empowering and sustainable. "*This is the essence of a human rights approach to development* "concluded Jonsson.

Income Poverty and Capability Poverty

Poverty has conventionally been measured as the number or proportion of people in a population who earn less than is required for minimum subsistence, however the latter is defined. Poverty as such is thus implicitly an economic concept with income traditionally considered as the main determinant of a person's well–being. Income poverty may be *absolute* with respect to a subsistence minimum or *relative* with respect to what others earn or own. Absolute poverty and relative poverty (or inequality) are often related but can be quite different. It is possible, for example, to have complete inequality with no poverty or, conversely, universal poverty with no inequality.

where health services are inaccessible, there may be little opportunity for a child to be immunized and to thus develop the capability to be healthy

Income poverty estimates, however, exclude other elements of deprivation such as a lack of access to basic resources like housing, clothing, education and health care. In recent years, as recognition of these limitations has increased, a broader definition of "human poverty" has been proposed wherein poverty is seen primarily as relating to people's capabilities and opportunities (UNDP 1997). In a society without opportunity, people cannot develop their capabilities. For example, where health services are inaccessible, there may be little opportunity for a child to be immunized and to thus develop the capability to be healthy. Opportunities emerge when barriers to access are removed. In the above example, income may not provide the means or opportunity and such a "poverty" will not be captured in a measure of private income. As opportunities arise, so does the ability to make choices–another important dimension of human capability.

UNDP originally recommended the use of a new "Capability Poverty Measure" (CPM) to reflect such a lack of basic or minimally essential human capabilities (UNDP 1996).[3] The CPM was actually a composite of the following three indices, which in the positive (converse) sense represent important capabilities:

- the prevalence of underweight under–five–year–olds,
- the proportion of birth deliveries unattended by trained personnel,
- the female illiteracy rate,

[3] The better known Human Development Index (HDI) focuses on the average level of capabilities, not the lack of such capabilities.

While one–third of the South Asian population were found to be income–poor, two–thirds were capability–poor (UNDP, 1996). Interestingly, this was the first definition of a form of poverty that explicitly included child malnutrition.

The poorest of the poor will be illiterate, malnourished, without access to safe water or health services, and likely to die young.

More recently, in the *Human Development Report 1997,* a "Human Poverty Index" is used to compare countries. The HPI is a composite of five indices relating to life expectancy, literacy, access to safe water and health services, and child nutrition. Regarding these various deprivations, South Asia is found to have 52% of the world's malnourished children, 48% of global adult illiteracy, 36% of the global population who are not expected to survive beyond 40 years of age, and 34% and 19% of the global population lacking access to health services and safe water respectively (UNDP 1997). Deprivations overlap and cluster. The poorest of the poor will be illiterate, malnourished, without access to safe water or health services, and likely to die young.

Another recent report, from the Human Development Centre in Pakistan, proposes the Human Deprivation Measure (HDM) which is also a composite of deprivations in health, education and income (Haq 1997). The HDM is designed to capture the basic elements of human poverty, with the aim of reminding policy–makers which human capabilities are lacking in society, among which population groups, and what specific steps need to be taken to integrate the poor into the mainstream of the country's economic, social and political life.

The number of South Asians found to be suffering from such a combined deprivation of health, education and income (514 million) is far higher than those who only experience income deprivation (330 million), as shown in Table 2. While millions do not earn enough to meet their subsistence needs, many more do not enjoy access to resources such as basic education, health care, safe drinking water etc. In short, human poverty/deprivation far exceeds income poverty/deprivation.

Table 2: Human Deprivation in South Asia

	Population	***Health Deprivation Measure (a)***		***Education Deprivation Measure (b)***		***Income Deprivation Measure (c)***		***Human Deprivation Measure***	
	Mil.	***%***	***Total***	***%***	***Total***	***%***	***Total***	***%***	***Total***
Bangladesh	115	31	36	73	84	48	55	61	71
India	902	32	288	53	479	25	226	40	361
Pakistan	133	58	77	65	86	34	45	57	76
Sri Lanka	18	44	8	27	3	22	4	31	6
South Asia*	1168	35	409	56	652	28	330	44	514

a) composite of lack of access to safe drinking water and under–five underweight prevalence
b) composite of adult illiteracy and out–of–school children
c) adopted from World Bank 1995, based on national poverty lines
* Values for other South Asian countries were not computed due to lack of data

Source: *Table 1.5 in Haq* (*1997*) *Human Development in South Asia*

In the plenary discussion, Dr Vijay Vyas suggested the following reasons for the persistence of the uni–dimensional view of income poverty:

• The prevailing developmental paradigm still elevates the GNP as a measure of progress. This may be even more emphasized in monitoring structural adjustment.

• Bureaucracies have severe limitations in taking a comprehensive view due to their very nature. They tend to be short–sighted, of short duration, have limited accountability and little contact with other knowledge systems.

• The weakness in existing social systems. At present, pre–existing imported methodologies, which may not be relevant in certain countries, are still used.

• Little bottom–up demand due to the lack of voice of the poor.

Vyas suggested that these limitations may now be becoming relaxed due to, firstly, the efforts of UNDP which have catalysed a growing awareness of the multidimensional nature of the problem and, secondly, the fact that NGOs are becoming more vocal and influential, as power increasingly devolves from the centre, e.g. through the *panchayati raj* constitutional amendment in India.

It should be noted that measures such as the HDM remain essentially head counts which do not give an indication of the *depth* of poverty. There is still much to be learned about the condition of the poorest of the poor, i.e. the bottom 20%. Current income distribution measures in South Asia are extremely deficient and further work needs to be done (Haq, 1997). At a global level, inequality is worsening – in 1960 the poorest 20% had 2.3% of the world's income, in 1991,1.4% and now about 1.1%. The net wealth of the 10 richest billionaires is $133 billion, more than 1.5 times the total national income of all least–developed countries. It

has been estimated to take US $100 billion to "eradicate poverty", a sum roughly equivalent to the assets of the top 7 billionaires (UNDP, 1997).

Self–Perception

How do the "poor" view poverty? Is income seen as the most important aspect? Many small–scale studies that have explored this have found that issues such as dependency, a lack of voice, marginalization and low self–esteem are elements of deprivation that are spoken of at least as much as abject income poverty. In India, Robert Chambers found the following hierarchy of priorities to be common among the poor, in order of descending priority: consumption for survival, assets for security, and independence for self–respect (Chambers 1987). The preoccupation of professionals with flows (income) and measurement (poverty lines), and the predominant reductionism inherent in such thinking, have limited an understanding of poor people's true priorities and goals. Vulnerability and powerlessness tend to be missed, despite these being among the main concerns of the poor.

Deriving from poor people's own efforts to ensure the satisfaction of their basic needs, Friedmann (1996) argues for relating poverty to disempowerment, of which there are three main dimensions:

- social disempowerment, relating to poor people's lack of access to resources essential for the self–production of their livelihood;

- political disempowerment, relating to poor people's lack of a clear political agenda and voice;

- psychological disempowerment, relating to poor people's internalized sense of worthlessness and passive submission to authority.

In addition, it is important to note that conventional measures of poverty are based at the individual or household level. As argued in the symposium, there are also poor communities and community poverty is more than the sum of its parts.

Rights and Needs, Subjects and Objects

Aspects of life which cannot be reduced to mere commodities – including capability, opportunity and choice – are among the main goals of poor people. Poverty thus defined relates more strongly to human rights than to welfare. A rights–based view stresses the poor person as a subject or an actor, while basic needs approaches tend to view the poor as objects. The Report of the Independent South Asian Commission on Poverty Alleviation established at the 1991 SAARC Summit in Colombo states that:

"In the past ten to fifteen years, a sufficient body of new experience has matured at the micro–level in South Asian countries, to demonstrate that where the poor participate as subjects and not as objects of the development process it is possible to generate growth, human development and equity, not as mutually exclusive trade–offs but as complementary elements in the same process."

The basic needs approaches of the past have tended to co–exist with conventional trickle–down economic growth strategies and to emphasize the consumption of the poor (as objects) rather than their productivity (as subjects). Poverty alleviation, often in the form of tacked–on, self–standing programmes, is thus seen as a means of compensating for inequities in growth, rather than being embedded within the growth process as a main driving force. Equitable growth strategies, with the poor as subjects, are likely to be more efficient at alleviating poverty than compensatory poverty alleviation programmes which are expensive, difficult to target and administer, and which in any case depend on economic growth for their sustainability (Gillespie *et al.* 1996). This is backed by a recent study of poverty in India, in which inter–state differences in human resource development (including literacy, health) were found to be among the main determinants of inter–state differences in poverty reduction rates (Ravallion and Datt, 1997).

there was agreement that a broad definition of human poverty would encompass aspects of deprivation for which there are legal obligations

Needs are promises, voluntary, and as such weaker than non–negotiable obligations in a rights approach. Rights cannot be given, they can only be taken away. The right to food is an example of the most commonly expressed right as well as the most commonly violated one. What are poor people's views of charity? Most hate it – in a rights approach, charity is obscene, stated Jonsson. The symposium went on to debate whether being poor violated a human right. Despite not reaching consensus, there was agreement that a broad definition of human poverty would encompass aspects of deprivation for which there are legal obligations. In the Copenhagen Declaration, for example, national leaders committed themselves to: *"reaffirm, promote and strive to ensure the realization of the rights set out in relevant international instruments and declarations..... including those relating to education, food, shelter, employment, health and information, particularly in order to assist people living in poverty".*

The UN Centre for Human Rights views human poverty as a denial of fundamental human rights, stating that international human rights law – as enshrined in the UN Charter, the Universal Declaration of Human Rights and other treaties and declarations – recognizes economic and social rights, with the aim of attacking poverty and its consequences (UN, 1997).

Gender

If poverty relates to a lack of capabilities which in turn relates to a denial of opportunity, then which segment of the South Asian population suffers most? As argued by Osmani and Jonsson, women in South Asia are particularly discriminated against. Gender disaggregations of human development data continue to reveal basic and often pronounced inequities.

UNDP's Gender–Related Development Index (GDI) for South Asia – basically a measure of female capability – was 25% lower than the mean for developing countries. The Gender Empowerment Measure (GEM), which measures female participation in political, economic and social spheres of life and their decision–making power, was even worse (UNDP, 1996).

The extreme end of this spectrum of denial is the denial of life – whether through passive neglect or through active foeticide and infanticide – as borne out in South Asia by the millions of "missing" women. This situation does not apply to all countries in the region, Sri Lanka for example is noteworthy for gender equity and the relatively strong social and economic status of women; 86% of Sri Lankan women are literate. In Pakistan, only 23% of women are literate.

Linking Malnutrition and Poverty

At a macro–level, child malnutrition is related to poverty, but at the community level, poverty does *not* appear to be strongly related to child malnutrition in many cases. Other factors are important, many of which relate to the intra–household *use* of resources – resources such as the time and the knowledge of the main caregiver, usually the mother. How much time is allocated to feeding, caring and ensuring a healthy environment for children? How much time is spent away from young children, working to earn enough to survive? Poverty reduces choice and forces households to make such difficult decisions and trade–offs. The relationship between nutrition and poverty may be complex.

Nutritional status is both an effect and a cause, of income–earning opportunities

Dr Rizwanul Islam conceptualized the interlinkage between poverty and nutrition as a cycle in his paper *"Poverty and Its Effect on Nutrition".* Nutritional status is both an effect and a cause of income–earning opportunities. Development policy may influence the cycle positively by improving the ability of households to obtain food, e.g. through public distribution, employment provision, or through policies relating to health and education, particularly female education. Nutrition is thus an outcome of food and non–food factors; of privately–consumed basic needs and socially–provided basic needs.

Given the importance of social provision and public action, it is hardly surprising that poverty, as it is conventionally defined at the household level, does not often associate strongly with nutrition. At the national level though, the poverty of a nation will determine what can be socially provided in the way of health and education infrastructure and services.

Islam sketched an overview of the poverty alleviation record of Asian countries over the last three decades. In general, the South–East Asian countries such as Thailand and Indonesia achieved far better progress in poverty alleviation than their South Asian neighbours. Plotting per capita income against calorie availability shows that the relationship is non–linear and that it is possible for a reasonable level of calorie intake to be achieved at a low level of income – providing public development policy is appropriately focused to this end. Notable examples include China and Sri Lanka.

The income – nutrition link may be weakened by many other factors, e.g. intra–household food distribution and/or female education, as pointed out by others. Islam concluded by suggesting the need to look for factors other than income in the causation of child malnutrition.

it is possible for a reasonable level of calorie intake to be achieved at a low level of income – providing public development policy is appropriately focused to this end

In his paper *"Poverty Alleviation and Nutrition Enhancement in South Asia",* Dr Vijay Vyas spoke of the respectable, though not spectacular, growth in GDP of South Asian countries in the last decade. Such growth was largely fuelled by agricultural production and succeeded in ensuring food security at a macro–level as well as reducing income poverty. Given the fact that the poverty line is based on the ability of households to purchase sufficient calories, it should be assumed that calorie intake also increased. In addition, many of these countries actively pursued poverty alleviation policies based on programmes of asset distribution, employment generation and the provision of safety nets. These programmes were *not* significantly cut back following liberalization of many of these economies – yet child malnutrition prevalences remain almost as high as a decade ago.

Using the UNICEF conceptual framework of food–health–care, Vyas pointed to the fact that household food security is but one of the three main underlying preconditions that need to be satisfied for nutrition to be adequate. Concurring with other presenters, he underlined the persistent poor quality of health services, female illiteracy and the consequent disempowerment of women as being important barriers to nutritional progress. Poverty alleviation programmes will have to incorporate the features of health and care if they are to positively impact on nutrition. An integrated view of poverty alleviation which gives equal importance to household income, health and nutrition will in turn contribute to the economic performance of poor households, Vyas said. For the assetless poor, health is an asset which could enable them to transact in the market place with some advantage.

In *"Nutrition, Care and Poverty",* Dr Deepti Chirmulay discussed a case study of the positive nutritional impact of an integrated development project in a tribal area of western India where child underweight rates were very high (between 58 and 73%), In another study of the causes of rural child malnutrition carried out in five Indian states, chronic poverty was found to be reflected by prevalent food shortage, dependency on credit, migration for employment and limited livelihood opportunities. One particularly striking finding of this study was the fact that between 46 and 81% severely underweight children lived in households which did *not* report a food shortage. Adult education on the other hand was highly correlated with child nutritional status, as were factors such as access to health services and the availability of safe drinking water. At more immediate levels, late initiation of complementary feeding was a common problem. Children may not be offered semi–solids until their first birthday, and thereafter little attention is reportedly paid to the quality of the child's diet.

In one study in India.... between 46 and 81% severely underweight children lived in households which did not report a food shortage

A particular model of poverty, used by GTZ in Indonesia, was described by Dr Rainer Gross in his paper *"Nutrition and the Alleviation of Absolute Poverty in Communities".* The model relates poverty to a set of basic needs, including food, health, education, housing, clothing, water and a social and cultural life. These resources are acquired by various means, which might include income, time and knowledge. An individual or household is deemed "poor" to the extent that there exist shortfalls in the means to acquire these resources and thus satisfy basic needs.

When measuring poverty, either the inputs/causes or outcomes/effects may be used as indicators. Income is but one input or causal indicator which has many problems. It is unidimensional while poverty is multidimensional, it is hard to measure accurately and it does not take into account subjective perceptions of what it is to be poor. Gross argued for a consideration of child anthropometric indices, particularly stunting, as indicators of poverty. Unlike income, these are outcome indicators which measure the cumulative and combined effect of different elements of poverty on people – in this case, young children. Gross suggested that the range of basic needs are well covered in the UNICEF framework, of which nutrition is an outcome. As

well as environmental factors, a child's height or weight is affected by his/her genetic potential, although studies have shown that variation in genetic potential between populations is unlikely to exist to any significant degree. The child's environment, in a broad sense, will thus determine the child's nutritional status. However, child nutritional status is still an objective index which is non–specific to causes. In practice, several complementary indicators should be chosen.

Interestingly, while the project led to... economic, gains (which were reflected in nutrition), the environmental situation remained poor, and diarrhoeal disease was widely prevalent

Gross related the progress of a social forestry project in Indonesia with child nutrition. The project's goal was to increase the welfare of the local population in a sustainable way and to maintain the forest resources. After three years of operation a clear improvement in the stunting prevalence among under–three–year–old children was visible. Food frequencies increased along with purchasing power. The evidence of impact from such objective indices was corroborated later by an assessment of people's perceptions of positive change. 81% households experienced seasonal food shortages before the project, while three years later this had fallen to 45%. Interestingly, while the project led to such economic gains (which were reflected in nutrition), the environmental situation remained poor, and diarrhoeal disease was widely prevalent. Gross suggested that further gains in nutrition will only be possible if this situation improves through better community management of sanitation and improved understanding of the risks attached to poor hygiene and insanitation.

Synthesis

In his concluding synthesis, Urban Jonsson proposed eight points as representing the main elements of consensus of the meeting. These were later elaborated in the context of the final plenary discussion:

• Poverty is multi–dimensional. Poverty exists where basic needs are not fulfilled, where there is little power, little choice and where there are serious deficiencies in the amount and control of resources. Poverty is not static, it is constantly generated by structures and processes in society. Recent reports provide evidence, moreover, that such processes are leading to increases in inequality and inequity.

• We should talk about "human poverty" as poverty means poor people. Poor people should be recognized as key actors in development – subjects, not objects – and outsiders thus need to learn to listen more, and to play a catalytic role.

• Poverty affects nutrition. The relationship is best understood when poverty is defined in a broader sense, in relation to human capabilities.

• Nutrition is more than food. Health, care and a health environment are equally necessary conditions for good nutrition. The food basket approach to estimate poverty should be re–considered. Moreover, food is not merely an aggregation of calories –– micronutrients are important components which need more attention.

• Young children, particularly in the first two years of their lives, are most vulnerable to becoming malnourished, and the consequences too are particularly serious at this time. Household income poverty may not be the most important constraint to the growth of an infant. Other capabilities, including those relating to health and care, are likely to be critical determinants. For such young children, human resources such as knowledge and time of caregivers are likely to be more important than income – though it is recognized that income poverty forces difficult trade–offs and can reduce time for quality child care.

• Poverty is more than a lack of income or assets. While income poverty is important for nutrition, it is not necessarily strongly related. Economic growth *per se* is not as important for nutrition as the type of factors and processes that lead to such growth, and how these affect the poor. In many cases, economic growth does not reduce poverty, and some form of public action is usually needed, whether this is related to income support or to other areas such as public health. For human beings to fulfill the many aspects of their potential (physical, mental, social, economic etc), they require basic needs, to which they have a right.

• The poverty–nutrition interaction is particularly strongly influenced by the degree and form of the subordination of women in South Asia. Female literacy and actions to prevent violence to women are important. The problem has deep roots in the patriarchal society in South Asia.

• Nutrition affects poverty. Malnutrition has damaging physical and mental consequences for people, households and communities. It can reduce a person's productivity and a child's cognitive development. Ultimately malnutrition thus hinders the economic and human development of a nation.

References

ACC/SCN (1996) *Update on the Nutrition Situation.* ACC/SCN, Geneva.

Chambers R (1987) Poverty in India: Concepts, Research and Reality, mimeo.

Friedmann J (1996) Rethinking Poverty: Empowerment and Citizen's Rights. *International Social Sciences Journal,* 161–172.

Gillespie S, Mason J and Martorell R (1996) *How Nutrition Improves.* Nutrition Policy Discussion Paper No. 15, ACC/SCN, Geneva.

Haq M (1997) *Human Development in South Asia 1997.* Oxford University Press, Pakistan.

Pelletier D *et al* (1994) The Relationship Between Child Anthropometry and Mortality in Developing Countries. *Journal of Nutrition* suppl*.,* 124 10S.

Ramalingaswami V, Jonsson U and Rohde J (1996) The Asian Enigma. In: *Progress of Nations 1996.* UNICEF, New York.

Ravallion M and Datt G (1997) Why Have Some Indian States Performed Better Than Others At Reducing Rural Poverty? *IFPRI Discussion Paper No. 26,* International Food Policy Research Institute, Washington DC.

UN Centre for Human Rights (1997) *Human Rights: International Instruments – Chart of Ratifications as of 31 December 1996.* ST/HR/4/Rev. 13. UNCHR, Geneva.

UNDP (1996) *Human Development Report.* Oxford University Press, New York.

UNDP (1997) *Human Development Report.* Oxford University Press, New York.

UNICEF (1996) *Progress of Nations.* UNICEF, New York.

World Bank (1995) *Trends in Developing Economies.* World Bank, Washington DC.

Chapter 2: Address by Mr. Naeem U. Hasan, Secretary–General, SAARC

Mr Chairman, Honourable Dr Bal Gopal Baidya, Friends at the UNICEF Regional Office for South Asia in Kathmandu, Distinguished Participants, Ladies and Gentlemen.

It gives me great pleasure to be with you this morning when you are about to begin discussions on the theme of nutrition and poverty. I am sure this timely initiative taken by the ACC Sub–Committee on Nutrition will significantly contribute towards enhancing our appreciation of the nature and magnitude of these twin challenges and the specific tasks that lie ahead for all of us if we are to successfully overcome them. SAARC has an abiding interest in making its own modest contribution to the reinforcement of our collective endeavours to rid our region of these most daunting problems. When Dr Jonsson first invited me to address this Symposium, I readily agreed to his suggestion, as the issues to be discussed by you during these few days are also very much the issues of serious concern preoccupying SAARC at the moment. We naturally look forward to a productive outcome of your Symposium from which we may also benefit.

The SAARC countries certainly share the grave concern about the continuing burden of malnutrition in different parts of the world. We are concerned that in our own region malnutrition still remains a major problem. It is, indeed, worrisome that more than half of the malnourished children in the world live in South Asia. What is even more serious is that more than half of the low–birth–weight babies are born in South Asia. The rate of stunting in South Asia is unacceptably high, averaging 60%, which is double that prevailing in Sub–Saharan Africa, where increasing malnutrition is rapidly emerging as a major problem. I need not overemphasize the gravity of this serious incidence of malnutrition in SAARC countries. Malnutrition constitutes the most serious risk factor in causing ill health. Poor nutrition during childbirth and early childhood has irreversible effects. From the long–term perspective as well, its consequences are serious. It reduces intelligence, educability, disease resistance, productivity and purposeful pursuit of definite development objectives.

Fortunately in the SAARC region we have initiated actions at all levels to over come the challenge posed by the widespread incidence of malnutrition. The SAARC Heads of State or Government have recognized poverty as a major factor accentuating, among others, this problem of malnutrition. The Seventh SAARC Summit thus decided to eradicate poverty from the SAARC region, preferably by the year 2002. Acceleration of broad–based economic growth, employment generation, empowering of the poor to enable them to benefit from the growth process, and creation of supportive social and economic infrastructure are being given high priority in all the SAARC countries so as to achieve this target. Within the SAARC framework, a three–tier mechanism on eradication of poverty has been established to facilitate exchange of information and sharing of experiences among member countries on successful poverty eradication programmes. SAARC countries also realize that the orientation of their macro–economic policies and reform measures should not bypass the concerns of the poor. Conscious efforts are, therefore, being made to improve the existing social safety–nets for the poor and make the pro–poor programmes more effective by making the delivery systems more targeted.

We are hopeful that the success of our many pro–poor programmes will be able to have a benign effect on the overall poverty situation in the SAARC region, and in the process will also bring about an improvement in the situation to benefit the malnourished. All the SAARC countries are attaching great importance to the enhancement of their agricultural production and improvement in the overall food availability to households through increasing their purchasing power. In some cases this strategy has already worked. I believe there are compelling reasons to continue our efforts in this general direction. As our recent experience has shown, malnutrition cannot be significantly reduced by increasing the food supply alone. It is a complex problem requiring a multidisciplinary approach to sustain the progress in achieving a significant reduction in the number of undernourished. Your present Symposium, I am sure, will try to identify the missing links which should be addressed if malnutrition is to be effectively and significantly reduced. Given our scarce resources, there is a need to ponder what should be the ideal mix of provision of protein and food supply as well as the administration of micronutrients in order to reduce the incidence of malnutrition. Due note should also be taken of such important factors as caring practices with regard to feeding, sanitation and attitudes towards women.

These are complex issues. We may only hope to address them by encouraging strong advocacy at all levels – national, regional and international – highlighting the importance of timely and effective initiatives. In the SAARC context we have made the reduction of malnutrition a prime objective for all our future actions during the coming years. At the last SAARC Ministerial Meeting on Children, held in Rawalpindi from 20–22 August 1996, all countries of our region resolved to endeavour to reduce by half by the year 2000 severe and moderate malnutrition amongst under–five–year–old children compared to the 1990 level. They also resolved to further halve severe and moderate malnutrition of under–five–year–old children by 2010 compared to the year 2000 level. Our countries would welcome constructive suggestions from the current Symposium to improve our national programmes in order to help achieve these targets.

I may also note here that, during the 14th Meeting of the SAARC Technical Committee on Health, Population Activities and Child Welfare, it was decided to include the issue of Improvement of Nutritional Standards particularly for Children and Women in the SAARC region as a permanent item on its agenda. This meeting also highlighted the need for the implementing the following specific measures:

> – monitor the evolution in the nutrition situation and continue to place emphasis on sustained implementation of National Nutrition policy and Plans of Action focused on reducing malnutrition, enhancing household food security, provision of micronutrients and food fortification where necessary;

– take into account the need to undertake age–specific programmes for different groups of children, girls and women;

– provide adequate institutional support, manpower and resources in these important areas;

– encourage, and endeavour to create mass awareness on nutrition–related issues through extensive use of electronic media and other mass media.

We are aware that, given the complex nature of the problem, these are not easy targets to achieve. But the magnitude of the problem should not deter us from taking mutually reinforcing actions at all levels to achieve these targets. We must forge effective coalitions at all levels to move towards these goals. We must continue our endeavours to attain sustainable regional, national, community, household and individual level food security. We must change people's perceptions of their malnutrition–related problems and encourage them to establish strategic alliances to overcome this most daunting problem. Our efforts should be comprehensive enough to combat all forms of malnutrition – both of macro– and micronutrients. We have no other viable alternative to follow. The SAARC Secretariat would certainly be receptive to any concrete suggestion that this Symposium might make to reinforce our regional initiative to reduce malnutrition in the SAARC region. I hope that at your level in the context of various initiatives of UN specialized agencies, you will also lend your cooperation to help the SAARC countries in all possible ways. We do also have a common challenge to face: to encourage greater supportive action at the global level in support of our efforts. I am confident that we can and shall join hands to live up to this challenge.

With these words, I once again wish this ACC/SCN Symposium success. I am sure that if all of us decide to continue our serious work, significant improvement in nutrition cannot elude us much longer and we can expect to achieve progress with gainful results for our societies today and for our future generations. I thank you.

Chapter 3: The Abraham Horwitz Lecture: Poverty and Nutrition in South Asia, by Siddiq Osmani

Introduction

"Poverty breeds malnutrition and, in turn, malnutrition increases poverty, a vicious circle."[4] In these words, Abraham Horwitz has encapsulated a whole set of complex interactions that shape the nutritional well–being of people. I wish to examine today some elements of these interactions in the context of South Asia. I must note in passing that Abraham Horwitz has not only made an extraordinary contribution to the knowledge of human health and nutrition; more importantly he has put his knowledge into practice, with spectacular results in Chile in particular, and in Latin America in general. This is an impossible dual act for lesser mortals to follow. My modest aim today is merely to add, if possible, to our present knowledge of the nutritional situation of South Asia.

[4] Quoted from an interview given by Abraham Horwitz to SCN News (No. 13) 1995.

Poverty in South Asia

Using the internationally comparable poverty line of 'one dollar per day in 1985 purchasing power', just under a half of the world's poor lived in South Asia in 1993 (Table 3). This staggering concentration of poverty stems only partly from the fact that South Asia happens to be the most populous region in the world (apart from China). The other, and the more distressing, part of the picture is that the proportion of population living in poverty is also higher in South Asia than in any other region of the world. Thus in 1993, some 43% of the South Asian population were poor compared to 26% in East Asia and the Pacific (including China) and 24% in Latin America; even Sub–Saharan Africa had a slightly lower incidence of poverty (39%).

There are however a couple of redeeming features. First, South Asia compares favourably with Sub–Saharan Africa in terms of a more comprehensive index of poverty which takes into account not just the proportion of

people living in poverty but also the depth of poverty (i.e. how poor are the poor). In other words, while there are proportionately more poor people in South Asia, they are on the average less poor than their counterparts in Sub–Saharan Africa.[5] This is essentially a reflection of the fact that income is distributed much more evenly in South Asia; indeed, on the basis of official statistics, South Asia can boast the most egalitarian distribution of income in the whole of the developing world.[6]

[5] Measured in '1985 purchasing–power parity adjusted dollars', the income of an average poor person of South Asia was 71 cents per day as against 61 cents for an average poor person of Sub–Saharan Africa. Details of these comparisons can be found in Chen *et at* (1994) and Ravallion and Chen (1996).

[6] According to a new data set compiled by Deininger and Squire (1996a), the average Gini coefficient in the 1990s was 32.0 for South Asia, 38.0 for both East Asia and the Middle East, 47.0 for Sub–Saharan Africa and 49.0 for Latin America.

Table 3*: *Incidence of Poverty in the Developing World, 1987–1993

(*Using 1 dollar per day in 1985 PPP as the poverty line*)

Region	***year***	***Number of poor (ml)***	***Head–count ratio***	***Poverty–gap ratio***
South Asia	1987	479.9	45.4	14.1
	1990	480.4	43.0	12.3
	1993	514,7	43.1	12.6
East Asia and Pacific (including China)	1987	464.0	28.2	8.3
	1990	468.2	28.5	8.0
	1993	445.8	26.0	8.7
Middle East/North Africa	1987	10.3	4.7	0.9
	1990	10.4	4.3	0.7
	1993	10.7	4.1	0.6
Latin America	1987	91.2	22.0	8.2
	1990	101.0	23.0	9.0
	1993	109.6	23.5	9.1
Sub–Saharan Africa	1987	179.6	38.5	14.4
	1990	201.2	39.3	14.5
	1993	218.6	39.1	15.3
Developing World	1987	1224.9	33.1	10.8
	1990	1261.2	32.9	10.3
	1993	1299.3	31.8	10.5

Source: *World Bank* (*1996*)

Notes: Head–count ratio refers to the proportion of people below the poverty line. Poverty gap ratio is defined as head–count ratio multiplied by the average consumption shortfall below the poverty line.

Secondly, South Asia has made considerable progress in reducing the incidence of poverty over the years, while Sub–Saharan Africa and most of Latin America have stagnated, especially in the last decade. The rate of progress has however been rather uneven in South Asia. India and Pakistan have made the most significant progress. The proportion of people living in poverty has come down in India from 54% in the mid–1970s to nearly 30% by the early 1990s; in Pakistan it has come down from 54% in the early 1960s to almost 20% in the late 1980s. But the performance of Nepal, Bangladesh and Sri Lanka has been disappointing. Sri Lanka, which started with relatively low levels of poverty, has made very slow progress in the last three decades, for reasons that go partly beyond the economic realm. In Bangladesh, the level of poverty probably fell somewhat during the 1970s, but since then it has remained virtually unchanged.[7]

[7] For further details of the poverty scenario in South Asia and other parts of Asia, see Lipton *et al.* (1997).

The superior record of India and Pakistan in terms of poverty reduction has a lot to do with their better performance on the growth front, especially in the last two decades. Acceleration in their growth rates has not led to any noticeable worsening of income distribution; as a result, better growth performance has translated into a corresponding reduction of poverty. Following the institution of far–reaching economic reforms in those countries, it is expected that growth rates will accelerate even further. Indeed, this is expected to happen in varying degrees in almost all the South Asian countries, not just India and Pakistan.

If this expectation is fulfilled, poverty in all likelihood will come down all over South Asia. International experience of the last three decades shows that sustained growth in per capita income seldom fails to bring poverty down (Bruno *et al.* 1995). Of course, countries differ in terms of their ability to translate income growth into poverty reduction – with the same rate of growth, some reduce poverty faster than others. One of the factors that affect the relationship between growth and poverty is the initial income distribution. Countries that start from a more equal income distribution are able to achieve greater reduction of poverty from a given rate of growth in per capita income. Statistically, this is a consequence of the stylized fact that distributions appear to have a strong intertemporal inertia. While countries and regions differ widely in the extent of inequality in their income distribution, for each of them the degree of inequality tends to be rather stubborn over time (at least in the medium term).[8] This implies that a country starting with an egalitarian distribution is likely to remain egalitarian when the growth rate picks up, so that any given rate of growth will translate into a bigger reduction of poverty compared to a country that starts from an unequal distribution. South Asia would seem to be well–placed in this regard, having, as mentioned before, a very egalitarian distribution of income by international standards. Any acceleration in economic growth can therefore be expected to augur well for the poor of South Asia.

[8] In other words, time–series data belie the so–called Kuznetz curve, which suggests that income inequality first rises and then falls with income. See the evidence presented in Deininger and Squire (1996b, 1996c).

Does it augur well for their health and nutrition as well? Judging by the historical experience of the Western developed world, one might be tempted to conclude that it does. After all, hasn't the West made spectacular progress in health and nutrition as it has become materially prosperous? Actually, there is some controversy as to whether material prosperity as such is mainly responsible for the health achievements of the West – a controversy that has some bearing on the subject matter of this lecture.

Determinants of Nutritional Status

Roughly speaking, one can discern three major strands among the theories that have emerged to explain the secular improvement in health and nutrition observed in the developed world and parts of the contemporary developing world. These may be called the material well–being theory, public health intervention or technology–based theory, and cultural–behavioural theory.[9]

[9] See Caldwell (1993) and Murray and Chen (1993) for illuminating discussion of these alternative perspectives.

The material well–being theory explains improved health outcomes principally in terms of the secular improvement in food consumption made possible by general expansion in material prosperity and increased agricultural productivity. McKeown (1976) and his colleagues have advanced this explanation for the vast improvement in life expectancy that occurred in the Western world in the late nineteenth century and early

twentieth century. They give this explanation precedence over the technology–based explanation on the grounds that it was not until well into the twentieth century that major advances occurred in medical technology capable of fighting the major infectious diseases responsible for high mortality. Recently, Fogel (1992,1994) and his colleagues have extended this claim further back in time, arguing that it was improved nutritional intake, made possible by material prosperity, that mainly accounted for the secular improvement in physical status experienced by the Western population over the last few centuries.

This view has been challenged by the proponents of the public–health or technology–based theory. Their explanation recognizes that the most important breakthroughs in medical technology did occur after and not before the most significant advances in human health were made in the West. But they emphasize the importance of public health improvements at the local level that were based on marginal advances in technology but had far–reaching implications. Examples are access to safe water, sanitation, and pasteurized milk. The argument is extended also to the contemporary developing world. It is suggested that the sharp decline in mortality observed in the developing world in the second half of this century owes more to technologies that made possible mass access to safe water, sanitation, vaccination and other public health facilities (such as oral dehydration therapy for diarrhoea) than to material prosperity as such (Szreter, 1988).

The third strand, namely the cultural–behavioural theory, also extends the argument to the contemporary developing world. The vast disparities that exist in the experience of developing countries provide the motivation for this theory. It is well–known that several poor countries (such as China, Costa Rica, Cuba, Mauritius, Sri Lanka) and sub–regions (such as Kerala state in India) have achieved levels of life expectancy that are close to the levels achieved by the richest countries in the world, which suggests that a good deal more than material prosperity is involved in the explanation of improved health status. By the same token, a good deal more than public health technology must also be involved, since others who haven't done so well have had access to the same technologies that were put to good effect by the more successful ones. The missing element presumably lies in the cultural and behavioural pattern of the people concerned; different cultural influences may predispose them to respond differently to the availability of food and health technology. Among the major determinants of the relevant behavioural pattern, researchers have identified female education and gender relationship as especially important, along with the system of governance.[10]

> [10] A thorough discussion of the issues and the evidence can be found in Caldwell and Santow (1989), Caldwell and Caldwell (1991), and Caldwell *et al.* (1991).

I shall examine the relevance of these alternative explanations in the specific context of South Asia, but first we must take note of some recent evidence that pertains to the explanation based on general economic prosperity. A recent study examined the relationship between per capita income growth and reduction in infant mortality in developing countries during the period from 1960 to 1990 (Pritchett and Summers, 1996). Its conclusion is captured in the title of the paper which, in an interesting twist to an age–old aphorism, reads "Wealthier is Healthier". According to its estimates, a 10% increase in per capita income leads, on the average, to about a 2% reduction in infant mortality over a five–year period and a 4% reduction over a 30–year period.

Similar studies linking income with indicators of health and nutrition across countries have been done in the past as well, and all of them reveal a positive association.[11] But most of these studies suffered from a problem of interpretation, arising from the existence of a two–way causation between income and health: as higher income might lead to better health, so better health may raise income by improving productivity. So the question remained whether the positive association revealed by these studies represented causality from income to health or from health to income. The recent study mentioned above has dealt with this problem by using appropriate econometric methodology, and arrived convincingly at the conclusion that the causality it has captured runs from income to health.

> [11] See, *inter alia,* Preston (1980), Flegg (1982), Hobcraft *et al.* (1984), Parpel and Pillai (1986), Hill and Pebley (1989), Kakwani (1993) and Subbarao and Raney (1995).

But the question might still be asked: does this cross–country experience apply to particular countries? Might not South Asia be different from the rest of the world? After all, the aforementioned study concedes that growth in per capita income accounts for no more than 10% of the observed international variation in reductions in infant mortality over five–year periods and no more than 40% over 30–year periods. This means that factors other than income growth play a predominant part in determining the course of a country's health; and it is by no means inconceivable that, in a particular country or region, growth may not play any significant part at all.

In South Asia, for example, the contrast between, say, Sri Lanka and Pakistan is a striking illustration of this argument. As mentioned earlier, Pakistan's record of poverty reduction in the last three decades is much more impressive than that of Sri Lanka. Yet Pakistan's infant mortality rate has come down by only 30% during this period, as against Sri Lanka's 83%. Clearly, growth of private incomes in the hands of the poor has played a relatively minor role, if any, in shaping the differential course of health in these two countries.

Further evidence from within the region is provided by a recent study that looked into inter–district variations in child mortality in India based on the 1981 Census (Murthi *et al*. 1995). A carefully specified econometric model related child mortality rates to a number of explanatory variables, including the extent of poverty, female and male literacy, urbanization and the availability of health services. The study found a statistically significant effect of poverty on child mortality: districts with lower levels of poverty also had lower levels of child mortality after controlling for the effects of other variables. However, it is worth noting that the contribution made by lower poverty towards lowering the rate of child mortality was found to be much smaller compared to the contribution made by some other variables, in particular, female literacy.

Why does doubt arise that income growth, even when it reaches the poor, may not do much good towards improving the health of the poor? There are several possibilities. We shall distinguish and discuss in turn three lines of reasoning. The first line casts doubt on the ability of higher income to reduce calorie deficiency in people's diet. This is the well–known debate on the nature of calorie–income relationship, The second line draws attention to the importance of non–food factors such as environmental hygiene and medical facilities in improving nutritional status by controlling infectious diseases, and argues that, in the absence of appropriate public action, higher private income alone cannot do the job. The issue here is the well–known nutrition–infection nexus. The third line argues that neither private income at the household level nor public provision of health facilities will do much good if women, who play a key role in shaping the nutritional status of household members, are unable to make good use of private and public resources. This is the gist of the cultural–behavioural theory mentioned earlier.

Calorie–Income Relationship

Poor households typically spend a huge proportion of their budget on food and, as their income rises, they devote a correspondingly larger share of the additional income on food. It might therefore be expected that their calorie intake will rise strongly with rising income. This is indeed what was found by the earliest attempts to measure statistically the response of calorie intake to income; the income elasticity of calorie was found to be in the region of unity, implying that an increase in income brings forth an almost proportionate increase in calorie intake (Pitt, 1983; Strauss, 1984).

But this conventional wisdom has since been seriously challenged. In a paper, revealingly captioned" Is Income Over–Rated in Determining Adequate Nutrition?", Wolfe and Behrman (1983) found the elasticity to be close to zero. Since then, a number of other studies using data from diverse sources have come to similar conclusions.[12] Their findings suggest that as poor households get less poor they spend the additional income on more expensive foods, such as finer cereals or meat and dairy products, which may be more tasty but do not necessarily yield more calories. That explains why the elasticity of food expenditure is high and yet the elasticity of calorie intake is so low. In support of their own findings, the authors of this revisionist camp point out a number of reasons why the initial estimates might have been subject to an upward bias.

> [12] For example, Behrman and Wolfe (1984), Behrman and Deolalikar (1987,1988), Behrman *et al.* (1988), Bouis and Haddad (1992) and Bouis (1994).

First, there is the problem of measurement bias. The early estimates were not based on data on the quantities of food actually consumed by household members. The basic data concerned the amount of food used up within a household. But food used is not the same thing as food consumed. A part of the food used may represent food given to guests, servants, hired workers, etc. or may simply be wasted; this part, the so–called 'leakage', doesn't count as consumption by household members. Insofar as this leakage rises systematically with income, which is very likely to be the case, the relationship between income and calories derived from the food used would overestimate the relationship between income and calories actually consumed by household members.

Secondly, there is a problem of estimation bias arising from measurement errors. In typical household expenditure surveys, food consumption and overall income or expenditure are not independently measured – the value of food is added to the value of other expenditures to arrive at total income. Any error in the

measurement of food consumption is thereby transmitted to the measurement of income. The implication of this so−called 'common error' problem is that the ordinary least square estimate of the relationship between income and food (calories) will have an upward bias. This is of course offset to some extent by the error in the measurement of income itself (the 'errors−in−variables' problem) which creates a downward bias. But it has been shown that in practice the upward bias is likely to dominate (Bouis and Haddad, 1992).

These biases can be avoided if data are used on food actually consumed by household members and this is then related to independently measured income. This is the procedure generally used by the revisionist camp. They use data generated by physically weighing the food consumed within a 24−hour period (sometimes a little longer). And it is such data that generally yield very low values of calorie elasticity. But there are good reasons to believe that these low values may themselves be rather suspect.

First, the intrusive nature of the direct weighing method may embarrass very poor households into consuming more on the day of the survey than they normally would. If this tendency is stronger among the poor than among the rich, as is likely to be the case, the resulting elasticity estimate will have a downward bias.

Secondly, the common error problem that beset the original estimates of high elasticity can sometimes be cured by using appropriate econometric method, and when this is done the estimates do show a fairly strong effect of income on calorie intake. The typical elasticity estimates fall in the range of 0.25−0.35, neither as low as 0.1 (or less) as the revisionists claim, nor as high as 1.0 as the original estimates showed (Strauss and Thomas, 1995a, 1995b; Burgess and Murthi, 1995; Subramanian and Deaton, 1996).

Third, the typical elasticity estimates do not allow for threshold effects and strong non−linearities in the relationship between income and calorie. When this is done, even the data used by the revisionist camp show that at very low levels of consumption, calorie intake rises rapidly with income, but beyond a point it becomes virtually constant. Elasticity in the first part can be as high as 0.3 or more, even though at the mean consumption level it may be as low as 0.1 (Strauss and Thomas, 1995b).

Fourth, the notion of a negligible impact of income on calorie intake of the poor is inconsistent with much evidence from around the world linking calorie intake with productivity. Most of this evidence shows that higher calorie intake raises productivity, and thereby the income−earning capacity, of the poor.[13] It is difficult to imagine why poor people should spurn the opportunity afforded by higher income to increase their earning capacity further. One theoretical possibility is that they may not be aware of the productivity−raising potential of higher calories, But that too is inconsistent with available evidence.[14]

> [13] See the literature cited in Behrman and Deolalikar (1988), Dasgupta (1993), and Strauss and Thomas (1995a, 1995b).
>
> [14] Behrman *et al.* (1995) have found that calorie−income relationship is very strong for agricultural workers in the planting season but not in the harvest season, which indicates that workers are aware of the productivity−enhancing potential of higher calories.

For all these reasons I would surmise that, even though much more empirical research is needed to resolve the dispute conclusively, the impact of income on calorie intake is unlikely to be negligible. The impact may not be as strong as the original estimates suggested, but most probably is strong enough to make the level of poverty a significant determinant of calorie intake.

A final point that needs emphasizing in this context is that, while the income−calorie relationship may be a matter of dispute, there is no disputing the fact that higher income leads to higher intake of other nutrients such as protein, iron and other micronutrients which are essential for healthy life (Bhargava 1991,1994). If one were to accept for the sake of argument that calorie−response to income is negligible, that would imply that calorie deficiency is not perceived by the poor to be a binding constraint on their nutritional status; perhaps the lack of other nutrients is the binding constraint. In that case, the evidence that the intake of these other nutrients goes up with income implies that lower poverty should lead to better nutritional status, other things remaining the same, even if calorie intake doesn't rise much.

The Nutrition−Infection Nexus

However, even if higher income leads to higher intake of all nutrients, that by itself need not ensure higher nutritional status, because the intake of nutrients may not be the binding constraint at all. This brings us to the

issue of the nutrition–infection nexus. What matters for good health is not so much the intake of nutrients as their utilization at the cellular level. Frequent attacks of infectious diseases may hamper this utilization in multiple ways – for instance, by increasing the level of wastage and by diverting some nutrients for the benefit of parasites. Furthermore, infections may reduce the level of intake itself by reducing appetite. If these consequences of infection turn out to be the binding constraint in a particular situation, then access to more nutrients afforded by higher income will not by itself improve the situation.[15]

> [15] The issues and evidence relating to nutrition–infection nexus are discussed, among others, by Scrimshaw et al. (1968), Scrimshaw (1977), Mata (1975), Chen and Scrimshaw (1983) and Biesel (1984).

Taking actions to control the disease environment and to attenuate the consequences of infection by proper medical care then becomes a matter of paramount importance. To some extent, higher income in the hands of the poor will help matters here by enabling them to live in a more hygienic environment and to purchase the necessary medical care. But this is one case where market failures are likely to be so pronounced that private actions will not go very far unless supplemented by public actions. For instance, the purchasing power of the poor may not be strong enough to justify the fixed costs of setting up medical facilities on private initiative. Similarly, community–wide measures of improving environmental hygiene have public good properties which might dissuade the market from providing the necessary facilities. In this situation, higher private income in the hands of the poor will not lead to higher nutritional attainment, in the absence of state or community–level actions.

There is some empirical evidence to suggest that public actions in the sphere of health may indeed be more important than private incomes in the hands of the poor in developing countries. A couple of findings due to Anand and Ravallion (1993) are illuminating in this regard. They first noted that higher per capita income may improve the health of a population through two channels – by reducing poverty and thereby giving more income to the poor, and by enabling the state to invest more on health. From a cross–country analysis of the experience of 22 developing countries around the mid–1980s, they found that the second channel was twice as effective as the first in improving life expectancy. Secondly, they studied the experience of Sri Lanka over the period 1952–1981, and found that an increase in public health spending reduced infant mortality 22 times more than what was achieved by an equivalent increase in per capita income.

Micro–level evidence at the household level also points to the relative ineffectiveness of higher household income. Indeed, in a recent comprehensive collection of case studies relating to income and child nutrition in the developing world, von Braun and Kennedy (1994) reach the strong conclusion that, while increased income may solve the problem of hunger, it does little to address the problem of pre–school children's malnutrition (p.374–5). They explain this finding in terms of the infection–nutrition nexus acting as the binding constraint.

Their conclusion may be a little too strong, however. One problem with many of these studies is that they do not take fully into account the existence of a two–way causation between diet and disease; just as disease may reduce the usefulness of diet, so a poor diet may magnify the effect of disease. Thus a poor diet may cause malnutrition indirectly by raising the susceptibility to infection or by intensifying the adverse effect of infection; in the absence of a proper methodology to capture this indirect effect, one may wrongly conclude that diet had no effect. A recent study based on a number of household surveys, including one from Pakistan, has attempted to remedy this defect (Haddad *et al.* 1995). It has found that not only do diet and disease have independent effects on child anthropometry, they also interact strongly with each other. In particular, while higher morbidity negatively affects child growth at all levels of calorie deficiency, the negative effect is stronger at lower levels of calorie intake. Thus low calorie intake does affect nutritional status adversely, partly on its own and partly by accentuating the effect of morbidity.

This inference from econometrics receives strong support from the field experience of nutrition intervention programmes in the developing world. In an authoritative review of this experience, Martorell and Ho (1984) concluded that, while food support given to malnourished children may not make them any less susceptible to infection, the severity of any given infection is clearly reduced, thereby reducing child mortality.

The lesson to be drawn from all this is that, instead of labelling either diet or disease as the binding constraint, it is more helpful to stress the complementarity between the two. This view receives resounding vindication from a field experiment in nutritional intervention that was undertaken in Narangwal in Indian Punjab more than two decades ago. One of the lessons of this project was that division of a given amount of resources between health and food support was much more cost–effective in cutting child mortality than concentrating the same resources on either one of them (Taylor and Faungee, 1983).

In sum, the existence of a nutrition–infection nexus does not in any way belittle the importance of higher income in the hands of the poor from the point of view of improving their nutritional status. Rather the synergy between nutrition and infection compels one to recognize that the extra nutrients afforded by higher income are not only useful in their own right but are also useful in mitigating the adverse consequences of infection.

The South Asian Puzzle

The preceding discussion suggests that, notwithstanding the scepticism expressed in parts of the literature relating to the calorie–income relationship and the nutrition–infection nexus, one cannot deny the importance of higher income in the hands of the poor for improving their nutritional status. Other measures, especially public action in the sphere of health and hygiene, are no doubt also important, and may even be quantitatively more important than addition to private income, but that doesn't mean higher income of the poor will not help.

But then we have a puzzle to explain. It was mentioned before that, even though South Asia has a slightly higher proportion of poor compared to Sub–Saharan Africa, the South Asian poor have on average a higher level of income than their African counterparts. And per capita availability of calories is also higher in South Asia (Table 4). At the same time, the available evidence does not suggest that South Asia lags behind Sub–Saharan Africa in public provision of health and hygiene (Bhargava and Osmani, 1997). Yet all the evidence points to a more massive incidence of undernutrition in South Asia.

Table 4: Per Capita Calorie Availability: 1969–71, 1979–81, 1990–92

	Per capita daily calorie supply			***Annual rate of growth* (*%*)**		
Region	***1969–71***	***1979–81***	***1990–92***	***69–71 to 79–81***	***79–81 to 90–92***	***69–71 to 90–92***
Developing Countries	*2140*	*2330*	*2520*	*0.9*	*0.7*	*0.8*
South Asia	2060	2070	2290	0.0	0.9	0.5
East and South–East Asia	2060	2370	2680	1.4	1.1	1.3
Sub–Saharan Africa	2140	2080	2040	–0.3	–0.2	–0.2
Middle East/North Africa	2380	2850	2960	1.8	0.3	1.0
Latin America/Caribbean	2510	2720	2740	0.8	0.0	0.4
Developed Countries	*3190*	*3280*	*3350*	*0.3*	*0.2*	*0.2*
Industrialized countries	3120	3220	3410	0.3	0.5	0.4
Transition economies	3330	3400	3230	0.2	–0.5	–0.1
World	*2440*	*2580*	*2720*	*0.5*	*0.5*	*0.5*

Source: *FAO*(*1996*)

Indeed, South Asia suffers from by far the worst incidence of child undernutrition among all the regions in the developing world, including Sub–Saharan Africa (Table 5). Some 17% of South Asia's under–five children were found to be wasted, i.e., below the norm of weight–for–height during the period 1985–95, as compared to an average of only 9% in the developing world as a whole and 7% in Sub–Saharan Africa. Likewise, as many as 60% of South Asian children were stunted, i.e., below the norm of height–for–age, as compared to 41% in the developing world and 39% in Sub–Saharan Africa.

It should be noted that over time the prevalence of child undernutrition has actually been declining in South Asia, as in most other parts of the world. Moreover, the recent decline in South Asia has not been unimpressive by international standards, specially if one sets aside the high–performing East Asia (Table 6). So, it would appear that higher income, lower poverty and better provision of public health have all had their

beneficial impact. But the initial levels of undernutrition were so high that, even after this decline, the absolute levels remain higher than in any other part of the world. So, what is special – that is, specially bad – about South Asia?

Table 5: Regional Variation in Childhood Malnutrition: c. 1990

	***Low weight for height* (*%*) (*wasted*)**	***Low height for age*(*%*) (*stunted*)**	***Low weight for age*(*%*) (*underweight*)**	***Low birthweight babies* (*%*) (*LBW*)**
South Asia	17.1	59.5	58.3	33
Bangladesh	15.5	64.6	65.8	50
Bhutan	4.1	56.1	37.9	–
India	19.2	62.1	63.9	33
Maldives	6.3	–	–	20
Nepal	14.0	69.0	70.0	26
Pakistan	9.2	50.0	40.4	25
Sri Lanka	12.9	27.5	38,1	25
East and South–East Asia	5.2	33.3	23.6	11
Sub–Saharan Africa	7.0	38.8	30.2	16
Middle East/North Africa	8.8	32.4	25.3	10
Latin America/Caribbean	2.6	22.7	12.0	11
Developing countries	9.1	40.7	33.9	19

Source: *UNDP* (*1994*), *UNICEF* (*1996*), *FAO* (*1996*)

Cross–Country Analysis

This question can only be answered by comparing cross–country experience. So we decided to do some cross–country regressions on child undernutrition with a view to identifying the factors that are responsible for South Asia's dismal record.[16] The quality of data and their comparability across countries are always a matter of concern in this kind of analysis. But fortunately great advances have recently been made under the auspices of various international agencies to collect internationally comparable data on both general economic variables as well as demographic, nutritional and health–related variables. We have drawn upon this vast body of new knowledge.

[16] The following discussion draws heavily upon Bhargava and Osmani (1997).

The extent of child undernutrition has been measured by the prevalence of moderate–to–severe stunting as recorded in WHO'S database. After experimenting with various combinations of explanatory variables, we have finally chosen one which contains per capita income, population per doctor, the extent of urbanization, and female literacy rate – all referring to the early 1990s.[17]

[17] For details of the methodology underlying the choice of variables, see Bhargava and Osmani (1997).

The rationale for including these variables is fairly obvious. I have already argued that higher income remains an important determinant of nutritional status, despite some scepticism expressed in parts of the literature. We have used the latest versions of purchasing–power–parity adjusted incomes as reported by the World Bank.

Table* 6: *Change Over Time in the Prevalence of Underweight Children in Developing Asia

Region/Country		*First period*	*Second period*	*Direction of change*
South Asia				
	Bangladesh	84.4 (1975)	65.8 (1990)	?
	India	78.0 (1977)	61.0 (1922)	?
	Pakistan	54.7 (1977)	40.4 (1991)	?
	Sri Lanka	58.3 (1976)	38.1 (1987)	?
South–East Asia				
	China	21.3 (1987)	17.4 (1992)	
	Laos	36.5 (1984)	40.0 (1994)	↑
	Malaysia	25.6 (1983)	23.3 (1993)	?
	Myanmar	42.0 (1982)	36.7 (1991)	?
	Philippines	33.2 (1982)	29.6 (1993)	?
	Thailand	36.0 (1982)	13.0 (1990)	?
	Viet Nam	51.5 (1986)	44.9 (1994)	?

Source: WHO Global Database on Child Growth and Malnutrition. (*As reported in FAO, 1996*)

The need for introducing a variable for health–facilities is also obvious, but to find an appropriate measure of health facilities is not so easy, particularly because there is no easy way of capturing variations in the quality and effectiveness of health services across countries. In the absence of anything better, we have used the widely reported measure of population per doctor, fully recognizing that this is a rather poor proxy of what we really need. We have also included urbanization as an explanatory variable in recognition of the fact that health–care and other facilities such as safe water and good sanitation tend to be concentrated in urban areas.

Female literacy is now widely recognized to be an important determinant of the health of a nation. Both micro–studies and cross–country regressions attest to this fact.[18] Some evidence from South Asia is presented in Table 7 based on country–wide household–level surveys in India, Pakistan and Sri Lanka. For each country, the incidence of child undernutrition is shown separately for four categories of mother's education. It can be seen that in each country, for all three measures of child undernutrition, the incidence of undernutrition falls monotonically with the level of maternal education – the illiterate mothers being associated with the highest incidence in every case. In fact, the level of education does not have to be particularly high before it begins to have its effect. Even those women who have not gone beyond the primary school can have as much as 20% less undernutrition among their children as compared with illiterate mothers.

[18] Caldwell (1986), Caldwell and Caldwell (1985), Cleland and Ginneken (1988), Hobcraft (1993) and LeVine *et al.* (1994) provide extensive review of the literature.

In view of these considerations, adult female literacy is taken as one of the explanatory variables in our cross–country regression. It should be noted that the choice of female literacy, to the exclusion of male literacy, does not imply that the latter is not relevant for health outcomes. In fact, many micro–level studies do indicate the significance of male education in addition to female education. In most cases, male education tends to have a slightly weaker effect than female education, but it nevertheless has a significant effect. In the framework of a cross–country regression, however, it would be hopeless to try to include both male and female education as separate variables in view of the strong correlation that exists between them. We have therefore chosen only female literacy, but the effect of this variable should be interpreted as incorporating the effect of education in general, in addition to whatever special effect female education may have.

In addition to the four substantive variables mentioned above, we also put in a dummy variable for South Asian countries, in order to see if there is something special about this region that is not captured by the four variables. The results of the regression analysis, based on data for 66 developing countries from Asia, Africa and Latin America, are reported in Eqn (1) of Table 8.

As expected, per capita income, health facilities (as proxied by population per doctor), urbanization and female literacy are all found to be significant in determining cross–country variation in child undernutrition. What is especially interesting in our present context is the coefficient of the dummy variable. It is positive and statistically highly significant. This implies that there is something beyond the four substantive variables that we have missed out. This region may be poor, and it may have low female literacy and poor medical facilities (except for Sri Lanka), but these alone cannot explain its exceptionally high rate of child undernutrition.

Table 7*: *Differentials in Nutritional Status of Children

		India			***Pakistan***			***Sri Lanka***			***Thailand***		
Characteristics		***Low weight for age***	***Low height for age***	***Low weight for height***	***Low weight forage***	***Low height for age***	***Low weight for height***	***Low weight for age***	***Low height for age***	***Low weight for height***	***Low weight for age***	***Low height for age***	***Lo weig fo heig***
	Male	53.3	52.3	18.8	40.9	51.0	10.2	37.6	26.4	12.4	25.5	22.5	6.1
	Female	53.4	29.4	16.1	40.0	48.9	8.2	38.6	28.8	13.5	24.2	22.2	5.4
Residence													
	Rural	55.9	54.1	18.0	44.6	54.9	9.8	38.7	26.2	13.6	28.6	24.5	6.0
	Urban	45.2	44.8	15.8	32.5	40.7	8.1	27.0	18.8	11.3	11.7	11.3	4.3
Birth order													
	1	49.4	48.1	16.5	36.6	45.9	9.6	*	*	*	*	*	*
	2–3	52.2	49.8	17.4	38,2	47.4	9.1	*	*	*	*	*	*
	4–5	57.7	56.6	19.1	39.9	49.8	8.9	*	*	*	*	*	*
	6+	59.8	36.6	17.4	46.3	56.1	9.5	*	*	*	*	*	*
Mother's education													
	Illiterate	59.2	58.5	18.8	44.9	55.5	10.3	52.8	50.5	15.2	35.2	30.5	8.0
	Literate; level 1	50.4	46.4	16.8	37.1	43.8	7.5	44.5	34.3	13.8	27.6	23.7	6.1
	Literate; level 2	43.5	39.3	14.7	25.8	33.2	5.3	36.1	25.0	12.5	13.4	12.6	2.8
	Literate; level 3	30.3	30,0	12.3	13.0	18.2	3.6	28.2	15.4	11.8	5.3	5.5	1.6

Source: *DHS reports; India* 1992–93; Pakistan 1990–91; Sri Lanka 1987; *Thailand* 1987.

Notes: India and Pakistan data refer to under–five children; Sri Lanka and Thailand data refer to 3–36 *months–old children. Literacy levels are defined as follows: Level 1: up to middle school in India, and up to primary level in Pakistan, Sri Lanka and Thailand; Level 2: between middle and secondary in India and Pakistan, and between primary and secondary in Sri Lanka and Thailand; Level* 3; above *secondary level in alt four countries.*

Table 8: Cross–Country Regression on the Prevalence of Stunted Children in Developing Countries (Early 1990s)

Explanatory variables	***Eqn 1***	***Eqn 2***	***Eqn 3***
Constant	149.65** (5.34)	139.79** (4.30)	136.02** (4.20)
Per capita income	–6.380** (–2.12)	–5.985* (–1.94)	–5.374* (–1.77)
Population per doctor	–3.590* (–1,67)	–3,914* (–1.73)	–4.436** (–2.01)
Urbanization	–11.413** (–3.09)	–11.156** (–2.54)	–11.594** (–2.64)
Female literacy rate	–7.060** (–2.19)	–6.590** (–2.00)	–7.045** (–2.15)
Male literacy rate			
Dummy variable (South Asia = 1; other regions = 0)	15.827** (2.79)	9.282 (1,09)	
Incidence of low birth–weight		0.369 (0.99)	0.661** (2.56)
R^2	0.580	0.573	0.564
N	66	66	66

Notes:

(*1*) *Per capita income, population per doctor, literacy and urbanization are in logarithm; alt other variables are linear.*

(*2*) *Figures in parentheses are t–values. In the presence of heteroscedasticity, the t–values were calculated by using standard errors obtained from White's heteroscedasticity–consistent variance–covariance matrix.*

(*3*) *The symbols ** and * indicate significance at 5% and 10% level respectively.*

In our search for the missing variable(s), we were guided by the following two criteria: (a) the variable must have a plausible impact on child nutrition, and (b) South Asia must fare worse than other regions in respect of that variable. Our hypothesis is that the incidence of low–birthweight (LBW) babies is the missing variable. As can be seen from Table 5, South Asia happens to suffer from the highest incidence of low–birth–weight babies (LBW) in the whole world. One in three new–borns of this region is an LBW baby, as compared with the average of one in five in the developing world. Indeed, South Asia fares even worse than Sub–Saharan Africa, where only one in six new–borns is an LBW baby.

There are good biological reasons to believe that low birthweight has strong implications for the subsequent nutritional attainment of a child. The occurrence of low birthweight is mainly a reflection of poor maternal nutrition; the women who experience greater nutritional stress during pregnancy tend to bear more LBW babies. These babies are therefore born with an initial handicap, having been deprived of adequate nutrition in the foetal stage. The consequence of this handicap can last a long time. Inadequate foetal nutrition hampers

the development of their immunological competence; that is why neonatal death is far more common among LBW babies as compared with normal babies. Those who survive with a defective immune system fall prey to frequent infections and get trapped into the vicious circle of the nutrition–infection nexus. The deprivation of energy and other nutrients that follows from this vicious circle retards their physical and mental development. Therefore, a society with greater prevalence of LBW babies is also likely to be one that is suffering from a greater degree of child, and eventually adult, undernutrition, other things remaining the same.[19]

[19] An extensive discussion of the etiology and consequences of low birthweight can be found in Battaglia and Simmons (1979). For the consequences of low birthweight, see also Martorell *et al.* (1978).

Thus the prevalence of low birthweight meets our criteria of the missing variable neatly – it has a biologically plausible impact on child nutrition, and South Asia fares exceptionally badly in this respect. In order to the test the validity of the hypothesis, we carried out two more regressions on the incidence of stunting – one including the proportion of LBW babies as an additional variable in the original regression, and the other adding low birthweight but dropping the dummy variable for South Asia. The results are shown in Eqns (2) and (3) respectively in Table 8.

If low birthweight is what lies behind the South Asian dummy, then we should expect to find the following. First, adding the new variable to the original regression will not add much to the explained variation (R^2); and because of collinearity between low birthweight and the dummy variable, both variables might lose statistical significance. Secondly, when the dummy variable is replaced by low birthweight, the new variable should be statistically significant, but there should not be much change in explained variation. This is exactly what has happened, as can be seen by comparing the first three regressions in Table 8.[20] It is thus safe to conclude that exceptionally high prevalence of low birthweight is what lies behind the exceptionally high rate of child undernutrition in South Asia...[21]

[20] We might add that a non–nested test could not discriminate between equations (1) and (3), which indicates that the dummy variable is nothing but a proxy for the excessive prevalence of low birthweight in South Asia.

[21] The same conclusion has been reached by UNICEF, as reported in Ramalingaswami *et al.* (1996), following a different methodology and using different kind of data. The UNICEF study also reports that, apart from low birthweight, there are other peculiarities of South Asia which also account for its excessive prevalence of child undernutrition. However, our own cross–country analysis shows that this is true more for the prevalence of low weight–for–age (underweight) than for low height–for–age (stunting). See Bhargava and Osmani (1997).

***Table 9*: *Cross–Country Regression on the Prevalence of Low Birthweight* (*LBW*) *in Developing Countries* (*Early 1990s*)**

Explanatory variables	***Eqn 1***	***Eqn 2***	***Eqn 3***
Constant	4,623** (11.21)	4.945** (16.21)	5.006** (16.43)
Index of food inadequacy	0.565** (1.82)		
Population with access to safe water	–0.164** (–2.10)	–0,124 (–1,26)	–0.327** (–4.45)
Urbanization	–0.220 (–3.60)		
Female age at first marriage	–0.035** (–3.04)	–0.036** (–2.66)	–0.032** (–2.19)
Dummy variable (South Asia = 1; other regions = 0)	0.750** (6.68)	0.868** (7.90)	0.851** (7.01)
Per capita income		–0.159** (–3.11)	

Adult literacy rate (male and female combined)			–0.128** (–2.00)
R^2	0.713	0.691	0.634
N	78	78	78

Notes:

(*1*) *Per capita income, population per doctor, population with access to safe water, literacy, index of food inadequacy and urbanization are in logarithm; other variables are linear.*

(*2*) *Figures in parentheses are t–values. In the presence of heteroscedasticity, the t–values were calculated by using standard errors obtained from White's heteroscedasticity–consistent variance–covariance matrix.*

(*3*) *The symbols ** and * indicate significance at 5% and 10% level respectively.*

But that only begs the question: what explains the high incidence of low birthweight in South Asia? As mentioned before, low birthweight is essentially a manifestation of maternal malnutrition. So anything that causes serious malnutrition among women of reproductive age is likely to cause low birthweight as well. Accordingly, our empirical model to explain inter–country variation in the prevalence of low birthweight ought to include – in addition to the general determinants of nutrition such as per capita income, food consumption, access to health care and hygienic environment – such women–related variables as their education and their average age at first marriage (since it is well–known that pregnancy at a tender young age raises the likelihood of low birthweight).

The main regression, reported as Eqn (1) in Table 9, shows that the significant variables include food inadequacy, access to safe water, urbanization and female age at first marriage. Two potentially important determinants – viz. income and literacy – do not appear in this equation, but that is only because of collinearity with other variables, Once the collinear variables (food inadequacy and urbanization) are dropped, both of them turn out to be significant (see Eqns (2) and (3) in Table 9).

However, it is instructive to note that these factors alone cannot account for the massive degree of low birthweight in South Asia. This is indicated by the highly significant positive coefficient of the dummy variable. Evidently, there is more to the South Asian puzzle than just low income, food inadequacy and poor hygiene, or even illiteracy and early marriage.

So our search for the missing variable has merely pushed us back one step further into the realm of ignorance, for a significant dummy variable is nothing other than a declaration of our ignorance. We have plausibly explained the excessive undernutrition in South Asia in terms of an exceptionally high prevalence of low birthweight babies, but our quantitative analysis is unable to pinpoint the special characteristic that accounts for the exceptional prevalence of low birthweight in this region. However, one may speculate.

Women's Deprivation and General Malnutrition

The basis for speculation lies in the fact that, setting aside the consequence of premature pregnancy which we have allowed for through the age–at–first–marriage variable, whatever is causing low birthweight must be operating through maternal nutrition. There is no doubt about the woeful condition of maternal nutrition in South Asia. The fact that South Asian women receive a raw deal in the allocation of food and health care facilities has been much discussed and convincingly documented from numerous micro–studies.[22] The consequence of such discrimination is manifested in higher morbidity, and eventually higher mortality, of women relative to men. This is what accounts for the phenomenon of 'missing women' discussed by Sen and others (e.g. Sen 1990 and Dreze and Sen 1995), i.e., the fact that there are far fewer women per hundred men in this region than in any other region of the world (except, perhaps, in China).

[22] Useful recent reviews of the literature can be found in Kishor (1993,1995). See, also Chen *et al*. (1981) and Bairagi (1986) for some early evidence from Bangladesh, and Sen and Sengupta (1983), Das Gupta (1987) and Basu (1989) on India.

Age–specific comparisons of male–female mortality shows that the disadvantage suffered by South Asian women is not a simple biological phenomenon that begins at birth. Table 10 breaks up under–five mortality

into neonatal mortality (in the first seven days of life), postnatal mortality (between seven days and one year), infant mortality (up to one year) and child mortality (between one and five years). It is revealing that neonatal mortality is in fact smaller for females even in South Asia. The disadvantage actually begins to emerge later – it is already reflected to some extent in postnatal mortality, but is particularly evident in child mortality. For instance, in India the postnatal mortality rate is 36 per thousand for females and 32 for males – a rather small difference; but the difference in child mortality is much bigger: 42 for females as against 29 for males.

Evidently, the origin of female disadvantage lies in the discriminatory treatment meted out to women in the allocation of life–saving resources such as food and health care. That this contention is supported by a plethora of micro–studies has already been mentioned. Supportive evidence is also found in the macro–level comparative data generated by countrywide Health and Demographic Surveys conducted in many developing countries in the last few years, Table 11 gives information on the morbidity and medical treatment of boys and girls in several Asian countries. The evidence is not conclusive, but it is worth noting that female babies tend to be vaccinated less than male babies in South Asia, quite unlike in East and South–East Asia; and female children tend to be treated proportionately less than male children in South Asia for acute respiratory infection (ARI) and fever.

Insofar as the treatment of girls is indicative of the treatment of women in general, this is clear evidence of discrimination suffered by South Asian women. But there is more direct evidence of their particular predicament. Table 12 presents information on sex–differentials in the burden of disease by age–groups for different regions of the world. The burden of disease is measured by the number of effective life–years lost due to premature death and disability from illness.[23] The table shows that almost everywhere in the developing world women suffer more than men in the reproductive age, but the differential is much higher in India than in other parts of the world. Thus, for instance, the female–male ratio of effective life–years lost due to illness–related disability among the 15–44 years age group is as high as 1.6 in India, as against a ratio of 1.3 for the developing countries overall. It is also known that the proportion of pregnant women suffering from anaemia is exceptionally high in South Asia. Recently estimated to be as high as 78%, this proportion is higher than anything observed in the rest of the world; the next highest rate is 43%, found in Sub–Saharan Africa (Table 13).

[23] The methodology of measurement is discussed in Murray and Lopez (1996).

All these factors are indicative of the especially poor condition of maternal nutrition in South Asia. I have argued that it is this poverty of maternal nutrition that accounts for excessive child undernutrition in South Asia, through the biological linkage of low–birthweight babies. But it remains to be explained what accounts for the exceptionally poor quality of maternal nutrition in this region. The standard explanations run in terms of paucity of private income and health services, as well as the weakness of women's agency as reflected in low female literacy and fewer opportunities for women to participate in the market economy. Our analysis confirms that these factors are important in shaping the nutritional status of a population, but it also shows that they cannot fully account for the exceptionally high level of undernutrition observed in South Asia. Perhaps, there is something in South Asian culture – an aspect of its culture that bears on the treatment of women, especially in their reproductive age – that is not fully captured by our existing explanatory frameworks. If we want to know more about our nutrition and what to do about it, we must learn more about our women and their deprivation.

Table 10: Sex Differentials in Infant and Child Mortality

Country	***Neonatal mortality***		***Postnatal mortality***		***Infant mortality***		***Child mortality***		***Under–five mortality***	
	Male	***Female***	***Male***	***Female***	***Male***	***Female***	***Male***	***Female***	***Male***	***Female***
Bangladesh	70.9	55.7	36.5	37.7	107.3	93.4	46.7	62.3	149.1	149,9
India	57.0	48.1	31.7	35.8	88.6	83.9	29.4	42.0	115.4	122.4
Pakistan	60.1	46.1	42.0	39.3	102.1	85.5	22.0	36.5	121.9	118.9
Sri Lanka	*	*	*	*	39.5	24.7	10.0	10.1	49.2	34.4
Indonesia	38.2	26.3	35.4	32.4	73.5	58.8	29.9	26.5	101.2	83.8
Philippines	19.8	16.4	23.7	16.5	43.5	32.9	27.6	24.7	69.9	56.8

Thailand	*	*	*	*	45.0	31.0	11.0	11.0	56.0	42.0

Source: *DHS reports; Bangladesh 1993–94; India 1992–93; Indonesia 1994; Pakistan 1990–91; Philippines 1993; Sri Lanka 1987; Thailand 1987.*

Table 11: Sex Differentials in Child Morbidity and Medical Treatment

Country	***Fully vaccinated***		***Children with ARI***		***Treated for ARI***		***Children with diarrhoea***		***Treated for diarrhoea***		***Children with fever***		***T***
	Male	***Female***	***Male***	***Female***	***Male***	***Female***	***Male***	***Female***	***Male***	***Female***	***Male***	***Female***	***Ma***
Bangladesh	62.1	55.6	26.6	21.2	30.1	25.4	12.1	13.1	19.6	20.8	*	*	*
India	36.7	34.1	7.1	5.9	70.8	60.8	10.3	9.8	63.0	59.2	21.1	19.4	70.
Pakistan	39.1	31.3	15.8	16.2	67.5	65.2	15.0	14.1	43.4	53.6	30.3	29.9	66.
Sri Lanka	*	*	*	*			6.5	5.4	76.1	69.4	*	*	*
Indonesia	50.5	50.3	10.7	9.3	65.0	60.1	13.1	11.1	52.6	54.1	28.3	27.4	44.
Philippines	71.0	72,0	8.7	8.7	51.9	50.6	10.2	10.0	32.0	35.9	25.7	25.4	42.
Thailand	*	*	*	*			17.1	14.0	42.5	39.5	*	*	•

Notes: *Vaccination* (*against diphtheria, polio, tetanus and measles*) *refers to 12– to 23–months–old children; the prevalence of ARI* (*acute respiratory infection*), *fever and diarrhoea refer to all children under five years of age, the reference period being two weeks preceding the survey.*

Source: *DHS reports: Bangladesh 1993–94; India 1992–93; Indonesia 1994: Pakistan 1990–91; Philippines 1993; Sri Lanka 1987; Thailand 1987.*

Table 12: Sex Differential in the Burden of Disease by Age–Group: 1990
(*Female–male ratio of disability–adjusted life–years lost*)

Due to premature death		***Due to disability***	***Total***
India	1.05	1.15	1.10
0–5	1.10	1.10	1.10
5–14	1.25	0.95	1.10
15–44	1.00	1.60	1.25
45–59	0.80	0.80	0,75
60+	0.90	0.90	0.90
China	0.90	1.15	1.00
0–5	1.15	1.10	1.15
5–14	0.75	1.00	0.90
15–44	0.80	1.20	1.10
45–59	0.75	0.90	0.80
60+	0.80	0.95	0.85
Other Asia &	0.80	1.00	0.85

Pacific				
	0–5	1.00	0.60	0.85
	5–14	0.80	0.85	0.80
	15–44	0.75	1.15	0.95
	45–59	0.70	0.85	0.80
	60+	0.95	0.70	0.90
Sub–Saharan Africa		0.85	1.00	0.90
	0–5	0.90	0.95	0.90
	5–14	0.95	0.75	0.90
	15–44	0.85	1.25	0.95
	45–59	0.80	0.85	0.85
	60+	1.00	1.05	1.00
Developing Countries		0.90	1.05	0.95
	0–5	0.95	1.00	1.00
	5–14	0.95	0.90	0.95
	15–44	0.85	1.30	1.05
	45–59	0.75	0.95	0.80
	60+	0.85	0.95	0.90
Developed Countries		0.65	0.95	0.75
	0–5	0.80	1.00	0.85
	5–14	0.65	0.85	0.75
	15–44	0.60	0.90	0.75
	45–59	0.55	0.70	0.60
	60+	0.65	0.80	0.70

Source: *World Bank* (*1993*)

Table 13: Maternal Health

	Pregnant women			
Region	***receiving pre–natal care* (*%*) *1988–90***	***suffering anaemia* (*%*) *1975–90***	***Births attended by health personnel* (*%*) *1985–90***	***Maternal mortality rate* (*per 100,000 live births*) *1988***
South Asia	64	78	63	580
East and South–East Asia	96[a]	35	87	187
Sub–Saharan Africa	64	43	40	700

Middle East/North Africa	40	38	54	280
Latin America/Caribbean	66	37	63	200
Developing Countries	*62*	*52*	*66*	*420*

Source: *UNDP* (*1994*)

References

Anand S and Ravallion M (1993) "Human Development in Poor Countries: On the Role of Private Incomes and Public Services". *Journal of Economic Perspectives,* 7(1): 133–50.

Bairagi R (1986) "Food Crisis, Nutrition and Female Children in Rural Bangladesh", *Population and Development Review,* 12(2).

Basu A M (1989) "Is Discrimination in Food Really Necessary for Explaining Sex Differentials in Childhood Mortality?" *Population Studies,* 43:193–200.

Battaglia F C and Simmons M A (1979) "The Low–Birth–Weight Infant", in F. Falkner and J. M. Tanner (1979) *Human Growth,* Vol 1. Plenum Press: New York.

Behrman J R and Deolalikar A (1987) "Will Developing Country Nutrition Improve with Income? A Case Study for Rural South India", *Journal of Political Economy,* 95(3).

Behrman J R and Deolalikar A (1988) "Health and Nutrition", in H. B. Chenery and T. N. Srinivasan (eds.) *Handbook of Development Economics, Vol 1.* Amsterdam: North–Holland.

Behrman J R and Wolfe B L (1984) "More Evidence on Nutrition Demand: Income Seems Overrated and Women's Schooling Underemphasized", *Journal of Development Economics,* 14:105–128.

Behrman J R, Deolaikar A and Wolfe B L (1988) "Nutrients: Impacts and Determinants", *World Bank Economic Review,* 2(3).

Behrman J R, Foster A and Rosenzweig M R (1995), "The Dynamics of Agricultural Production and the Calorie–Income Relationship", *Journal of Econometrics.*

Bhargava A (1991) "Estimating Short and Long Run Income Elasticities of Foods and Nutrients for Rural South India", *Journal of the Royal Statistical Society,* Series A, 154:151–74.

Bhargava A (1994) "Modelling the Health of Filipino Children", *Journal of the Royal Statistical Society,* Series A, 157:417–32.

Bhargava A and Osmani S R (1997) "Health and Nutrition in Emerging Asia", (mimeo) Asian Development Bank: Manila.

Biesel W R (1984) "The Metabolic Effects of Infection", *Progress in Food and Nutritional Sciences,* 8:43–75.

Bouis H E (1994) "The Effect of Income on Demand for Food in Poor Countries: Are Our Databases Giving us Reliable Estimates?", *Journal of Development Economics,* 44(1).

Bouis H E and Haddad L J (1992) "Are Estimates of Calorie–Income Elasticities Too High? A Recalibration of the Plausible Range", *Journal of Development Economics,* 39(2).

Braun J von and Kennedy E. (eds.) (1994) *Agricultural Commercialization, Economic Development and Nutrition.* Johns Hopkins University Press: Baltimore.

Bruno M, Ravallion M and Squire L (1995) "Equity and Growth in Developing Countries: Old and New Perspectives on the Policy Issues", (mimeo). World Bank: Washington, D. C.

Burgess R and Murthi M (1995) "Land, Nutrition and Welfare in Rural China", paper presented at the 18th Congress of the International Economic Association, Tunis, Dec 1995.

Caldwell J C (1986), "Routes to Low Mortality in Poor Countries", *Population and Development Review,* 1:22–34.

Caldwell J C (1993) "Health Transition: The Cultural, Social and Behavioural Determinants of Health in the Third World", *Social Science and Medicine,* 36(2), 125–135.

Caldwell J C and Caldwell P (1985) "Education and Literacy as Factors in Health", in Halstead *et al.* (1985).

Caldwell J C and Caldwell P (1991), "What Have We Learnt About the Cultural, Social and Behavioural Determinants of Health?", *Health Transition Review,* 1(1), 3–19.

Caldwell J C and Santow G (eds.) (1989) *Selected Readings in the Cultural, Social and Behavioural Determinants of Health.* Australian National University, Canberra.

Caldwell J C, Findley S, Caldwell P, Santow G, Cosford W, Braid J and Broers–Freeman D (eds.) (1991) *What We Know About Health Transition: The Cultural, Social and Behavioural Determinants of Health,* 2 Vols. Australian National University, Canberra.

Chen L C and Scrimshaw N S (1983) *Diarrhoea and Malnutrition.* Plenum Press: New York. Chen L C, Huq E and D'Souza S (1981) "Sex Bias in Family Allocation of Food and Health Care in Rural Bangladesh", *Population and Development Review,* 7:55–70.

Chen S, Datt G and Ravallion (1994) "Is Poverty Increasing in the Developing World?", Review of Income and Wealth, 40(4):359–76.

Cleland J G and Ginneken J K (1988) "Maternal Education and Child Survival in Developing Countries: The Search for Pathways of Influence", *Social Science and Medicine,* 27:1357–1368. Reprinted in Caldwell and Santow (1989).

Das Gupta M (1987) "Selective Discrimination against Female Children in Rural Punjab, India", *Population and Development Review,* 13:77–100.

Dasgupta P (1993) *An Inquiry Into Well–Being and Destitution,* Oxford University Press: Oxford.

Deininger K and Squire L (1996a) "A New data Set for Measuring Income Inequality", *World Bank Economic Review,* 10(3): 565–91.

Deininger K and Squire L (1996b) "New Ways of Looking at Old Issues: Inequality and Growth". (mimeo.) World Bank: Washington, D. C.

Deininger K and Squire L (1996c) "Does Inequality Matter? Re–Examining the Links Between Growh and Inequality", (mimeo) World Bank: Washington, D. C.

Drèze J and Sen A (1995) *India: Economic Development and Social Opportunity.* Clarendon Press: Oxford.

DHS Reports. Various years. Bangladesh, India, Indonesia, Pakistan, Philippines, Sri Lanka, Thailand. Macro International Inc. Calverton.

FAO (1996) *The Sixth World Food Survey.* Food and Agricultural Organization: Rome.

Flegg A T (1982) "Inequality of Income, Illiteracy and Medical Care as Determinants of Infant Mortality in Underdeveloped Countries", *Population Studies,* 36,441–458.

Fogel R (1992) "Second Thoughts on the European Escape from Hunger: Famines, Chronic Malnutrition and Mortality Rates", in S. R. Osmani (ed.) *Nutrition and Poverty,* Clarendon Press: Oxford.

Fogel R (1994) "Economic Growth, Population Theory and Physiology: The Bearing of Long−Term Processes on the Making of Economic Policy", *American Economic Review* (Proceedings), 84(3): 369−95.

Haddad L, Bhattarai S, Immink M and Kumar S (1995) "Household Food Security and Diarrhea as Determinants of Nutrition: New Trade−Offs and New Opportunities Towards 2020?" Draft Discussion Paper, International Food Policy Research Institute: Washington, D. C.

Halstead S B, Walsh J A and Warren K S (eds.) (1985) Good *Health at Low Cost.* Rockefeller Foundation, New York.

Hill K and Pebley A R (1989) "Child Mortality in Developing Countries", *Population and Development Review,* 15,657−687.

Hobcraft J N (1993) "Women's Education, Child Welfare and Child Survival: A Review of the Evidence", *Health Transition Review,* 3(2).

Hobcraft J N, McDonald J W and Rutstein S O (1984) "Socio−Economic Factors in Infant and Child Mortality: A Cross−National Comparison", *Population Studies,* 38:193−223.

Kakwani N C (1993) "Performance in Living Standards: An International Comparison", *Journal of Development Economics,* 41(2):307−36.

Kishor S (1993) "May God Give Sons to All: Gender and Child Mortality in India", *American Sociological Review,* 58(2):247−65.

Kishor S (1995) "Gender Differentials in Child Mortality: A Review of the Evidence", in M. Das Gupta, L. C. Chen and T. N. Krishnan (eds.) Women's *Health in India: Risk and Vulnerability.* Oxford University Press: Bombay.

LeVine R A, LeVine S E, Ruchman A, Medardo F, Uribe T and Correa C S (1994) "Schooling and Survival: The Impact of Maternal Education on Health and Reproduction in the Third World", in Chen, L. C., Kleinman, A. and Ware, N. (eds.) *Health and Social Change in International Perspective.* Cambridge University Press, Cambridge, 1994.

Lipton M, de Haan A and Yaqub S (1997) "Poverty in Emerging Asia", (mimeo). Asian Development Bank: Manila.

Martorell R and Ho T J (1984) "Malnutrition, Morbidity and Mortality", *Population and Development Review,* Supplement to Vol. 10 (Mosley, H. and Chen. L. C. eds. *Child Survival: Strategies for Research*), 49−68.

Martorell R, Lechtig A, Yarbrough C, Delgado H and Klein R E (1978) "Small Stature in Developing Countries: Its Causes and Consequences", in S. Margen and R. A, Ogar (eds.) *Progress in Human Nutrition,* Vol. II, AVI Publishing: Westport, Conn.

Mata L J (1975) "Malnutrition−Infection Interactions in the Tropics", *American Journal of Tropical Medicine and Hygiene,* 24.

McKeown T (1976) *The Modern Rise of Population.* Arnold: London.

Murray C J L and Chen L C (1993) "In Search of a Contemporary Theory for Understanding Mortality Change", *Social Science and Medicine,* 36(2): 143−55.

Murray C J L and Lopez A D (eds.) (1996) *The Global Burden of Disease.* Harvard School of Public Health, Cambridge, Mass, on behalf of the World Health Organization, Harvard School of Public Health and the World Bank.

Murthi M, Guio A−C and Drèze J (1995) "Mortality, Fertility and Gender Bias in India: A District Level Analysis", *Population and Development Review,* 21 (4): 745−82.

Parpel F C and Pillai V (1986) "Patterns and Determinants of Infant Mortality in Developing Nations, 1950−1975", *Demography,* 23(4):525−42.

Pitt M (1983) "Food Preferences and Nutrition in Rural Bangladesh", *Review of Economics and Statistics,* 65(1).

Preston S H (1980) "Causes and Consequences of Mortality Decline in Less Developed Countries in the Twentieth Century", in Easterlin, R. A. (ed.) *Population and Economic Change in Developing Countries.* Chicago University Press: Chicago.

Pritchett L and Summers L H (1996) "Wealthier is Healthier", *Journal of Human Resources,* XXXI(4): 841–68.

Ramalingaswami V, Jonsson U and Rohde J (1996) "The Asian Enigma" in UNICEF, *The Progress of Nations 1996,* New York.

Ravallion M and Chen S (1996) "What Can New Survey Data Tell Us About Recent Changes in Living Standards in Developing and Transitional Economies", (mimeo). Poverty and Human Resources Division, World Bank: Washington D.C.

Reutlinger S and Selowsky M (1976) *Malnutrition and Poverty: Magnitude and Policy Options.* Baltimore: Johns Hopkins Press.

Scrimshaw N S (1977) "Effects of Infection on Nutritional Requirements", *American Journal of Clinical Nutrition,* 30.

Scrimshaw N S, Taylor C E and Gordon J E (1968) *Interactions of Nutrition and Infections.* WHO Monograph Series 57. WHO: Geneva.

Sen A (1990) "More than 100 Million Women are Missing", *New York Review of Books,* 20 December.

Sen A and Sengupta S (1983) "Malnutrition of Rural Children and the Sex Bias", *Economic and Political Weekly,* Annual Number, May.

Strauss J (1984) "Joint Determination of Food Consumption and Production in Rural Sierra Leone: Estimates of a Household–Firm Model", *Journal of Development Economics,* 14:77–103.

Strauss J and Thomas D (1990) "The Shape of the Calorie–Expenditure Curve", Economic Growth Center Discussion Paper no. 595. Yale University.

Strauss J and Thomas D (1995a) "Food, Nutrition and Economic Development", paper presented at the 18th Congress of the International Economic Association, Tunis, Dec 1995.

Strauss J and Thomas D (1995b) "Human Resources: Empirical Modeling of Household and Family Decisions", in T. N. Srinivasan and J. R. Behrman (eds.) *Handbook of Development Economics, Vol. 3A.* Amsterdam: North–Holland.

Subbarao K and Raney L (1995) "Social Gains from Female Education: A Cross–National Study", *Economic Development and Cultural Change,* 44(1): 105–28.

Subramanian S and Deaton A (1996) "The Demand for Food and Calories", *Journal of Political Economy.*

Szreter S (1988) "The Importance of Social Intervention in Britain's Mortality Decline c. 1859–1914+ A Reinterpretation of the Role of Public Health", *Social History and Medicine,* 1:1–38.

Taylor C E and Faungee R (1983) *Child and Maternal Health Services in Rural India: The Narangwal Experiment.* Johns Hopkins University Press, Baltimore.

UNDP (1994) *Human Development Report 1994.* Unite Nations Development Program: New York.

UNICEF (1996) *The State of the World's Children, 1996.* Oxford University Press: Oxford.

Wolfe B L and Behrman J R (1983) "Is Income Overrated in Determining Adequate Nutrition?", *Economic Development and Cultural Change,* 31 (5).

World Bank (1993) *World Development Report 1993: Investing in Health.* World Bank: Washington, D.C.

Chapter 4: Malnutrition in South Asia, by Urban Jonsson

Introduction

An appraisal of current and new policies, strategies and actions to improve the nutrition situation requires an assessment and analysis of the nature of the nutrition problem. This includes not only a presentation of prevalences and trends of the nutritional status, but also a description of the causes of malnutrition. The science of human nutrition helps to explain the causes at the individual level, while a "science of nutrition problems in society" is required to understand the more underlying and basic causes.

This presentation is limited to malnutrition of children, because the prevalence of most forms of malnutrition is highest in these groups and the functional consequences most serious. All major forms of malnutrition will be discussed, including protein–energy malnutrition (PEM), iodine deficiency disorders (IDD), Vitamin A deficiency (VAD) and iron deficiency anemia (IDA). Emphasis will be given to PEM.

All data used have been taken from the UNICEF Regional Office (ROSA) database on nutrition. These have been published in map form in the Atlas of Children and Women in South Asia (UNICEF, 1996).

Conceptual Framework

Theory and practice form a dialectical relationship. Theory has no meaning without practice and practice is "blind" without a theory. Or as Thomas Kuhn put it, "you find what you are looking for" (Kuhn, 1962). A conceptual framework is less ambitious than a theory in that it is not complete, but is limited to the major causes of a problem. A causality framework reflects current scientific knowledge of the problem, while an operational framework presents a desirable sequence of events. The two are inter–connected but different. A causality framework is very useful, maybe necessary, in assessing and analysing the causes of malnutrition in society.

During the last two decades a number of causality frameworks have been proposed. They all identify nutritional status as a final outcome of the state and change in a number of determinants or causes.

In 1980 an analysis of available frameworks was made in the World Hunger Programme, UNU. The conclusion was that a causality framework should have the following characteristics:

1. Show a hierarchy of causes of malnutrition
2. Include all categories of causes
3. Multisectoral but reducible
4. Facilitate interdisciplinary dialogue
5. Facilitate training and mobilization.

Based on these principles, a new framework was developed during the implementation of the WHO/UNICEF Joint Nutrition Programme (JNSP) in Iringe, Tanzania (Jonsson et al., 1993), and was later adopted in the UNICEF Nutrition Strategy of 1990 (UNICEF, 1990). This framework, or parts of it, has been adopted by several agencies and nutrition workers in many parts of the world. It will be used in this presentation to facilitate a logical assessment and analysis of the causes of malnutrition in South Asia. The framework is shown in Figure 1.

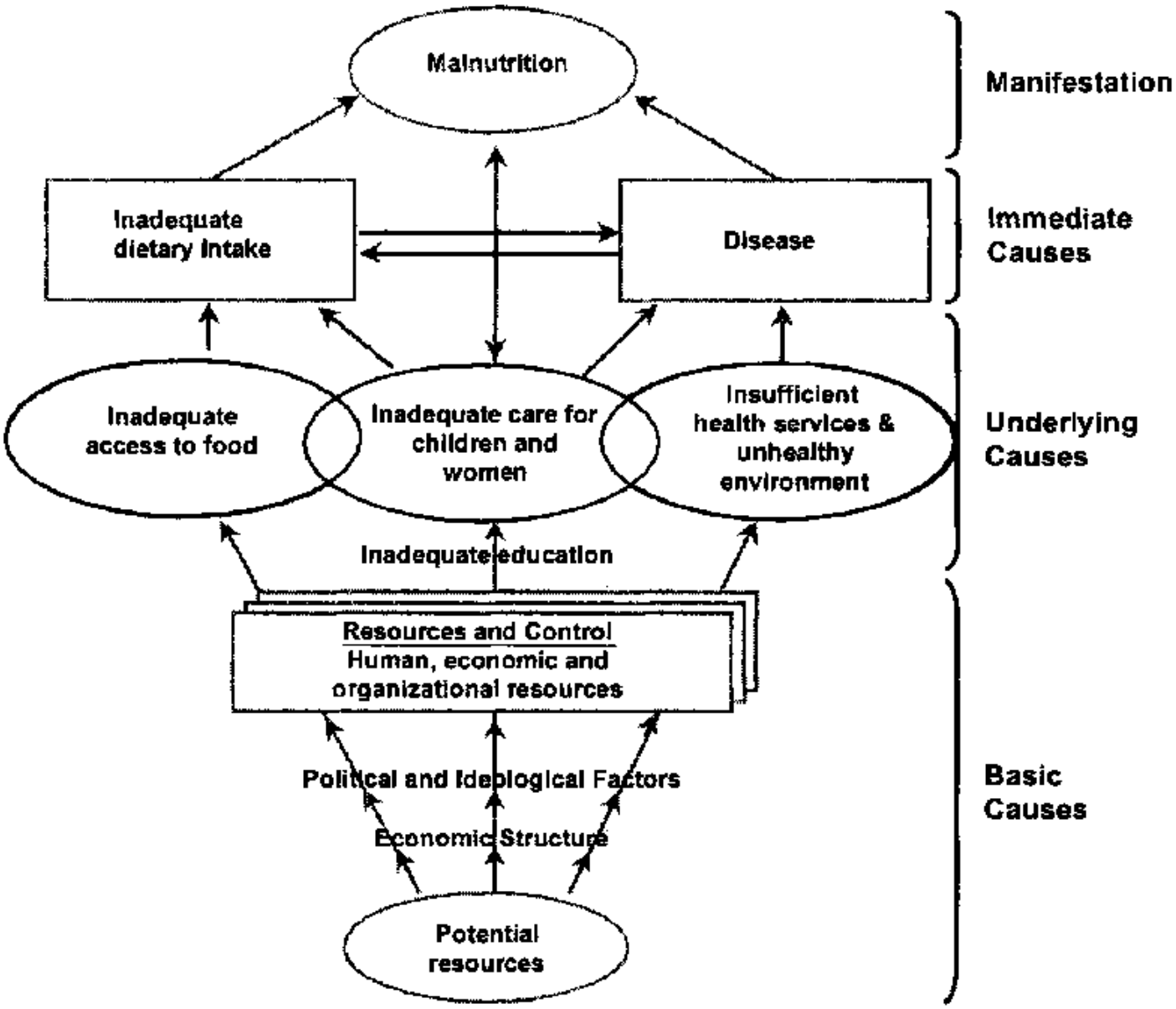


Figure 1: Conceptual Framework of the Causes of Malnutrition

Protein–Energy Malnutrition (PEM)

Out of 167 million underweight under–five–year–old children in the world, 90 million live in South Asia. The prevalence of PEM is much higher in South Asia than in Sub–Saharan Africa – an average of 50%, compared to 30% in Sub–Saharan Africa.

Protein–energy malnutrition among South Asian children has not improved significantly during the last two decades, in spite of large investments in nutrition programmes. Although the prevalence has decreased from about 55% in 1985 to 51% in 1997, the total number of malnourished children in South Asia has increased from 88 million to 90 million in the same period.

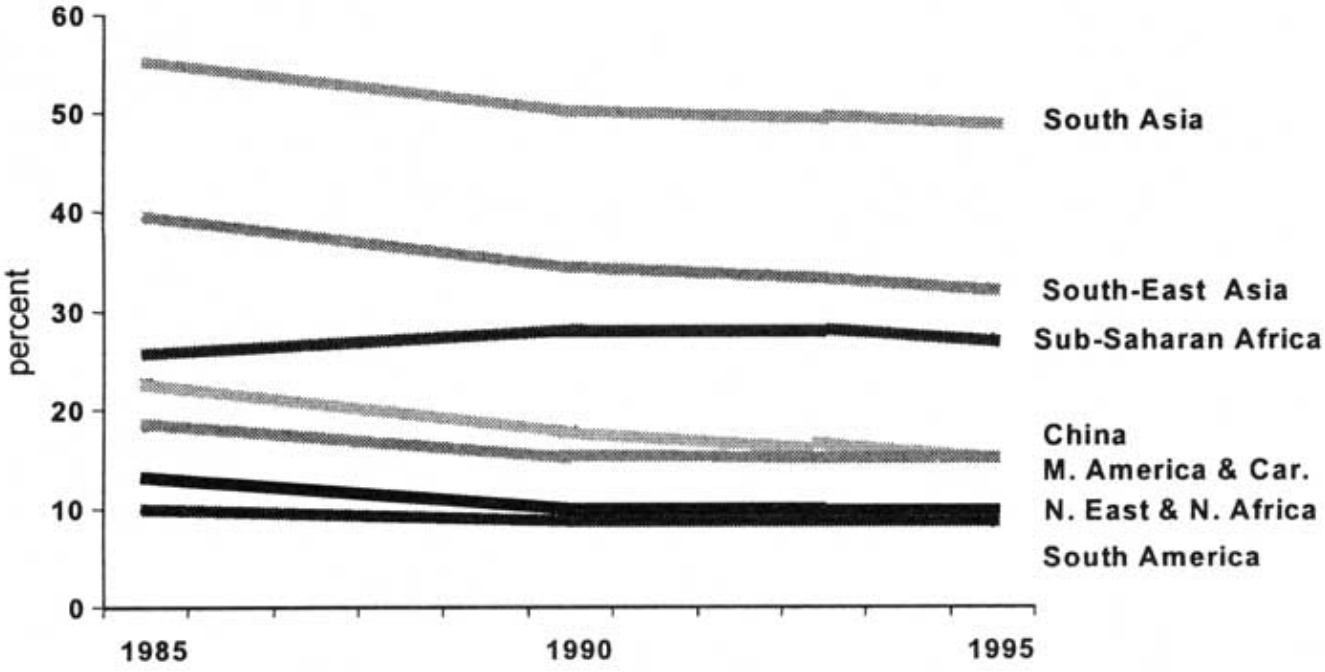


Figure 2: Trends in Prevalence in PEM in the World

There are significant variations in the prevalence of PEM among the countries in South Asia, Bangladesh having the highest rate and Sri Lanka the lowest. But even the rate in Sri Lanka is higher than the rate in many Sub–Saharan countries.

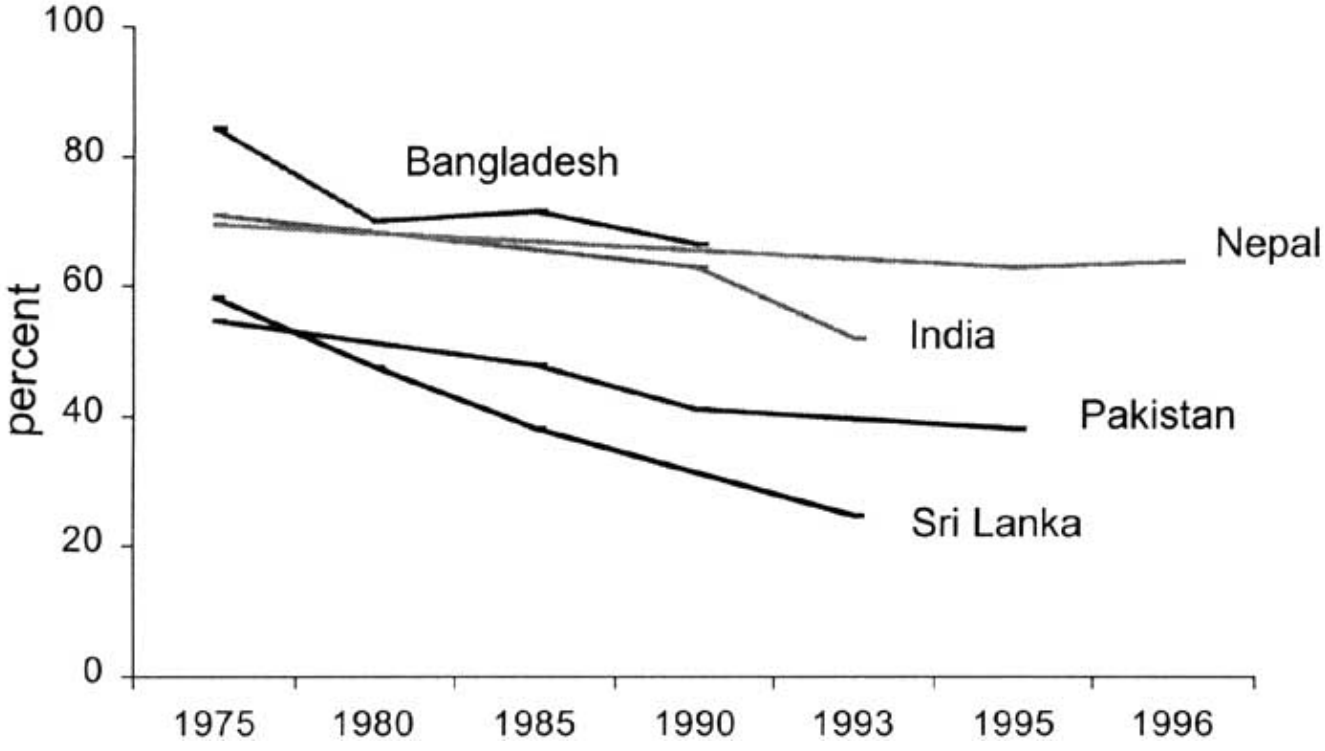


Figure 3: Trends in PEM in the SAARC Countries

There are also significant differences among different parts of the same country. In India, for example, the prevalence of PEM varies from 32% in Nagaland and Kerala to 70% in Bihar.

Table 14: Prevalence of PEM in Some States in India

State	***Prevalence of PEM (%)***

Bihar	70
Uttar Pradesh	66
Madhya Pradesh	63
Maharashtra	61
West Bengal	61
Manipur	34
Kerala	32
Nagaland	32

It is very important to appreciate the differences in age–specific prevalence of PEM. Most children are born with low birth weight and become increasingly malnourished up to the age of two years. This means that the "malnutrition drama" is over already at two years of age or even earlier, and that all prevention programmes should focus on pregnant and lactating mothers and the very young child.

Figure 4: Age–specific Prevalence of Stunting (Sri Lanka)

Table 15: Low Birth Weight in South Asia

Countries	***Proportion of Infants With birthweight < 2500 grams***
Bangladesh	50
Bhutan	36
India	33
Maldives	17
Nepal	29

Pakistan	25
Sri Lanka	19

Malnutrition is a result of inadequate dietary intake and/or disease. These are the **immediate causes** of malnutrition.

National data on dietary intake in South Asia are not available. Local data suggest that, when there is an inadequate dietary intake, the intake is low in both energy and protein (and some micronutrients).

Diarrhoea and ARI are very common in most countries in South Asia and contribute significantly to the high prevalence of PEM. There is an important synergism between diarrhoea and dietary intake. A child with high energy intake can grow well even when affected by diarrhoea and a child with relatively lower energy intake can also grow well if diarrhoea is prevented.

Table 16: Diarrhoea and ARI in South Asia

Countries	***No. of cases of diarrhoea per child per year***	***Children suffering from cough and rapid breathing (%)***
Bangladesh	3.5	24
Bhutan	3.9	–
India	1.7	6
Maldives	2.0	70
Nepal	3.3	34
Pakistan	2.5	16
Sri Lanka	–	–

Household food insecurity, inadequate caring practices and inadequate access to basic health services, together with an unhealthy environment, are **the underlying causes** of inadequate dietary intake and disease, and consequently of malnutrition.

Household food security (HFS) is very difficult to measure and very few data exist. Different proxies have been used to estimate HFS, most often based on availability and production of food. Such measures, of course, do not take into account the distribution of food among households.

The recently published Sixth World Food Survey shows that per capita food availability (measured in total energy) is higher in South Asia than in Sub–Saharan Africa. As PEM is much worse in South Asia than in Sub–Saharan Africa, this suggests that HFS is not the only condition that must be met in order to ensure good young child nutrition. HFS is certainly a necessary condition, but it is not sufficient. Care and health are equally necessary conditions.

For example, crop production per capita does not correlate significantly with prevalence of child PEM in South Asia.

Table 17: Crop Production and PEM in South Asia

Countries	**Crop *production per capita* (*metric tons*)**	***Prevalence of under weight %***
Bangladesh	.24	68
Bhutan	.18	38
India	.22	59
Maldives	–	43
Nepal	.27	54

Pakistan	.18	42
Sri Lanka	.14	34

The lack of correlation may either mean that average per capita figures poorly predict PEM or that household food insecurity is not important for young child malnutrition (PEM), or that per capita crop production is a poor index of HFS.

Access to basic health services and a healthy environment are underlying determinants of young child malnutrition. Coverage of measles immunization and percentage of births attended by a trained health staff are two indicators of the access to basic health services.

Table 18: Coverage of Measles Vaccination and Births Attended by Trained Health Staff in South Asia

Countries	*Coverage of measles vaccination in children 12–23 months*	*Birth attended by trained nurse, midwife or doctor*
Bangladesh	69	14
Bhutan	85	20
India	42	34
Maldives	82	5
Nepal	55	9
Pakistan	50	19
Sri Lanka	94	94

These data, however, do not say anything about the quality of services provided. This is even more significant as regards data on water and sanitation. While access to water has improved significantly during the last two decades, access to household latrines is still very low.

Table 19: Household Access to Safe Drinking Water and Latrines

Countries	*Household access to safe drinking water (%)*	*Household access to latrines (%)*
Bangladesh	97	48
Bhutan	60	70
India	62	24
Maldives	100	35
Nepal	27	21
Pakistan	65	36
Sri Lanka	53	61

Caring practices constitute the most neglected determinant of young child malnutrition, in spite of probably being the least satisfied condition for good nutrition. Caring practices can be divided into four major components:

1. Feeding practices, including breastfeeding and complementary feeding practices.

2. Hygiene practices, including personal, food and household hygiene.

3. Home–based health care, including ORT, early detection of illness and health seeking behaviour.

4. Psychosocial practices, including early childhood stimulation.

Feeding practices include breastfeeding and complementary feeding. Time for initiation for breastfeeding, acceptance of colostrum, and exclusive breastfeeding up to two years of age and beyond are important components of the first. The timing of introduction of complementary foods, the nutrient and energy density of the diet, feeding frequency and feeding style are important components of the second.

Breastfeeding is almost universal in South Asia, with 95% of mothers providing their infants with this ideal food. Exclusive breastfeeding, however, varies a lot.

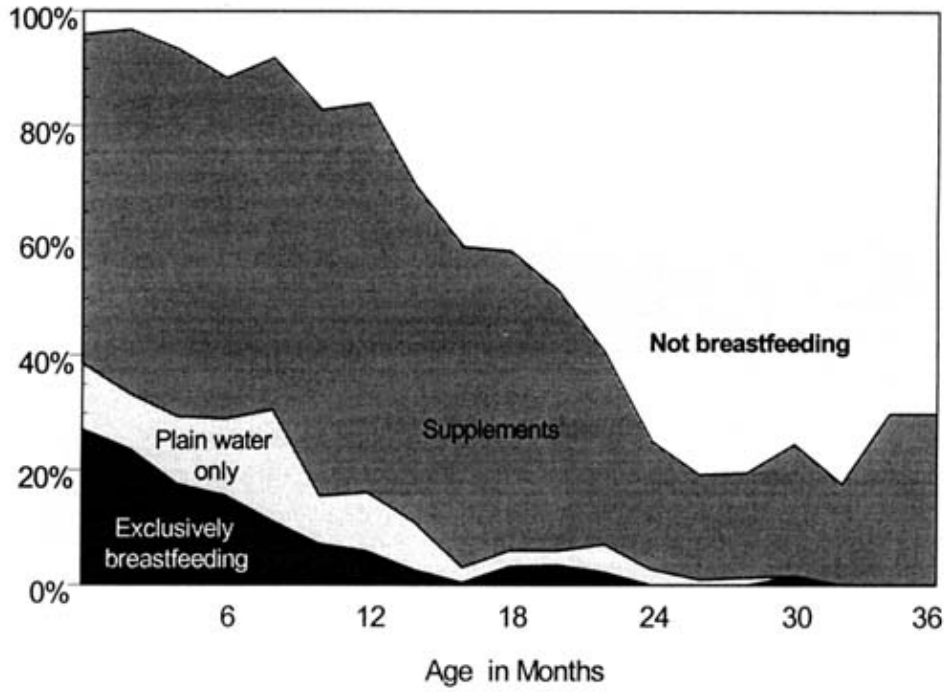


Figure 5: Feeding Methods in Pakistan

In many parts of South Asia, complementary foods are introduced too late. Only one–third to half of the number of infants are given mushy or solid foods by the ninth month. In Rajasthan, India, this figure is only 9%.

The introduction of complementary foods is important at six months, and the quantity, quality and frequency are equally important. Infant stomachs are small and therefore energy/nutrient–dense foods need to be given frequently to meet the requirements. Liquid intake is not sufficient to meet these energy and nutrient needs.

Very few data are available on hygiene practices. Both household and personal hygiene are extremely important aspects of care. There is, however, no doubt that hygiene practices in South Asia are significantly less adequate than in Sub–Saharan Africa. This may be one explanation of the big difference in young child malnutrition (PEM).

Home health care is the third component of caring practices. An estimated 80% of common childhood illness such as diarrhoea and ARIs can be treated at home with little or no help from health care providers. Proper diagnosis and treatment of these illnesses is an important part of care. An example is the use of ORT.

When a child needs help from a health care provider it is important that the care–taker brings the child to a health facility. The health–seeking behaviour is another component of care. Households often do not seek outside assistance when they need it.

Table 20: ORT Use and Health–seeking Behaviour in South Asia

Countries	***Children (0–3 mths) given ORT During diarrhoea (5)***	***Children whose mothers seek care for diarrhoea (%)***
Bangladesh	58	26
Bhutan	27	–

India	78	61
Maldives	18	–
Nepal	14	14
Pakistan	74	65
Sri Lanka	76	71

Resources are required to fulfil the necessary conditions of food, health and care. Both the availability and control or resources are important. Resources can be divided into human, economic and organizational resources. Human resources include knowledge and skills, time, self–confidence, and health and nutritional status. Economic resources include the means of production, such as land, implements and tools, income and assets, Organizational resources include the extended family, women's groups, youth groups and religious groups.

In efforts to fulfil each of the three necessary conditions there is a competition for the same resources, for example mother's time or household income. This could explain, for example, why efforts to increase food production may sometimes reduce the time for care of young children and actually result in increased malnutrition.

Control of resources is as important as their availability in the household. In South Asia most resources are controlled by men. In households where more resources are controlled by women, the prevalence of young child malnutrition tends to be lower.

Education and information are crucial in determining how resources are used. Female literacy rates are very low in most of South Asia. Not sending or keeping girls in school is a common practice in large parts of South Asia.

Table 21: Primary School Completion and Adult Literacy Rates in South Asia

Countries	***Primary school completion***	***Adult Literacy rates (%)***	
		Male	***Female***
Bangladesh	47	47	22
Bhutan	37	51	25
India	38	62	34
Maldives	98	98	99
Nepal	30	38	13
Pakistan	48	47	29
Sri Lanka	95	93	83

There is no significant difference in nutritional status between boys and girls. This gives rise to a kind of a mystery because girls are discriminated against in almost all fields of life.

Availability and control of resources at each level of society are historical products of more basic conditions and processes. **The basic causes** of young child malnutrition include material/technological conditions, social conditions, economic, political and ideological factors. The material/technological conditions include climate, quality of the soil, available technology and skills. The social conditions include the ownership of the means of production and all other social relationships including gender relationships. Income–poverty is an important basic cause and income–poverty is widespread in South Asia, Other papers will deal in more detail with this problem. Political factors include all national and local policies and the legal system, Ideological factors include traditions, religion, habits and other value systems.

Probably one of the most important basic causes in South Asia is the strong patriarchal system. The constant sub–ordination and exploitation of women, legitimized by traditional ideologies is characteristic of all countries in South Asia, except for Bhutan, Maldives, Sri Lanka and some parts of India.

This completes the analysis, We can now try to explain why malnutrition is so much higher in South Asia than in Sub–Saharan Africa. A detailed analysis of this was made in last year's UNICEF's Progress of Nations, in the article "The Asian Enigma" (UNICEF, 1996). This may seem paradoxical. Senior government people in South Asia very often do not believe that this is true. Very much as a result of ACC/SCN's reports on the Global Nutrition Situation we now know that this is true. But why is there such a large difference?

As earlier described, low birth weight is more common in South Asia than in Sub–Saharan Africa. This could account for 15–20% of the difference. LBW is somehow connected with the health and nutrition condition of the mother. It is also true that complementary feeding starts very late in South Asia – an aspect of inadequate caring practices. Per capita food availability is higher in South Asia than in Sub–Saharan Africa and health services are probably also better in South Asia. Sanitation and hygiene practices, however, are much worse in South Asia, which may explain some of the difference in PEM prevalence.

In summary, the most important difference between South Asia and Sub–Saharan Africa is likely to be the different caring practices for children and women. This leads us to the need to understand differences in basic causes.

One of the most significant differences between South Asia and Sub–Saharan Africa is the form of subordination and exploitation of women. In Sub–Saharan Africa, women are primarily regarded as "the mother of his children", while in South Asia women are regarded as "his wife and a daughter–in–law". Mothers in both South Asia and Sub–Saharan Africa love their children, but the different forms of subordination favours children in Sub–Saharan Africa, This difference manifests itself in different ways. For example, in most of Sub–Saharan Africa, a woman's infertility is the only traditionally legitimate reason for divorce while in most of South Asia, suspicion of infidelity is the major reason.

It should be noted, however, that the dominant vegetarian diet in South Asia could be another important cause of the difference in PEM between South Asia and Sub–Saharan Africa.

Micronutrient Malnutrition

Apart from goitre rates, there are no reliable national data on micronutrient malnutrition. It is, however, well–known that both anaemia and vitamin A deficiency are highly prevalent in many parts of South Asia.

The conceptual framework is equally useful in analysing the causes of micronutrient malnutrition as it is for analysing the causes of PEM. This is illustrated below.

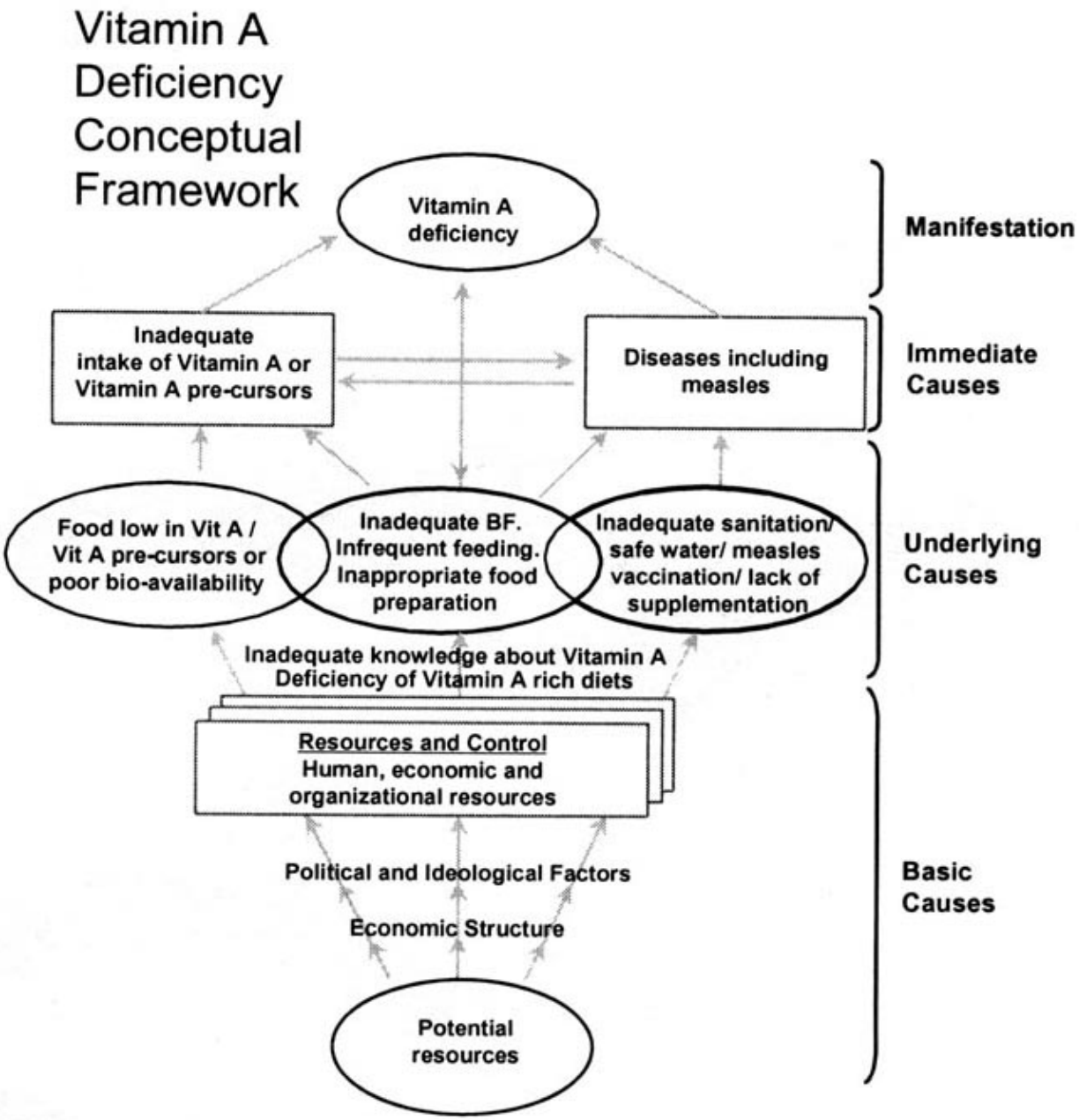


Figure 6: Causes of Vitamin A Deficiency

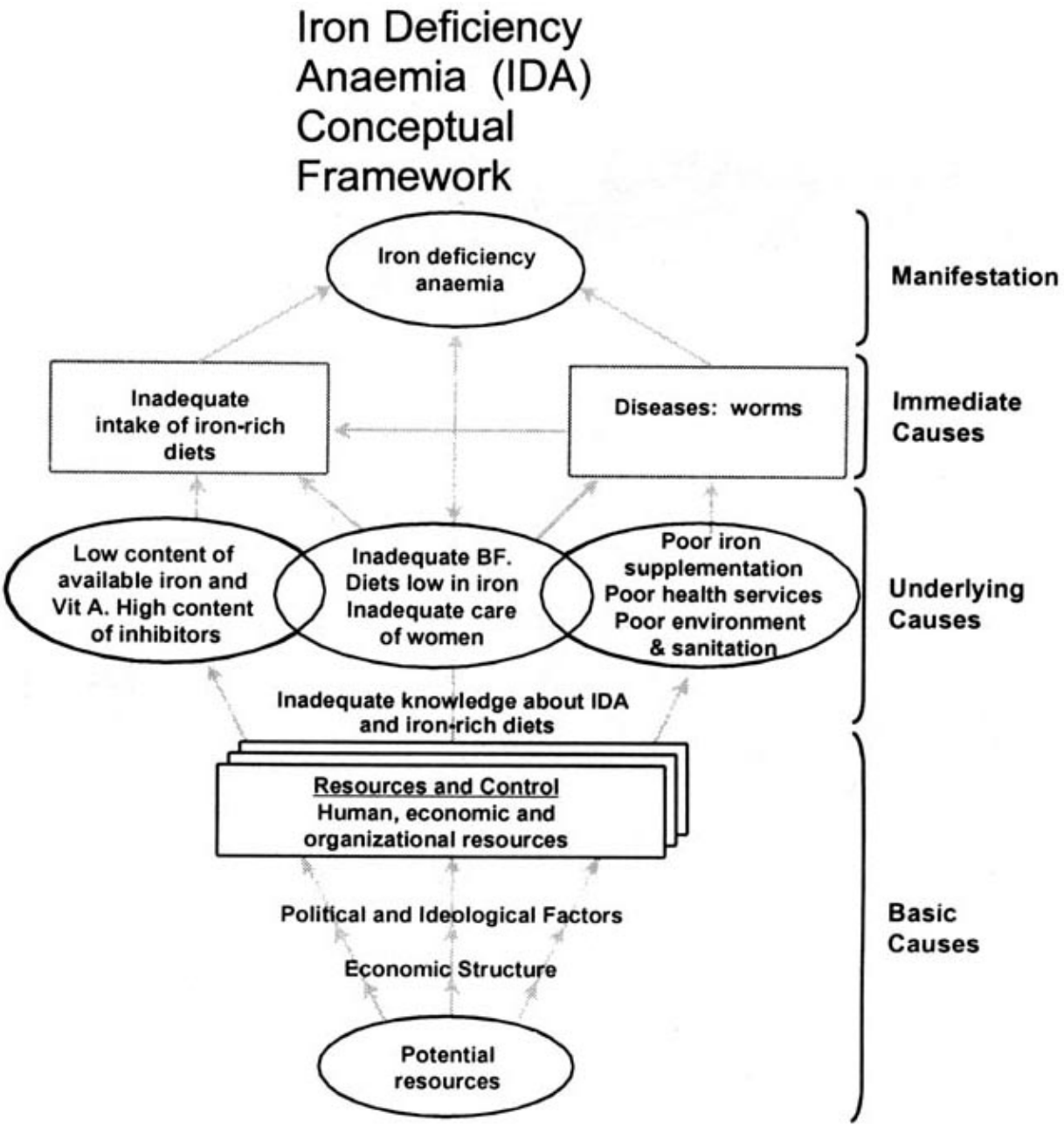


Figure 7: Causes of Iron Deficiency Anaemia

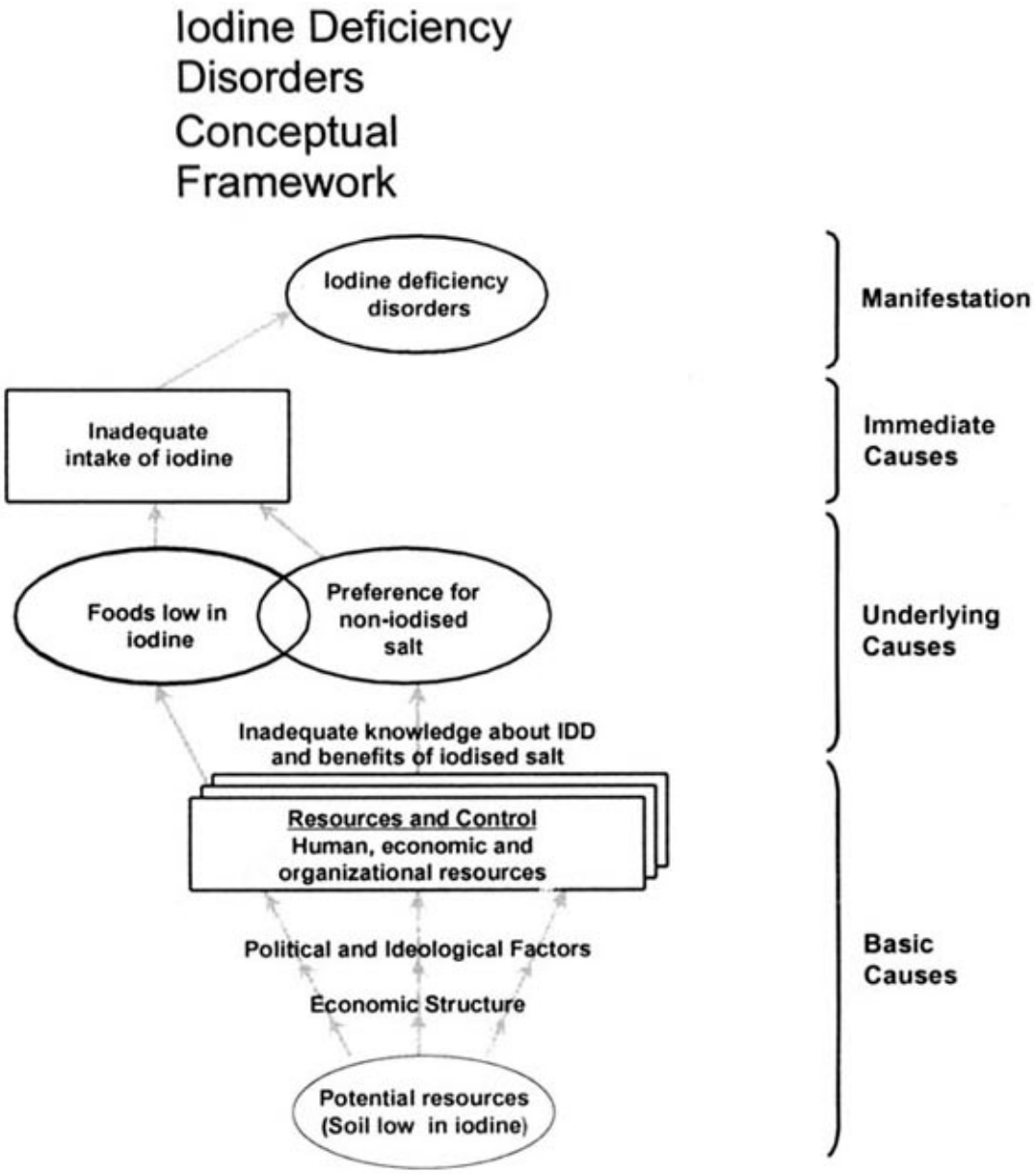


Figure 8: Causes of Iodine Deficiency Disorders

Conclusions

Malnutrition is a complex problem in society and an explicitly formulated conceptual framework is a useful tool in understanding this complexity. Such a framework must be based on current scientific knowledge in which nutrition as an outcome is explained by causes at immediate, underlying and basic levels.

Reducing malnutrition as a desirable outcome, however, is just one aspect of a development effort. Development requires the satisfaction of two conditions: the achievement of a certain **outcome** and the establishment of an adequate **process** to achieve that outcome. Effective development demands a high quality process by which the outcome is achieved, Participation, sustainability and individual and group self–reliance – on a steadily increasing scale – are all essential characteristics of a high quality process.

Level of outcome and quality of process define a two–dimensional space for social action. The figure below is highly simplified, because both outcome and process are multi–dimensional.

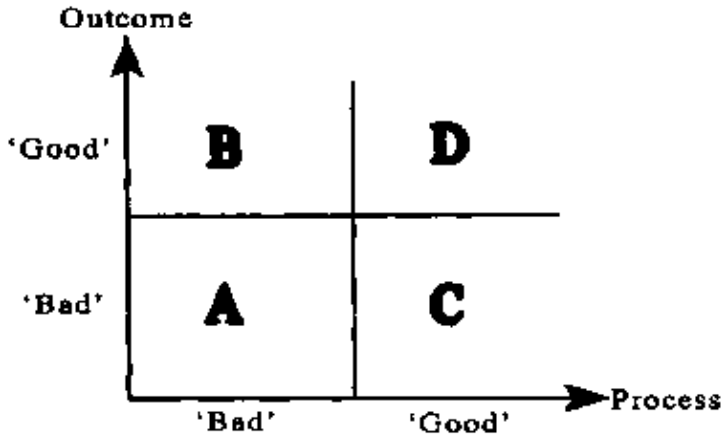


Figure 9: Outcome/Process Space for Social Action

Most development starts at A; and the ideal final stage is D. Many development programmes have become trapped in one of the two areas represented by B or C. A good outcome at the expense of, for example, sustainability (an aspect of a good process) (B) is as useless as a good process without any significant outcome (C). Some UNICEF–supported immunization programmes have become trapped in B; while some area–based, community–oriented programmes, which never moved to scale, have been trapped in C.

Monitoring of the achievement of human development outcomes or goals has improved considerably during the past ten years, The positive experience of the monitoring of immunization coverage has been applied to monitoring the progressive achievement of almost all WSC–goals. Much less progress has been achieved in efforts to monitor the quality of the process, largely because it has never been defined. There is an urgent need to develop appropriate indicators for criteria such as participation, women's empowerment and sustainability.

References

FAO (1996) *The Sixth World Food Survey.* FAO, Rome.

Jonsson U, Ljungqvist B and Yambi 0 (1993) *Mobilization for Nutrition in Tanzania.* In Rohde J et al. (eds) Reaching Health for All. Oxford University Press.

Kuhn T (1962) *The Structure of Scientific Revolutions.* University of Chicago Press.

UNICEF (1990) *Strategy for improved Nutrition of Children and Women in developing countries.* UNICEF, New York.

UNICEF (1990) *A UNICEF Policy Review.* UNICEF, New York.

UNICEF (1996) *Atlas of South Asian Children and Women.* UNICEF Regional Office for South Asia.

UNICEF (1996) *The Asian Enigma.* In the Progress of Nations 1996, *p.11–17.* UNICEF, New York.

Chapter 5: Poverty and its Effect on Nutrition: Some Questions Based on the Asian Experience, by Rizwanul Islam

[24] An earlier version of this paper was presented at the Symposium on Nutrition and Poverty in connection with the UN ACC/SCN 24th Session, Kathmandu, 17–21 March 1997.

[25] Deputy Director, Development Policies Department, International Labour Office, Geneva. Views expressed in this paper do not necessarily reflect those of the ILO.

Introduction

In commonsense parlance, nutritional status is usually associated with food intake which, in turn, is taken to be dependent on income. And hence poverty is regarded as a major cause of low level of nutrition. In reality, the situation may of course be different as certain aspects of nutrition may be influenced by factors other than food intake.[26] Also, level of income may not be the only determinant of food intake. The issue of the effect of poverty on nutrition is thus less straightforward than it might appear.

[26] For a good overview of various strands of theories in this regard, see Osmani (1997).

As there are different measures/indicators of both poverty and nutritional status, some order may be brought into an analysis by first selecting the measure(s) that will be used. One commonly used measure of poverty is the so–called "head–count ratio" which uses the notion of poverty line. The latter, in turn, is usually determined with reference to a nutritional norm converted into a minimum food basket and income needed to ensure access to such a basket (and, of course, other items of basic needs). People (or households) having incomes below the level thus determined are identified as poor – according to this measure.

Nutritional status can be indicated in various ways. One simple indicator is the number of calories consumed by an individual during a given period of time. In addition, one may want to look at the intake of protein and nutrients. Level of child nutrition – indicated by their weight for age or height – is often used as an important index of the nutritional status of a society. Other indicators, e.g., neonatal and postnatal mortality, infant mortality, low birth weight of babies could also be used.

For purposes of the present paper, I shall concentrate basically on availability/intake of calories and child nutrition.

While the main purpose of the present paper is to examine the effect of poverty and nutrition, it starts by attempting a conceptualization of the interlinkage between poverty and nutrition; the record on poverty alleviation in Asia is then reviewed, and finally the effect of poverty on nutrition is examined.

Interlinkage between Poverty and Nutrition: A Conceptualization

Figure 10 depicts a framework for conceptualizing the interlinkage between poverty and nutrition. In this framework, nutritional intake and status is both an effect and a cause of income–earning opportunities of individuals and households. As an outcome, the nutritional status of individuals is influenced, among other factors, by the amount and type of food that is consumed. That in turn is influenced largely by the employment and income–earning opportunities available to household members. A given level of income may of course be distributed differently by households between food and non–food items which, in turn, will affect the nutritional outcomes of given levels of income. The box on distribution of household consumption between food and non–food items which has been put between the boxes of income and individual food consumption reflects this additional aspect in the chain of causation. Finally, employment and income–earning opportunities at the household level are linked to production activities within as well as outside the household.

The level of nutrition is not only an outcome of the production–employment–income nexus, it can also influence this nexus through, for example, the relationship between workers' productivity and their nutritional intake. Indeed, individuals' energy intake (through food consumption) can influence their energy expenditure (through work). It may, therefore, be possible to influence production by improving the nutritional levels of workers.

Several development policy variables may influence the above–mentioned elements in the chain of causation between production, income, consumption and nutrition. First, in addition to income and employment, the ability of households to obtain food can be influenced by a host of policies aimed at providing the poor with access to food. Such policies may include public distribution of food at subsidized prices as well as other instruments for influencing market prices and availability of food.

Second, policies related to health and education can also influence nutritional status without necessarily working through the income–food–nutrition nexus. Female education (especially covering child care and other nutrition–related aspects) and public health interventions (e.g., those related to drinking water, sanitation and immunization) are examples of such areas of interventions which can influence nutritional outcomes without having to work through the income route.

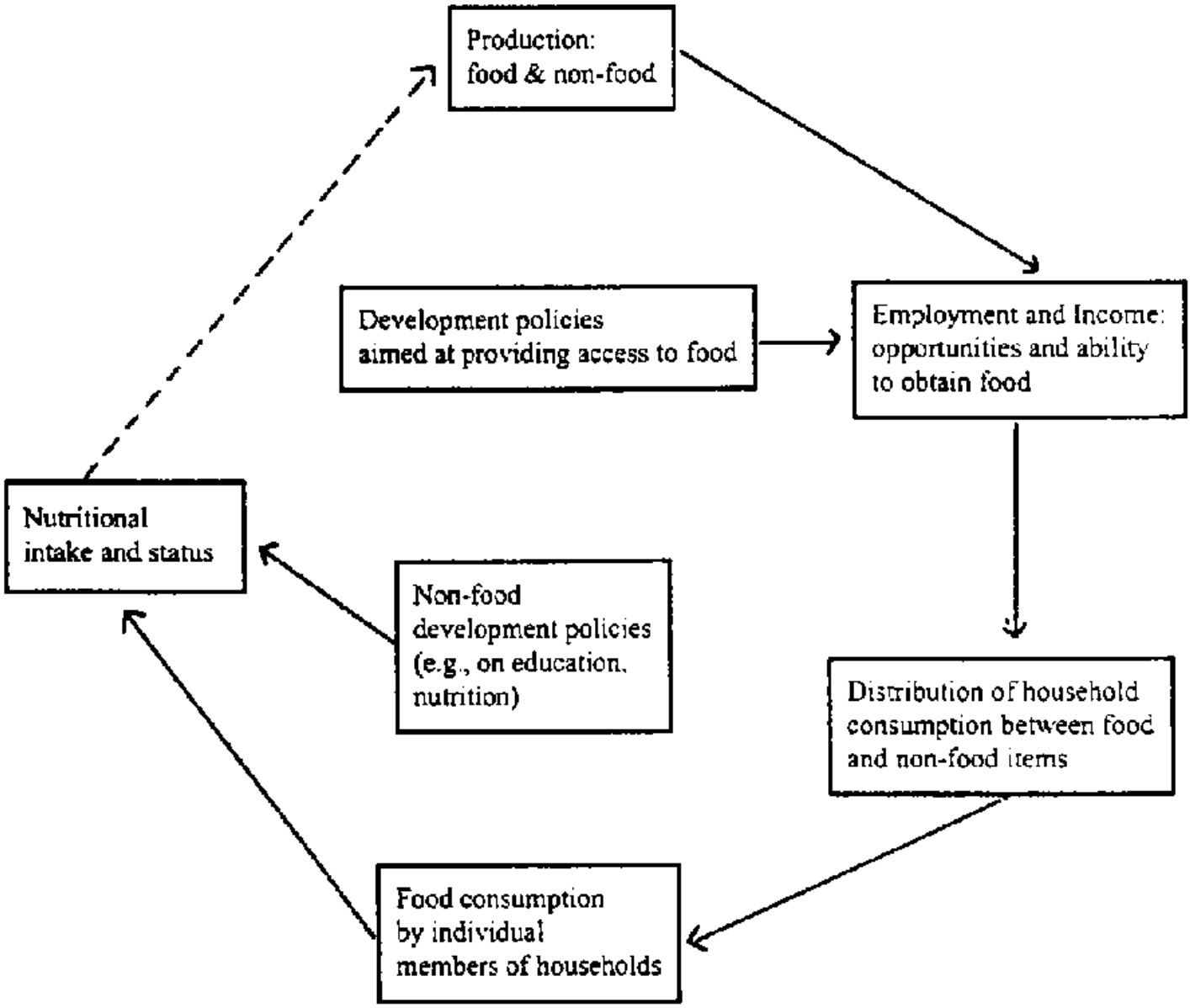


Figure 10: Interdependence between Poverty and Nutrition

Source: Adapted from Szal and Thorbecke (*1986*).

What is important to note is that nutritional status is influenced by both food and non–food factors. Some of the non–food factors (e.g., education, awareness about hygiene and nutrition) go beyond the "privately consumed" items of basic needs and fall in the realm of "socially provided" basic needs. In that sense, poverty may not be the only factor affecting the level of nutrition. This is especially the case with child nutrition, and as regards postnatal, neonatal and infant mortality. One could, of course, argue that the availability of socially provided basic needs is also a reflection of the overall income/poverty of a country (as opposed to individuals or households). And in that broad sense, poverty could still be regarded as the dominant factor affecting nutrition.

The Record on Poverty Alleviation In Asia

Before coming to the empirical analysis of the effect of poverty on nutrition, it would be useful to have an overview of the record on poverty alleviation in Asia. Table 22 provides this picture in a qualitative manner for rural areas of selected countries of Asia. The picture drawn here is based on an assessment of a large number of studies. A few general conclusions may be drawn from Table 22 and the studies on which it is based. First, the performance of the Asian countries in poverty alleviation was better in the 1970s and 1980s compared to the 1960s, when only three countries had attained clear success. The situation had deteriorated

in four out of the ten countries under discussion. During the 1970s, the situation improved in five countries. In the first half of the 1980s, five countries achieved a decline in poverty; and in the second half, another two countries were able to reverse the deteriorating trend.

The countries which achieved notable success in poverty alleviation included China, Indonesia, Malaysia and Thailand. India and Pakistan were also able to get out of the rising trend in poverty. On the other hand, the performance of Bangladesh, Nepal, Philippines and Sri Lanka has been disappointing.

Table 22: The Record on Alleviation of Rural Poverty in Selected Asian Countries

Country	*1960s*	*1970s*	*1980s*
Bangladesh			+ –
China	+	+	+
India	?	?	+
Indonesia	?	+	+
Malaysia	–	+	– +
Nepal	–	–	–
Pakistan	–	+	+ –
Philippines	=	–	? –
Sri Lanka	+	–	–
Thailand	+	+	– +

Note: – denotes deterioration; + denotes improvement; = denotes no change;? denotes unclear. Two signs for the same decade denotes a change in trend. (*For example, + – denotes an improvement in the early part followed by deterioration in the later part.*)

Source: Islam (*1990*)*. Updated by using Khan* (*1997*)*.*

Amongst the South Asian countries, India and Pakistan achieved sustained reduction in poverty in the 1980s. Although there was a temporary setback in India after the introduction of economic stabilization and structural adjustment programmes in 1991, the situation improved again in 1993–94 (Sen, 1997). Although direct evidence on poverty is not available for more recent years, it can be surmised from indirect indicators that India has been able to continue its trend of poverty reduction after 1993–94. Between 1994–95 and 1996–97, growth of GDP increased from 5 to 7% per annum. While the inflation rate remained under control, agriculture also attained satisfactory rates of growth (Bhalla, 1997).

In Pakistan, the trend of poverty reduction remained uninterrupted during 1969–70 to 1987–88. But with the introduction of the structural adjustment programme in 1987–88, the incidence of poverty started rising.

Amongst the other countries of South Asia, Nepal and Sri Lanka experienced a rising trend in the incidence of poverty. Although Sri Lanka succeeded in reducing poverty in the 1960s, the trend was reversed in the following decades. Despite the lack of time–series data on Nepal, available evidence seems to indicate that there has been no reduction in poverty during the 1970s and the 1980s. On the other hand, what has happened in Bangladesh remains a debatable subject. Some studies indicate a reduction in poverty by the mid–1980s, although others contend this finding. But after 1985–86, the weight of evidence appears to indicate a rise in poverty.

The record of South–East Asian countries in poverty alleviation is much better compared to that of South Asia. For example, Indonesia has achieved continuous improvement both in the 1970s and 1980s. In Malaysia, although the trend of improvement was broken during 1980–83, it has continued since then. Similarly, Thailand also suffered a setback during 1980–85, but poverty alleviation has continued after that (Islam, 1990). China was able to maintain the positive trend in poverty reduction up to the mid–1980s. But after that there was no further progress. Indeed, in the rural areas the rate of poverty reduction declined dramatically after 1985; and after the early 1990s, there has been no further reduction in poverty. In the urban

areas, poverty reduction continued till the end of 1980s; but the number of poor increased dramatically in the early 1990s (Khan, 1997).

The experience of the Philippines is quite different from that of other South−East Asian countries. After the deterioration in the 1970s, the poverty situation improved in the 1980s; but the incidence of poverty started increasing again after 1988−89.

Effect of Poverty on Nutrition

If poverty is measured in the manner mentioned earlier (i.e., with reference to a nutritional norm and the ability of individuals or households to attain this norm), it would, almost by definition, imply a low level of nutrition. The real income of a household is indeed an important determinant of its access to food which, in turn, is a major determinant of the nutritional status of its members. The measurement of these variables is not at all straightforward; and their relationship may be influenced − among other factors − by the manner in which they are measured. As a result, empirically estimated relationships among these variables do not always lead to consistent findings. Indeed, one review of the relevant literature (Tabatabai, 1989) cited evidence both in support of and against the hypothesis of a positive relationship between income and nutritional status. Other recent studies also point to a wide range of estimates of income elasticity of demand for calories and other micronutrients.

Table 23 puts together data on per capita income and availability of calories for 12 countries of Asia, and Figure 11 provides a graphical representation of this data set. It is quite clear from this figure that the relationship between income and calorie is at least non−linear. One may of course point out that it is only natural for per capita calorie intake to taper off after a decline in level of income. While this is plausible, what is important to note is that a reasonable level of calorie intake is possible even at low levels of income if there are public policies aimed at the satisfaction of basic food needs of the poor. For example, China and Malaysia are having similar levels of calorie intake at vastly different levels of income. There is a similar pair situation in India and Thailand.

Public development policy can play a very important role, as was demonstrated by the examples of China and Sri Lanka till the late 1970s. The institutional framework of production in China in the post−revolutionary period (particularly after the introduction of the commune system) guaranteed all able−bodied workers a job, satisfying such basic human needs as food, shelter and clothing. In addition, there was effective public action to meet the needs of those unable to work. It was thus possible to remove hunger and malnutrition without achieving very high rates of growth of production or spectacular increases in incomes.

Sri Lanka is also well−known for its long history of direct public action in food distribution, education and health services. The Government distributed rice at a heavily subsidized price to the entire population from the 1940s until 1978. This policy helped to maintain an adequate level of nutrition amongst people of low−income groups.

It thus appears that it is possible to break the direct link between nutrition and income through suitable development policies. One can in fact distinguish nutritional achievement induced by income from that achieved through development policies,

Table 23: Per Capita Income and Calorie Supply in Selected Asian Countries

	GNP per capita (US$) 1993	***Daily calorie supply per capita 1992***
1. Bangladesh	220	2,019
2. China	490	2,729
3, India	300	2,395
4. Indonesia	740	2,755
5. Malaysia	3,140	2,884
6, Mongolia	390	1,899

7. Nepal	190	1,957
8. Pakistan	430	2,316
9. Philippines	850	2,258
10. Sri Lanka	600	2,275
11. Thailand	2,110	2,443
12. Vietnam	170	2,250

Source: *UNDP, Human Development Report 1996. Oxford University Press.*

Also, in certain situations, increases in household income may not lead to improvements in the nutritional level of individual members. For example, gender bias (towards male members) in the infra–household distribution of food may lead to lower levels of nutrition amongst women than should be possible at given levels of income. Similarly, "demonstration effects" may divert disproportionately large shares of income to non–food items of consumption in low–income households. While it may be difficult to subject such hypotheses to rigorous empirical testing, the importance of social and cultural factors in explaining variations in nutritional levels cannot be denied completely.

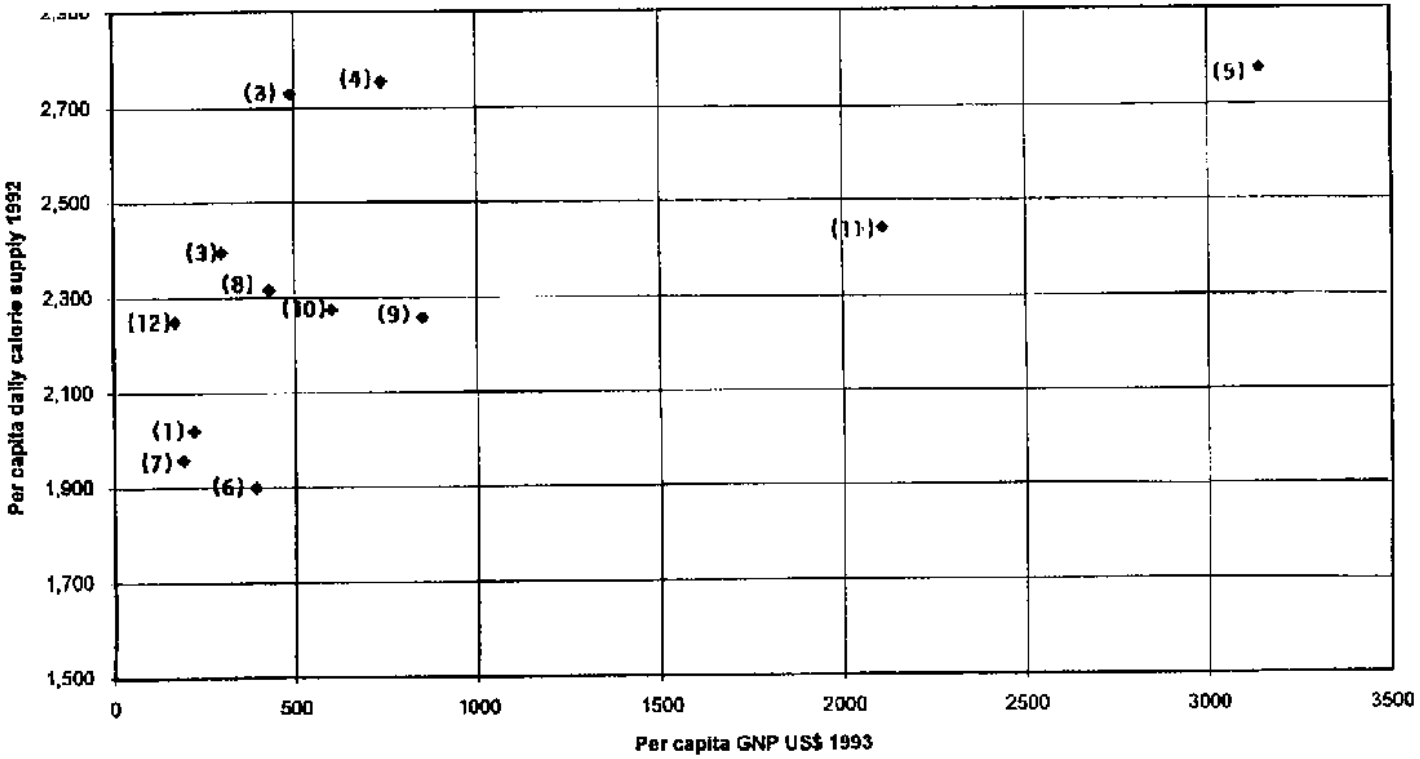


Figure 11: Per Capita Income and Calorie Supply in Selected Asian Countries

Note: *The numbers refer to the countries for which data are presented in Table 23.*

Coming to the question of child nutrition, the importance of non–income factors has already been demonstrated by some studies (e.g., the studies under a recent research project of the Asian Development Bank)[27]. While the level of maternal education can be an important explanatory variable, female participation in the labour force can also exert a significant influence on child nutrition. The latter is borne out by the experience of Grameen Bank borrowers in Bangladesh, where credit extended to women's economic activities is seen to have contributed to improvements in the nutritional status of poor households.[28] Also, the fact that the prevalence of child malnutrition in South Asia is higher than in Sub–Saharan Africa should cast doubt on the direct link between income and child malnutrition. One has to look for factors other than income.

[27] See in particular, Bhargava and Osmani (1997).

[28] The experience of another NGO (BRAC) in Bangladesh shows that life–relevant education which includes child care practices can lead to improvement in the health of children.

References

Bhalla G S (1997) *Structural Adjustment and the Agricultural Sector in India,* in Chadha and Sharma (1997).

Bhargava A and Osmani S R (1997) *Health and Nutrition in emerging Asia.* Mimeo, Asian Development Bank, Manila.

Chadha G K and Alakh N Sharma (eds.) (1997): *Growth, Employment and Poverty: Change and Continuity in Rural India.* Vikas Publishing House, New Delhi.

Islam Rizwanul (1990): Rural Poverty, Growth and Macroeconomic Policies, *International Labour Review,* vol. 129, No. 6.

Khan A R (1997) *Macroeconomic Policies and Poverty: An Analysis based on the Experience in Ten Asian Countries.* Paper presented at the ILO Asian Regional Policy Workshop on Poverty Alleviation, 5–7 February 1997.

Osmani S R (1997) *Poverty and Nutrition in South Asia.* Abraham Horwitz lecture delivered at the Symposium on Nutrition and Poverty held on the occasion of UN ACC/SCN 24th Session, Kathmandu, 17–21 March 1997.

Sen A (1997) *Structural Adjustment and Rural Poverty: Variables that Really Matter,* in Chadha and Sharma (1997).

Szal, Richard and Erik Thorbecke (1986) *Food, Nutrition and Employment.* Mimeo, ILO, Geneva.

Tabatabai, Hamid (1989) *Economic Indicators of Access to Food and Nutritional Status.* UN/ACC/SCN Working Paper.

UNDP (1966) *Human Development Report 1996.* Oxford University Press.

Chapter 6: Child Nutrition, Care and Poverty, by Deepti Chirmulay

Malnutrition in preschool children remains a significant problem in India, despite over twenty years of specific effort such as the implementation of the Integrated Child Development Scheme (ICDS), alongside more global efforts for improving Maternal and Child Health (MCH) through Primary Health Care (PHC). The high rates imply that a large number of preschoolers are at risk of dying or of growing up to be adults with lower productivity, with its direct link to development potential. In this context, it is imperative to focus on the factors influencing child nutrition and their linkages.

The BAIF Development Research Foundation, an Indian NGO engaged in rural development and research since 1967, has documented a positive impact of integrated development activities on nutrition of under–five children from a tribal area in Gujarat, India (1992–1994). The integrated tribal development programme in Vansda Taluka, District Valsad, Gujarat, covers 40 villages. The core programme is of orchard development by poor tribal families on their own under–utilized piece of 0.4 hectares of land. The family contributes all the labour while inputs such as planting materials are provided by the project. BAIF provides technical support and training to the local people. Other components of this programme, implemented simultaneously, are land development, improved agriculture, water resources development, income generation activities by women's groups, preventive health care and nutrition–related education.

Participation by the families in the programme is by choice, and orchard development activity is limited to participant families. However, the development of drinking water sources, water chlorination, preventive health care and health and nutrition education is for all. There is also ICDS programme activity in these villages. The programme started in late 1982, health inputs were organized from 1985, and income gains started to be realized from 1987–1988.

The mean weight–for–age for each month–age recorded for the infants was low, falling in the grade I malnutrition category, for infants from both the participant and non–participant families, in 1987. Over the next few years, the mean weights increased substantially for the infants from the participant families, rising to normal weight category, whereas those of non–participants remained constant. Statistically significant differences were noted between seven to ten months of age, in 1994. It should be noted that no complementary feeding was provided through the programme.

The participant families and the village health guide in the programme area explained the process and its salient features to us, in focus group discussions. The change was perceived as being due to simultaneous action on various fronts, from livelihood and income to health education and awareness, especially among women (see Figure 12).

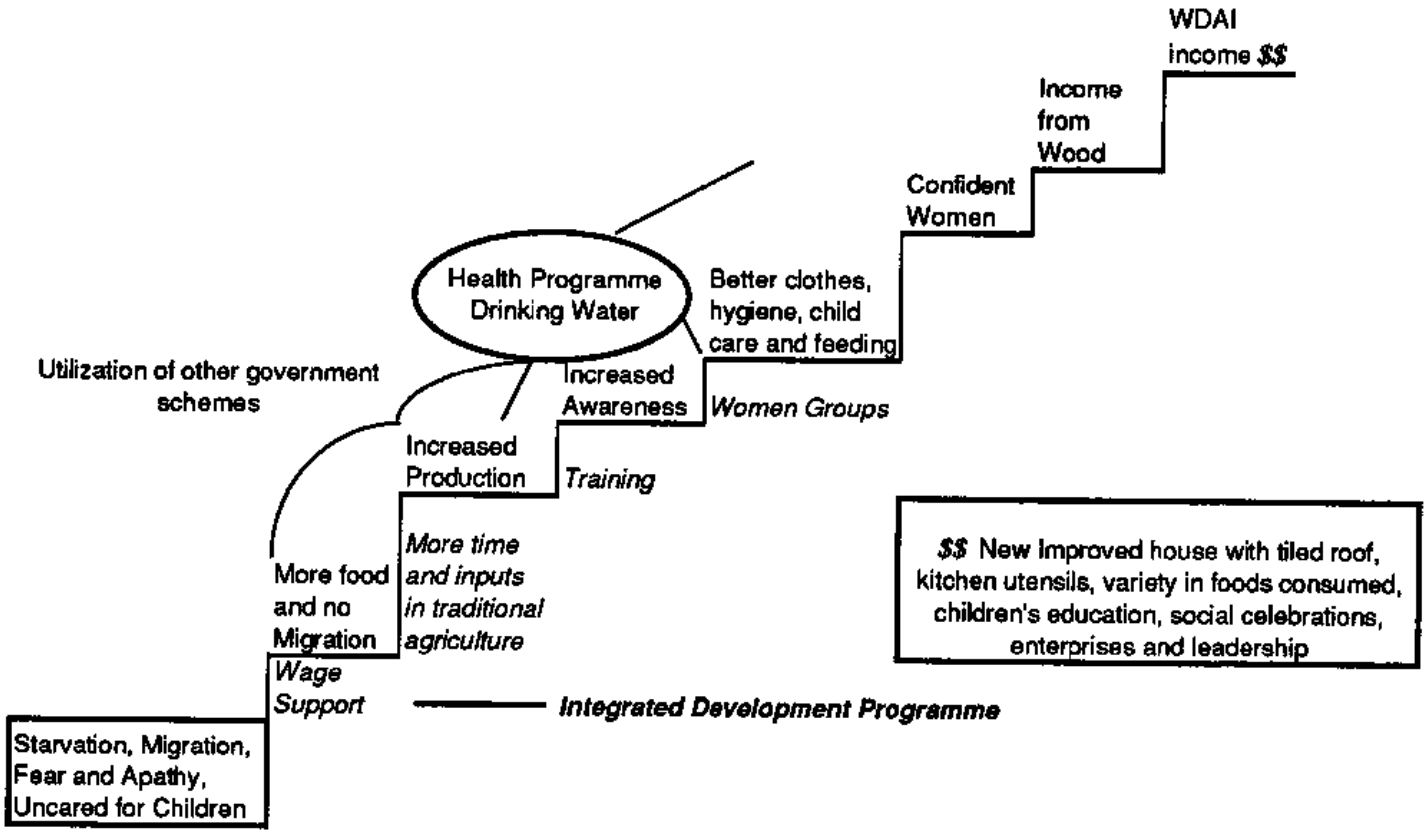


Figure 12: Process of Impact Due to Integrated Development Programme

Subsequent to this experience, BAIF conducted a cross–sectional study, supported by the International Health Policy Programme (IHPP), Washington D.C., in the summer of 1994, in five selected rural areas from Uttar Pradesh, Rajasthan, Gujarat, Maharashtra and Karnatak States in India, where BAIF has run a livestock development programme for over a decade.

The study examined links between the socioeconomic background of the household and the preschool child's nutrition, and compared patterns of background factors influencing child nutrition in the five areas studied. Quantitative socioeconomic, demographic data were gathered with the help of structured schedules for over 3000 families from each area, and preschool children from these families were measured for anthropometric data. This was followed up by focus group discussions, key informant interviews and in–depth interviews with parents. In each area 20 parents of both well nourished and severely malnourished girls and boys were interviewed to elicit child care and feeding practices. The main findings were:

1. A high prevalence of malnutrition existed in all the areas studied. The proportion of preschool children with Z scores less than – 2 for weight–for–age ranges between 58,5 and 73.1%; that for height–for–age(stunting) between 44.1 and 63.7%; and weight–for–height (wasting) from 21.2 to 37.6%. The rates are particularly high in Raila, Rajasthan, and Karchhana, Uttar Pradesh. ICDS activities are absent in both these areas.

2. The prevalence of severe malnutrition (<60% standard weight–for–age) in both girls and boys greatly increases immediately after the age of six months, and remains high throughout the toddler age group.

3. There is no evidence of discrimination against girls in any age group, or social or economic group.

4. When the influence of economic or social factors in the household is controlled for, joint family background is advantageous only in one area – Karchhana, Uttar Pradesh; whereas a larger family size has a negative influence only in Garag, Karnatak.

5. A significantly higher prevalence of malnutrition is found in children belonging to Scheduled Caste (SC) and Scheduled Tribe (ST) households. In our qualitative observations, we have noted that primary health care staff belonging to higher castes are reluctant to visit Scheduled Caste households for the purpose of providing immunizations and other primary health services in Karchhana, Uttar Pradesh.

6. Between 46% and 81% of severely underweight children belong to families not reporting any food shortage (see Table 24).

7. Education of an adult member in the household, at least above the primary level, significantly improves child nutrition. Both male and female adult education have significant correlations with child nutritional status.

8. Comparison between the prevalence of malnutrition in the five areas shows that the lower the coverage with complete primary immunization, the higher is the prevalence of severe malnutrition (i.e. less than 60% of standard weight–for–age). For example, in Gandevi, Gujarat where 90% of one to two–year–old children had received complete primary immunization, the prevalence of severe malnutrition in preschool children was 8.3%. In Raila, Rajasthan, on the other hand, where barely 10% of one to two–year–old children had received primary immunization, the corresponding prevalence was 20.5%.

9. The use of a potable drinking water source by the household is positively related with good nutrition in two areas, Karchhana, Uttar Pradesh, and Garag, Karnatak.

10. Breast feeding is a universal practice in all five areas and continues well into the second year of the child's life. However, colostrum is usually discarded even by educated mothers, unless the delivery took place in an hospital. Irrespective of caste and economic class, introduction of complementary solid foods is delayed up to one year of age in all the areas (see Table 25). Some common expressions validate this perception.

- Child is to be given solids only when it is able to digest it, and that is when the teeth erupt.
- He will ask for food when he is hungry and can eat it.
- This child is simply not interested in food.
- Food was offered but the child would not eat, so we stopped it.
- The child is a weakling since birth, it doesn't eat.

Table 24: Severe Child Malnutrition and Household Food Shortage

Study Area	*No. of under–five children*	*% severe underweight*	*% of severely underweight children from households with no food shortage*
Gandevi, Gujarat	783	8	46
Akole, Maharashtra	1402	7	77
Garag, Karnatak	1396	10	81
Karchhana, Uttar Pradesh	1584	17	69
Raila, Rajasthan	1146	21	80

Several mothers expressed constraints such as the lack of time and the presence of several children in the joint family, making preparation of a special food for the young child difficult. The poorer families could not afford milk and milk products, and other foods like fruit, as complementary foods. Several misconceptions, such as the belief that maternal breast milk becomes "bad" after conception of a second child, or the perceived need to give costly ready–made complementary foods available in the market, exist even in educated families. Even when solid foods are given to the child, little attention is paid to the quantity consumed by the child.

Table 25: Profile of Socioeconomic Class and Child Care Differentials

Study Area	*Higher socioeconomic class*	*Lower socioeconomic class*
Gandevi (Guj.)	Large irrigated landholding, orchards, large 'pucca' house, dairy, number of assets, educated mother at home.	Landless, labourers, small huts, migration, no education, early pregnancy and less spacing between deliveries, working mothers.
	Children taken to paediatrician for advice.	PHC or private doctor consulted for illness.
	Complementary solid foods started around six months.	Complementary feeding starts around one year.
Akole (Mah.)	Larger irrigated landholdings, cash crops, dairy, higher education, non−working mothers, joint families.	Landless or very small landholding on hill slopes, labourers, food shortage, migration and circular movement for survival, illiteracy.
	Preventive Health Care in pregnancy and immunization. Complementary feeding around six months. Special ceremony before solids are introduced.	Treatment from PHC in serious illness only. Cannot afford milk hence starts complementary feeding after one year.
Garag (Kar.)	Large irrigated landholdings, large well−constructed house, joint families, cash crops, dairy, mother at home.	Small rainfed plots of land, staple crops, poor housing condition, illiteracy, nuclear families, working mothers, labourers, food shortage common.
	Private practitioners consulted early in illness.	Preventive care frequently not taken.
	Can afford and use milk, milk products, semi−solid snacks, biscuits and fruit for child feeding.	Cannot afford milk or other complementary foods.
Karchhana (UP)	Large landlords, irrigation, modern farm and domestic assets, higher caste, dairy, some education in women, 'Purdah'/covering of face by women followed.	Landless, labourers, no assets, poor housing and sanitation, Scheduled Caste, illiterate women.
	Prefer private modern medicine practitioners.	Private practitioners preferred but not affordable, hence late treatment.
	Special ceremony for starting complementary feeding.	Complementary feeding late not until complete stoppage of breast feeding.
Raila (Raj.)	Irrigated plots, animal husbandry, permanent jobs, industry, common property ownership, literacy in male members, higher castes.	Small piece of non−irrigated land, labourers, nuclear families, mother forced to seek work outside home, food shortage and migration for survival common.
	Strong belief in Traditional Healers, modern care sought.	Resort to magico−religious practices for care in illness.

	Complementary feeding started after one year.	Complementary feeding very late.

The father's interest in the child and child care is found to be an important factor in timely complementation, immunization and the child's treatment during illness. Thus it is a combination of interested father, educated mother and a fairly well−to−do family, in varying measures, which influences the timely initiation of solid food supplementation.

The recommendations for appropriate action based on these findings are:

1. Complete mapping of the state for prevalence of malnutrition should be done by the government. The maps should be up−dated periodically, to identify the areas representing pockets of severe malnutrition in preschool children; and nutrition programmes should be targeted on such areas.

2. The rise in the levels of malnutrition in the second half of infancy and high levels up to two years of age suggest that timely introduction of complementary solid foods are of crucial importance in the prevention of malnutrition. Concentrated efforts to educate rural households about the need, the ideal age, process and foods to be used for complementary feeding of a young child should be undertaken by the Health Services and Health Education departments.

3. Availability of low−cost, energy−dense complementary solid foods should be ensured to aid working mothers in rural nuclear families, the majority of which are agricultural labourers. This can be done through the promotion and establishment of local women's enterprises for production of these foods.

4. The universal availability of potable drinking water to all rural households should be ensured as soon as possible in order to reduce the problem of malnutrition in children linked with water−borne infections.

5. Increasing reach of Primary Health Care services to remote and poor SC/ST hamlets should be planned for in order to ensure universal immunization, and to mitigate the ill−effects of recurrent infections on child nutrition. This will also ensure repeated contact with primary health care personnel which will help to raise health awareness.

6. Anganwadis (ICDS centres) can be up−graded to become day−care centres for rural children and thus serve the dual purpose of delivering the targeted nutrition inputs, nutrition education and essential child care support that is currently lacking in most poor rural, nuclear households.

7. Education above primary level should be made available and accessible for both boys and girls, especially from SC, ST and poor households, in the rural areas.

8. Since severe malnutrition is found to be significantly higher in poor SC and ST families, targeting of nutrition interventions should be carried out to reach children from those households.

9. Associated problems like poverty (reflected in reported food−shortage, need for borrowing and migration for survival), lack of gainful livelihood opportunities (landless labourers) and very low levels of education, especially in women, need to be addressed simultaneously in order to have a sustained impact on the problem of malnutrition.

Table 26: Summary of Recommendations

	Finding	***Recommendation***
1.	High prevalence of malnutrition	Regular mapping for nutritional status, and targeting of nutrition interventions to these areas.
2.	Sharp rise in severe malnutrition after the age of six months	Complementary solid foods. Education and awareness for timely introduction. Ensuring availability through local production. Targeting nutrition programmes to under−three age group.
3.	Use of safe drinking water source contributes to child nutrition in two areas	Ensure universal availability of potable drinking water, especially in remote hamlets and SC/ST settlements.
4.		

	Prevalence of malnutrition lower in study areas with higher levels of coverage with primary immunization	Improve reach of Primary Health Care services, both preventive and curative, especially to remote hamlets and SC/ST settlements.
5.	Joint family background useful for better child nutrition	Develop child care facilities in the villages, especially for working mothers from nuclear families.
6.	Education in an adult family member, either man or woman, is associated with better child nutrition	Ensure universal availability and access to above primary level of education for both girls and boys.
7.	Higher levels of severe malnutrition in children from SC or ST and landless households	Emphasis on participation by children from SC or ST households in the nutrition programmes. Ensure livelihood opportunities for SC/ST and landless families.

Chapter 7: Poverty Alleviation and Nutrition Enhancement in South Asia – The Missing Links, by Vijay S. Vyas

[29] Discussion refers primarily to the five large South Asian countries – Bangladesh, India, Nepal, Pakistan, and Sri Lanka.

The countries of South Asia have registered a rate of growth in GDP ranging between 4 and 6% per year during the last decade and a half. Their record is not as spectacular as that of the countries of South–East Asia, but it can be considered fairly respectable when compared to other developing regions of the world. Part of this growth was muted because of high growth in population. In this respect too there is an improvement, as the rate of growth of population in these countries is decelerating. The rate of growth of population in Sri Lanka is now closer to that in China, 1.3% as against 1.2% per year in China (for the years 1990–94). India and Bangladesh have also made significant strides in this regard. Even in Pakistan, which had one of the highest rates of population growth among the developing countries, exceeding 3% per annum, there is a declining trend (World Bank, 1996).

A distinguishing feature of the growth in these countries was a rapid increase in agricultural production. During the 1980s, average annual growth in agricultural production exceeded the growth in population in all the countries of the region, with the exception of Sri Lanka. During the first half of the nineties, while Sri Lanka improved its position in this respect, Nepal and Pakistan lagged behind (see Table 27). As is well–known, the growth triggered by agriculture is more participatory and has a better "spread–effect". Within the agricultural sector, food production increased quite substantially. As a result, per capita foodgrain production rose in three out of the five large countries of South Asia: Bangladesh, India and Pakistan; it slightly declined in Nepal. Sri Lanka was the only country where per capita foodgrain production declined measurably. The faster growth in foodgrains production, apart from directly benefiting the producers of foodgrains, also contributed significantly to food security at the macro level.

The countries of this region have recognized that economic growth by itself cannot solve the poverty problem which afflicts a sizeable section of their population. There are large number of households in these countries which do not possess productive assets nor have requisite skills to respond adequately to the stimuli provided in the market place. Special programmes have to be mounted to enable these people to obtain the necessary wherewithals, including minimum food, clothing and shelter, and to enable them to participate in the economic growth process. Mainly due to these considerations, practically all the countries in South Asia have initiated several Poverty Alleviation Programmes (PAP), on which a sizeable part of their budget is now spent. In spite of pressures to reduce government expenditure to balance the budget, which is an important ingredient of the new economic policies subscribed to by these countries, the proportion of government expenditure on poverty alleviation programmes has not diminished. There is a national consensus in all these countries for according poverty alleviation programmes a high priority in the economic agenda.

Table 27: Annual Growth Rate of GDP and GNP, Agricultural Production, Food Production and Population in Five South Asian Countries

	Years	Bangladesh	India	Nepal	Pakistan	Sri Lanka
Average annual GDP	1980–90	4.3	5,8	4.6	6.3	4.2
growth rate	1990–94	4.2	3.8	4.9	4.6	5.4
Average annual	1980–90	2.4	2.1	2.6	3.1	1.4
population growth (%)	1990–94	1.7	1.8	2.5	2.9	1.3
Average annual growth	1980–93	2.1	3.0	2.0	3.1	2.7
of GNP per capita (%)	1985–94	2,0	2.9	2.3	1.3	2.9
Average annual growth	1980–90	2.7	3.1	4.0	4.3	2.2
rate of agriculture	1990–94	1.9	2.9	1.3	2.7	2
Average annual growth						
rate of food production						
per capita (%)	1979–93	1.5	1.2	–0.1	1.2	–1.8

Source: *World Development Report, World Bank, 1996; Human Development Report, UNDP, 1996*

Poverty alleviation programmes have taken a variety of forms which differ in content and organizational structure. All these, however, can be grouped under three major categories. In a number of countries, particularly in India and Sri Lanka, emphasis was placed on providing productive assets to the poor. The beginning was made with redistributive land reforms, although it was soon recognized that because of the prevalent social and political environment, land redistribution would not succeed beyond a limited extent. The emphasis now is on the provision of reproducible assets (animals, tools, equipment, etc.) and the organization of training programmes for the poor to better equip them to more fully utilize these resources. There is an emphasis moreover on providing easier access to credit by such poor households. Instruments such as mandatory lending by the banking institutions in the social sector and discriminatory interest rates in favour of the small borrowers have been introduced as part and parcel of PAP. Different types of asset distribution programmes exist in practically all countries of the region.

A second important category of poverty alleviation programmes is employment generation, the genesis of which can be traced to the food–for–work and famine–relief programmes which were introduced in the region in the post–Second World War period. These programmes are now more clearly oriented towards the alleviation of poverty through fuller and more sustainable employment among poorer households, particularly among those households which do not possess productive assets or are not entrepreneurial enough to make use of such assets. In a number of countries, particularly in Bangladesh and India, employment generation programmes have acquired an important place in their efforts for poverty alleviation.

The third general category of poverty alleviation programmes aims at providing a social safety net to the vulnerable sections. Unlike developed countries, social security programmes which aim to provide an income entitlement to children, women, the elderly, unemployed, etc. are not yet very significant. The most important safety net for the poor is an entitlement to cheaper food through the Public Distribution System (PDS). The PDS creates a dual market and enables the poor to obtain foodgrains and other necessities below the prices prevailing in the "open" market. Although in no one country of the region is PDS fully successful in reaching the targeted groups and meeting all their requirements, it is nevertheless an instrument for ensuring food security that is progressively gaining more importance.

Countries are trying to make their public distribution systems more effective, mainly by adopting a more target–group–oriented approach. Other variants of PDS (in addition to the issue of foodgrains by "fair price" shops), are also being tried. For instance, Sri Lanka has introduced the Food Stamp Plan, which gives greater freedom to the beneficiaries in the selection of the timing, quantum and outlets for acquiring food. Targeting is attempted by focusing on particular occupational groups (e.g., wage–paid labour on employment projects) or particularly disadvantaged regions (e.g., tribal or drought–prone areas).

A satisfactory rate of GDP growth, faster growth in agriculture and public interventions in terms of poverty alleviation programmes have all contributed to the reduction in the proportion of the households below the "poverty line". The decline in the poverty ratio in this region is not as dramatic as, say, in China or Indonesia, but in each country of the region except Nepal there has been a significant decline in the ratio of the poor households, if not in the actual numbers. Only in Nepal has the poverty ratio increased from about 40% to 49%. Bangladesh has brought down the poverty ratio from more than 75% in the early eighties to nearly 50% of the total number of households by the end of the eighties. India has brought the poverty ratio down from 50% to about 33% during the same period, and both Pakistan and Sri Lanka now have around 25% of their households who could be defined as poor (Table 28).

This is a significant achievement which should not be underestimated, the more so when one realizes the unfavourable initial conditions: rapidly rising population, pervasive poverty, low levels of GDP, abysmal lack of infrastructure, inexperienced administration, divisive social structures and other similar handicaps. A national consensus on alleviation of poverty and deliberate public interventions to this end overcame to a measurable extent the bottlenecks in achieving this goal.

Table 28: Trends in Poverty: Estimates of Poverty Ratio

Country	***Early 1970s***	***Late 1970s***	***Early 1980***	***Late 1980s/ Early 1990s***
Bangladesh	–	73.0	58.0	47.0
India	56.4	53.1	56.0	33.7
Nepal	–	40.0	40.0	49.0
Pakistan	–	38.9	20.0	24.9
Sri Lanka	27.7	22.7	21.9	27.0

Source: PRAG, 1997; Report of the Independent South Asian Commission on Poverty Alleviation, SAARC, November, 1992

Important as this achievement has been there is no reason to be complacent. Even in the relatively better–performing countries in the region, nearly 25% of the households are below the poverty line. The situation is worse in the poorer countries such as Bangladesh and Nepal, and in the backward areas of even the relatively prosperous countries.

Besides, the poverty alleviation programmes are subjected to three major criticisms. In the first place, the cost of implementing these programmes is very high, leading some critics to suggest that the amount earmarked for PAP could be better utilized by investing it in general developmental activities. There is no evidence to suggest that the cost of administering these programmes – be they asset distribution, employment generation or subsidized food distribution – is going down. The second worrisome aspect is that the poorest of the poor have not benefited much from these programmes. The people who have crossed the poverty line are those who were closer to the poverty line. Third, in the absence of the genuine participation of the poor themselves, these programmes have generated a "dependency syndrome".

Thus, significant progress has been made in alleviating poverty yet certain concerns persist. The most important among these is the fact that the reduction in poverty has not been sufficiently reflected in the reduction in malnutrition.

The increase in foodgrains production at the national level on the one hand, and the poverty reduction on the other has, generally, resulted in an improvement in average calorie intake at the national level. Thus, in 4 out of 5 selected South Asian countries, daily per capita calorie intake has improved between 1980–90; Sri Lanka is the only exception (Table 29). The picture is not as encouraging when it comes to the calorie intake among the poorer sections. For India, the latest National Sample Survey data (for 1994) shows that 36% of the urban population and 28% of the rural population have per consumer unit calorie intakes of less than 80% of the prescribed norms. In Bangladesh, Sri Lanka and Nepal, 50%, 45% and 36% of their respective populations have mean calorie consumptions which are lower than normative requirements (PRAG, 1997).

Table 29: Kilo Calories Per Caput Per Day – National Average

Country	*1970*	*1980*	*1990*
Bangladesh	2196	1902	1994
India	2082	1959	2297
Nepal	1912	1863	2302
Pakistan	2200	2144	2431
Sri Lanka	2304	2341	2205

Source: *FAO Year Book, Production, 1994*

It is a sad fact that in all these countries hunger does persist among households on the lower rungs of the income ladder. The direct evidence of calorie intake in the poorer households obtained through specially designed surveys suggests that a moderate increase in per capita intake of calories has taken place even among the poorer section in at least three of the five larger countries of the region, i.e., India, Pakistan and Sri Lanka. In the remaining two countries, Bangladesh and Nepal, hardly any dent was made in the problem of protein–energy malnutrition (PEM).

All the five countries suffer from serious nutritional deficiencies, such as vitamin A deficiency, iron deficiency, iodine deficiency etc. The same is true of other nutrients. For example, the intake of protein was less than 50 gms a day in Bangladesh and Sri Lanka while India barely met the adequacy level. Calcium was supplied in insufficient quantities in all the countries of South Asia with the exception of Pakistan. India had a relatively better record in this regard. Iron deficiency was most critical in Bangladesh where there has been no clear indication of improvement in per capita iron intake. The intake of thiamine showed an increase in India and Pakistan but its intake in Bangladesh and Sri Lanka was less than adequate. The situation of riboflavin was no better than that for other micronutrients, with Bangladesh showing a markedly deficient situation, while Sri Lanka's position was only marginally better. In the case of vitamin C, Bangladesh registered a signification reduction over the last decade (ACC/SCN 1993). It should be remembered that these figures are in terms of average availability. Arguably the deficiencies of micronutrients are much more severe among the poorer households.

The net result of these deficiencies was reflected in various indicators of malnutrition. The most significant indicator in this respect is the infant mortality rate (IMR). In this respect the situation in Sri Lanka (with IMR at 18 per 1000 live births in 1992) was far superior compared to other countries of the region. Bangladesh and Nepal with IMR at 108 and 99 are at the other extreme. India and Pakistan with IMR of 82 and 91 occupy the middle position. Within these countries the situation in some parts was better than others (for example, infant mortality rate in Kerala State, India, was fairly low). An equally sensitive indicator of malnutrition is the percentage of underweight children under age five. The evidence available towards the end of 1980s suggests that in at least in three out of five large countries of the region for which data are available, i.e. Bangladesh, India and Pakistan, not only was the proportion of underweight children high but the improvement in the situation over a period of 10 years was, at best, sluggish. The decline in the percentage of underweight children ranged between 0.4% per year in Bangladesh and 0.9% per year in Pakistan. In India the decline was at the rate of 0.7% per year (ACC/SCN, 1993). Other important indicators of malnutrition, e.g. women's mortality and morbidity, paint a similar picture (Table 30).

It is clear that while a few countries have succeeded in improving calories intake at the household level, even these were not successful in attacking the problem of malnourishment and ill–health, particularly among the children and women. With rampant malnutrition and consequent ill–health prevailing in large sections of the population, calorie intake can impact on health only partially.

The availability of food, even the availability of nutrients, at the household level is, however, only one of the determinants (though an important one) in enhancing nutrition. There are two other relevant factors: (a) availability and access to health services and (b) the quality of care. Starting with the availability of health services, it may be mentioned that the investment in these services is inadequate. In 1990, hardly 0.7% of the government budget in Pakistan was earmarked for health services, as compared to 1.6% in India and 4.8% in Bangladesh, There is no evidence to suggest there has been any remarkable improvement in this regard during the last few years, Vast sections of population do not have the benefit of a qualified doctor, or even a nurse. The basic components of an efficient health service are not in place (Table 30).

More than the amount of expenditure, or the availability of certain basic facilities, the policies in regard to the provision of health services leave much to be desired. The health system is, basically; urban–oriented with a much greater emphasis on curative rather than preventive aspects. Administration is highly bureaucratized and centralized, and administrative costs are unduly high. The situation has become worse because of the inadequacy of sanitary services, difficulties in obtaining potable water, and extensive pollution. The poor have to bear more than their share of these deficiencies.

As regards the quality of care at the household and community level, socio–cultural factors militate against the care of children in general and the girl child in particular. In traditional societies with better social cohesion and more prevalent joint families, children probably received more attention. Now, with the disruption of social loyalties and the disintegration of the joint family system, traditional safety–nets are much weaker. These factors coupled with widespread poverty and economic compulsion to earn a living have created a situation in which women do not have enough time to bestow care and attention on their children, The lack of scientific knowledge on child rearing adds to these handicaps. The health systems as organized in these countries do not contribute to enhancing the level of awareness about health and nutrition. There are, however, certain public interventions, the most notable being the ICDS programme in India and the mid–day meal programmes in a number of countries in the region, which have been quite noteworthy in their contribution to child health care. However, the cost incurred by these programmes is disproportionately high compared to the advantages that they bestow.

Table 30: Basic Health Indicators

	Year	***Bangladesh***	***India***	***Nepal***	***Pakistan***	***Sri Lanka***
HDI ranking		146	134	151	128	97
Life expectancy at birth	1992	55.6	60.4	53.5	61.5	71.9
IMR (per 1000 live births)	1992	108	82	99	91	18
Underweight children under age five (%)						
	1990	66	–	51	42	42
Average annual change in						
Prevalence underweight in						
Percentage points (per year)						
	1980s	–0.4	–0.7	–	–0.9	–
Malnourished children under age five ('000)						
	1992	11480	69345	1665	3725	762
Low–birth–weight infants (%)						
	1990	50	33	–	25	25
Maternal mortality rate (per 100,000 live births)						
	1980–92	600	460	830	500	80
Pregnant women aged 15–49 with anaemia (%)						
	1975–91	58	88	–	–	–
Population with access to (%)						
Health services	1985–93	45	85	–	55	93

	Safe water	1988–93	84	79	42	68	60
	Sanitation	1988–93	31	27	6	38	50
Births attended by trained							
Health personnel (%)		1983–93	5	33	6	35	94
One–year–olds fully immunized							
	Against:						
	TB (%)	1990–93	95	92	73	87	86
	Measles (%)	1990–93	71	82	59	71	89
Population per doctor		1988–91	12500	2439	1666	2000	7143
% of government budget on health		1990	4.8	1.6	–	0.7	–

Source: *RAG, 1997. UNDP, Human Development Report, 1995*

ACC/SCN, Second Report on the World Nutrition Situation, Country Trends, Methods and Statistics, Vol. II, March 1993

Poverty is perhaps the single most important determinant of individual, family and community health status. The alleviation of poverty is an essential means, though not a sufficient one, to improve nutrition in the long run. To achieve nutritional goals, the countries in the region will have to strengthen simultaneously all the three determinants of nutrition, i.e., household food security, availability and access to health services, and quality of care. A comprehensive approach is needed even while pursuing the goal of poverty alleviation. The manner in which poverty alleviation programmes are designed needs to be reviewed. While targeting these programmes to the poorest level of society the nutritional aspect needs to be built in.

For example, a large number of programmes aimed at asset acquisition by the poor, e.g. the Integrated Rural Development Programme in India, comprise projects to distribute animals (dairy cattle, poultry birds, pigs, etc.) to poor households. Raising vegetables and fruits or small–scale fishery could be made part of PAPs. As these enterprises contribute, at least partially, to self–provisioning, nutritional education can be imparted along with the resources for these projects. Enhancing nutrition is relatively easy in the programme for rural employment generation. Wherever an in–kind component is provided as part of the wages on the rural works, more nutritious food can be included. Similarly, in the organization of PDS, incentives can be provided by way of, say, discriminatory pricing, to encourage uptake of more nutritional grains and other foods.

A few lessons from the experience of PAPs in South Asia may be emphasized in order to make them effective tools for nutrition enhancement as well.

1. Poverty Alleviation should be treated in a comprehensive way. PAPs will have to incorporate the features of health care if they are to make a positive and lasting impact on malnutrition. An integrated view of poverty alleviation which gives equal importance to household income together with education, health and nutrition, will better contribute to the economic performance of the poor households.

2. Poverty Alleviation will be sustained only if proper attention is given to the preservation and enhancement of natural resources, to sanitation and to environmental hygiene. Programmes which are indifferent to the degradation of land, or to the pollution of air and water, cannot be sustained for long.

3. Poverty Alleviation Programmes should be appropriately targeted. Even in the countries which have relatively better records in poverty alleviation, the near–poor rather than the abject poor have taken the advantage, The problem of malnutrition, including the incidence of PEM, is more severe at the bottom rung of the poverty ladder. Undoubtedly, it is more difficult to reach the "unreached". Alternative delivery systems, e.g., NGOs or local level government may be more effective.

4. Poverty Alleviation should emphasize the quality of care. Strong emphasis on care for the under–privileged, for women and for children should inform the philosophy of PAP and be reflected in the design and the content of the programmes.

References

ACC/SCN (1993) Second Report on the World Nutrition Situation, Country Trends, Methods and Statistics, Vol. II, March, 1993. ACC/SCN, Geneva.

FAO (1991) *FAO Year Book, Production, 1991.* FAO, Rome.

FAO (1994) *FAO Year Book, Production, 1994.* FAO, Rome.

FAO (1995) *FAOSTAT, State of Food and Agriculture 1995, Electronic Product, September, 1995.*

NSSO (1994) *Sarvekshana,* Vol. 27, No. 3, Jan–March, 1994.

PRAG (1997) Food *Security in South Asia.* Policy Research Action Group.

SAARC (1992) Report *of the Independent South Asian Commission on Poverty Alleviation, Kathmandu, Nov., 1992.* SAARC.

UNDP (1995) Human *Development Report, 1995.* UNDP, New York.

UNDP (1996) *Human Development Report, 1996.* UNDP, New York.

World Bank (1996) *World Development Report, 1996.* World Bank, Washington D.C.

Chapter 8: Nutrition and the Alleviation of Absolute Poverty in Communities: Concept and Measurement, by Rainer Gross

[30] This document does not necessarily represent the opinion of the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH.

Successful poverty alleviation strategies cannot be designed without an appropriate understanding of poverty itself. Along with the development of the science of economics, poverty was discussed and defined in fundamentally financial terms. Accordingly, weak purchasing power or low per capita income was conventionally widely accepted as the main indicator for poverty. After more experience was gained in dealing with poverty alleviation, it became increasingly recognized that this strictly financial definition of poverty is too narrow to describe the complexity of the phenomenon (GTZ, 1992). The dissatisfaction with the narrow economic definition has led to several attempts to change and broaden the definition of poverty.

Internationally, the three most used approaches to define poverty are related to income, basic needs and people's perception (UNFPA, 1996). Following the basic needs approach, Donnison (1982) suggested subdividing this category into two groups: firstly, destitution as extreme hardship and misery that occurs in a catastrophic natural or social breakdown and, secondly, subsistence poverty which appears if basic needs of individuals or groups are not met. "Relative poverty" which may exist in an affluent but unequal society was included in the latter.

The World Bank (1990, 1993) also went beyond a pure economic definition of poverty, including additional aspects of poverty in a more comprehensive definition and defining poverty as an inability to achieve a minimum standard of living. For the World Bank, there are two equally important aspects of living standards: income and social. Besides absolute poverty, the World Bank accepts inequity or relative poverty as a distinct problem. Theoretically, a high prevalence of absolute poverty may coexist with little inequity and *vice versa.*

The difficulty about agreeing on a generally valid and accepted definition lies in the complexity of the phenomenon of poverty and its perception. In the most extreme cases, it has been suggested that "an objective and general valid definition of poverty must be abandoned" (Hemmer, 1994). The conceptual discussions of poverty will always be biased towards an action–driven definition. Although there may never be a generally accepted definition of poverty, the management of poverty alleviation requires a relevant definition with measurable indicators.

The following definition of poverty is suggested: ***Poverty exists when individuals or groups are not able to satisfy their basic needs adequately.***

It has to be recognized that this definition of poverty is formulated in objective terms only, even though the terms "basic needs" and "adequately" can also be related to the social dimension. Following the rationale of Donnison (1982), this definition can be categorized as subsistence poverty or, according to the World Bank, absolute poverty. This is not intended to downplay the importance of relative poverty and unequal income distribution and wealth, which need earnest political attention as well.

In line with the World Bank (1990), there are two key questions that must be answered to make a poverty definition useful:

– What is meant by a minimum standard of living or basic needs?

– How can the magnitude and severity of the lack of basic needs be expressed within a single index?

The Poverty Model

The response to the first question will be explained using the model shown in Figure 13 (Gross *et at*. 1995). It is generally perceived that basic needs are composed of

– food
– social and cultural life
– primary education
– health
– favourable living and environmental conditions (clothing, shelter, water, air, etc.).

The model makes clear that, when persons or groups are "too far" from essential resources and the means, such as time or income, are not sufficient for an adequate access to basic needs, poverty occurs. Individuals or households which are in advantageous biological, social and cultural positions and which possess good social relationships, knowledge, health and confidence are closer to the resources and therefore have to expend less means to satisfy their basic needs. Consequently, people in a poor position must spend additional efforts to attain a minimum living standard. Each essential resource that cannot be reached by adequate means indicates poverty. The accumulated distances between the end of the arrows and the boxes express the severity of poverty.

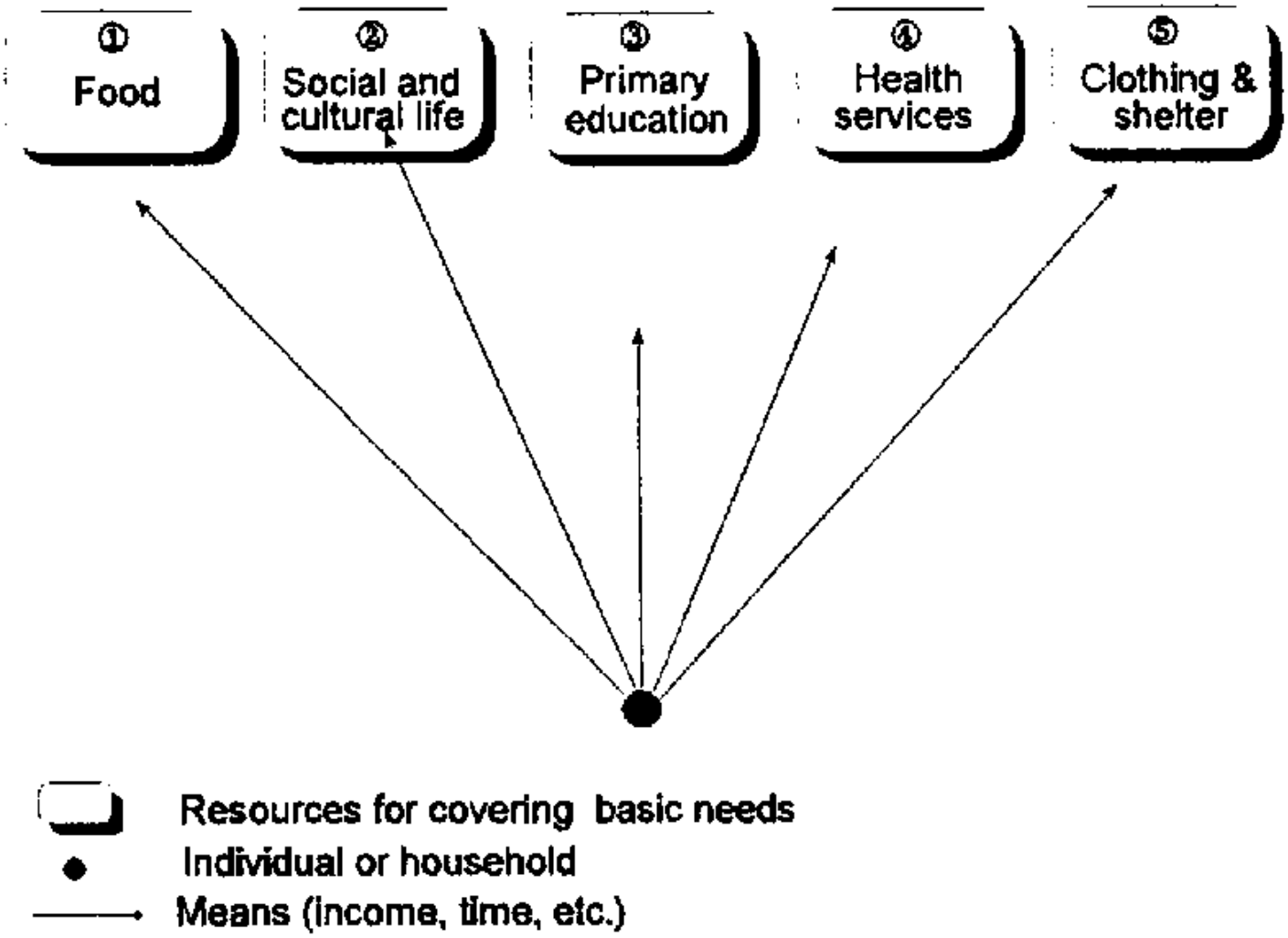


Figure 13: Accessibility of Resources for Satisfaction of Basic Needs

It becomes obvious from this model that poverty is not merely an economic problem. Poor people may even have increased incomes at their disposal for reaching essential resources, but personal income, while necessary, is not in itself sufficient to prevent poverty. In particular for the urban poor, *time* is often a more limiting means to reach essential resources than money.

Figure 13 reveals the fundamental decision–making problem of the poor when it comes to optimizing their expenditures – people have to satisfy all the different basic needs simultaneously despite the fact that these may be in conflict with each other for the same essential resources. Efforts to provide access to one basic need can hinder the access to another one. Such optimization problems are rather difficult to solve. In particular, poor people with little education or information may have difficulties identifying optimal solutions. Consequently, even a sufficient total amount of income will not ensure that all basic needs are met appropriately. To a certain degree, a waste of means by the poor appears unavoidable. A "minimum amount" of means such as time or money for basic needs may never be sufficient.

A similar optimization problem of decision–making for poverty alleviation exists at the macro level. Interventions necessarily deal with the allocation of resources. As for budget limitations, the development of a primary education system, for example, may compete with the restoration of an urgently needed basic health system. In view of sectoral restrictions, it can frequently be observed that isolated goals become counterproductive for a balanced overall development. The pressure to increase the food production, for example, often enough leads to contamination of water with agro–chemicals, pesticides and fertilizers. Therefore, the decision to allocate resources for poverty alleviation may not only compete with the implementation of other important interventions but may counteract their aims by causing negative side–effects. Furthermore, additionally at the macro level, the lack of resources and time may lead to the selection of the wrong strategies or to a too limited target group.

Figure 13 is still inexplicit because the assumption that all resources are equally accessible is too simplistic. For instance, within the same community, basic resources are not physically located at the same distance for all community members. On the other hand, within this community individuals or households may be disadvantaged due to their different biological, social and/or cultural positions. People with a high social status in a poor community may have easier access to opportunities, beneficiaries and subsidies than discriminated individuals or groups with low status. Households with children, particularly the single−headed families (Millar, 1989a), the elderly (Booth, 1984), the disabled (Groves, 1988; Topliss, 1986), ethnic minorities (Amin and Oppenheim, 1992), the unemployed or the underemployed, or women (Millar, 1989b) are most vulnerable to poverty.

Being old, unemployed, sick, female or having children are not causes of poverty, but the circumstances under which these risk groups live. Factors such as disease, ageing or having children do not lead automatically to poverty. There have been and still are societies in which the elderly are highly esteemed for keeping social structure functioning. As a result, in those societies ageing never has been associated with poverty.

As a main conclusion it can be stated that poverty consists of at least three dimensions that must be considered by poverty alleviation strategies:

(a) the availability of essential resources for basic needs;
(b) financial and other means of poor individual and groups; and
(c) the physical, intellectual, social and cultural status and position of poor individuals and groups.

The severity of poverty is the collective gap between:

– the availability of the essential resources (a); and
– the individual ability to meet basic needs (b) and (c).

There is a fourth underlying element that influences all three described dimensions and determines poverty – the political and cultural overall condition of a society. Ultimately, poverty is the product of the overall socioeconomic order and of the distribution of power and resources within it.

The Magnitude and Severity of Poverty

The second key question above recognizes that indicators hold a key position in the overall concept of poverty alleviation. They are needed to identify poor populations, measure the magnitude and severity of poverty, and provide information on its specific causes, nature and effects. In addition, indicators help to identify poor individuals or groups as recipients and/or participants of intervention measures and, in particular, give valid and reliable information on the success or failure of poverty alleviation efforts.

Due to its complexity it seems impossible to measure poverty directly. But there are two alternatives for an indirect measurement: either the input or causes are observed, or the impact or effects. As already mentioned, poverty was traditionally mainly measured by economists from the input perspective, using financial indicators. It is assumed that by reaching a minimum amount of financial inputs, described as the poverty line, absolute poverty is erased. However, income does not fulfil the necessary requirements as an indicator. Firstly, as already mentioned, poverty is more than simply the lack of income. Secondly, since many people are not able or willing to give accurate information about their income, the precision of the measurement is insufficient. Thirdly, the economic definition of basic needs suffers in practice from arbitrary decisions about which are the basic needs of an individual or household and how much income is needed for those basic needs, As a result, the prevalence of poverty can vary substantially. For example, whereas the National Planning Commission estimated at the end of the 1980s that 40% of the Nepalese population were poor, the World Bank calculated 71% living below the poverty line (SAARC, 1992). Furthermore, even if people have an income above the poverty line, it is not known how far they are able (and willing) to use their income to overcome poverty. As a result, an appropriate indicator needs to be independent of arbitrary definitions of the basic needs of people and to react sensitively if one of the basic needs is not fulfilled.

Another possible way to measure the effect of poverty comes from a physiological approach and could be denoted as: ***Basic* needs are *not covered if individuals or groups are not able to develop themselves physically, intellectually and/or socially according to their genetic potentials.***

Anthropometric indices in growing children have been recommended repeatedly as a suitable key indicator for absolute poverty in communities (e.g., Pacey and Payne, 1985; Cornia et al., 1987; Martorell et al., 1988; Bouis, 1992). Firstly, it is generally accepted that children are most vulnerable to poverty compared to the rest of the population. Secondly, in numerous studies it has been consistently observed that anthropometric indicators of growing children with inadequate dietary intake who are repeatedly ill do not reflect the attainment of their genetic potential. Since inadequate food availability, caring capacity, basic education, health systems, housing and environmental conditions have been proven as underlying causes of inadequate food intake and repeated episodes of diseases (UNICEF, 1990; FAO/WHO, 1992), anthropometric indices had been suggested as an alternative for indicating the existence of absolute poverty.

In particular height growth in young children is an appropriate indicator, since it reflects the accumulation of the satisfaction of basic needs during the first years of life. According to Karlson et al. (1994), physical growth is steered by several hormones. It has been repeatedly observed that any form of physiological and/or emotional stress will disturb the sensitive steady development phase of hormones which in that case will result in growth retardation. Even under favourable conditions, the growth of a child may falter, for example, due to an episode of disease. However, if the time between two episodes is long enough and other living conditions are favourable such as food intake and emotional care, the very young child is able to catch up on lost growth. In an unfavourable environment, already during foetal growth the individual is steadily exposed to stunting factors with a cumulative effect. After three years of age, the adverse environmental factors will result in an accumulated and irreversibly reduced height of a child.

Beside these environmental factors, the growth of a child is also determined by genetic factors, although many studies have confirmed that, with the exception of genetically–isolated locations, population groups of children at large have the same genetic potential for height growth. Therefore, ***the height–for–age index of growing preschool children* (*aged 0–5 years*) *is recommended as a key indicator for poverty in communities and populations*** (Martorell et al., 1988), since retarded height can be attributed solely to an inadequate utilization of essential resources. Apart from their validity, anthropometric data are relatively easy to measure and are independent of statements made by the victims of poverty (WHO 1983). However, it has to be noted that the height–for–age index as a key poverty indicator does not reveal the causes of poverty. Therefore, direct and indirect underlying factors such as food intake and availability, occurrence of diseases, education, caring, access to social services, expenditure of income and time must be additionally assessed and associated with the height–for–age index (WHO Working Group 1986).

This poverty model, as described, is being utilized as a framework for poverty assessment and alleviation strategies in Indonesian projects that are assisted by German technical cooperation, As suggested, the magnitude and the severity of poverty were measured by using growth retardation of preschool children as a collective poverty indicator. By associating this indicator with other collected socioeconomic data, the most affected population groups can be identified and it is possible to select basic need–oriented poverty alleviation strategies and evaluate their impact (see Boxes 1–4 in Annex).

References

Amin K and Oppenheim C (1992) *Poverty in black and white: deprivation and ethnic minorities.* Child Poverty Action Group and Runnymede Trust. UK.

Booth C (1894) *The aged poor condition.* Macmillan. Basingstock, UK.

Bouis H (1992) *The effect of income on the demand of food.* Seminar on Southeast Asian Agriculture in Transition: Implications for Food Policy. Jakarta, Indonesia.

Donnison D (1982) *The politics of poverty.* Martin Robertson.

Cornia G A, Jolly R and Steward F (1987) *Adjustment with a human face: Protecting the vulnerable and promoting growth.* Vol. 1. Oxford University Press, Oxford, England.

FAO/WHO (1992) *Major issues for nutritional strategies.* International Conference on Nutrition. Rome, Italy.

Gross R, Altfelder A and Koch E (1995) *To reduce poverty.* Mimeograph. Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH. Jakarta, Indonesia.

Groves D (1988) *Poverty, disabilities and social services.* In: Public issues and private pain: poverty, social work and social policy. Becker S. and MacPherson S. (eds.) Insight.

GTZ (1992) *Summary of the World Bank approach to poverty reduction.* GTZ Staff Office 07−TAK, Poverty Alleviation. Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH, Eschborn, Germany.

Hemmer H−R (1994) Toward new policy on poverty reduction. *Development and Cooperation.* 5/6, 8−11.

Karlson J, Jalil F, Lam B, Low L and Yeung CY (1994) Linear growth retardation in relation to the three phases of growth. *European Journal of Clinical Nutrition.* **48,** S25−S44.

Martorell R, Mendoza F and Castillo R (1988) *Poverty and stature in children.* In: Linear growth retardation in less developed countries. JC Waterlow (ed.), Nestle Workshop Series, 14, Vevey/Raven Press, Ltd., New York.

Millar (1989a) *Poverty and the lone parent family: the challenge to social policy.* Avebury.

Millar (1989b) Social security, equality and women in the UK. *Policy and Politics* 17:4.

Pacey A and Payne P (1985) *Agriculture and development.* Food and Agriculture Organization of the United Nations (FAO), United Nations Children's Fund (UNICEF). Hutchinson Publishing Group, London, England.

SAARC (1992) *Meeting the challenge.* Report of the Independent South Asian Commission of Poverty Alleviation. South Asian Association for Regional Cooperation. Kathmandu, Nepal.

Topliss E (1986) *Provision for the disabled.* Second edition. Blackwell Scientific with Martin Robertson.

UNFPA (1996) *The state of world population.* United Nations Population Fund. New York, USA.

UNICEF (1990) *Strategy for improving nutrition of children and women in developing countries.* United Nations Children's Fund, New York, USA.

WHO (1983) *Measuring change in nutritional status. Guidelines for assessing the nutritional impact of supplementary feeding programs for vulnerable groups.* WHO, Geneva.

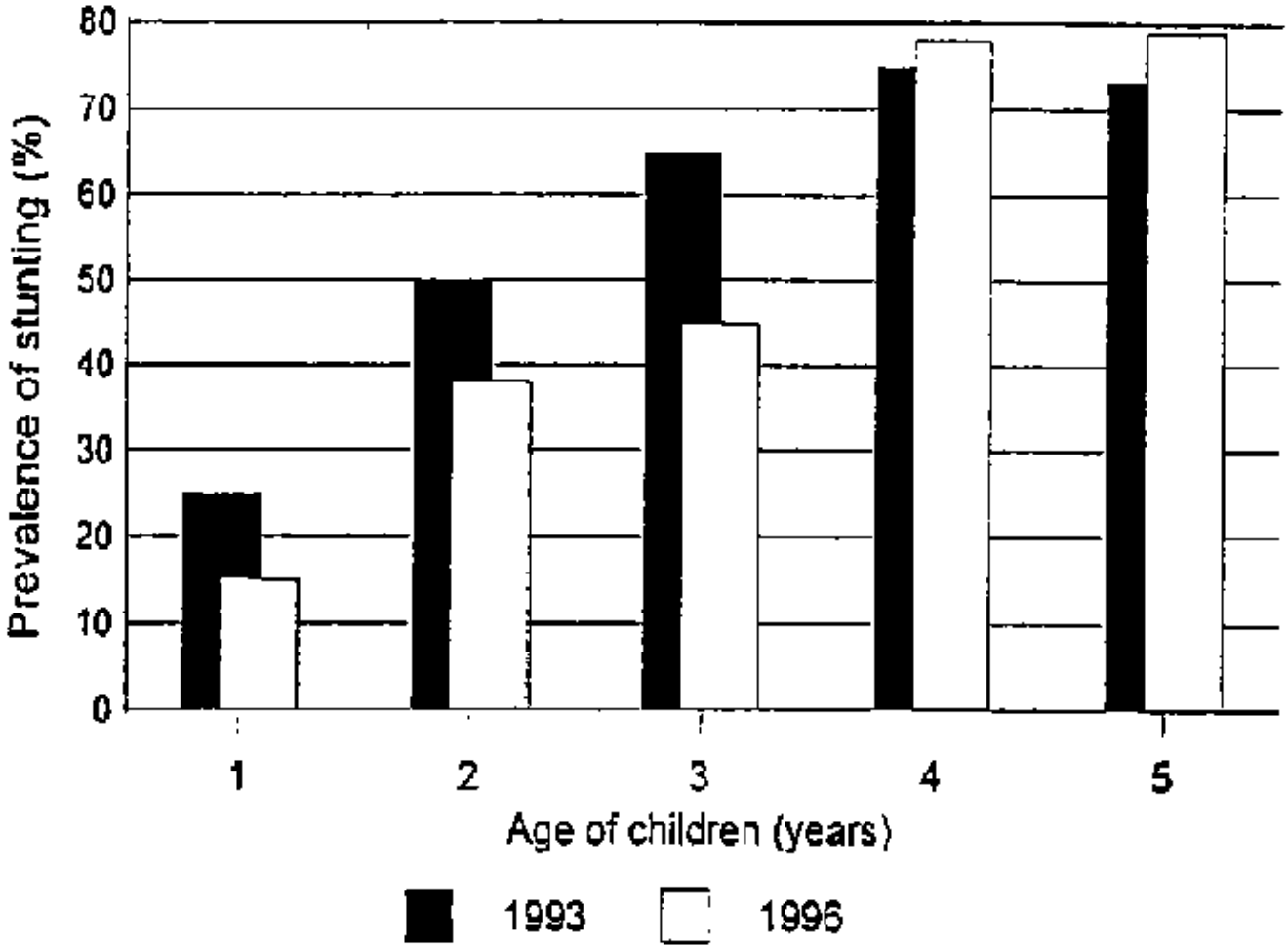
WHO Working Group (1986) Use and interpretation of anthropometric indicators of nutritional status. *WHO Bulletin.* **64,** 929−941.

World Bank (1990) *World development report 1990. Poverty.* Washington, D.C., USA.

World Bank (1992) *World development report 1992. Environment and development.* Washington, D.C., USA.

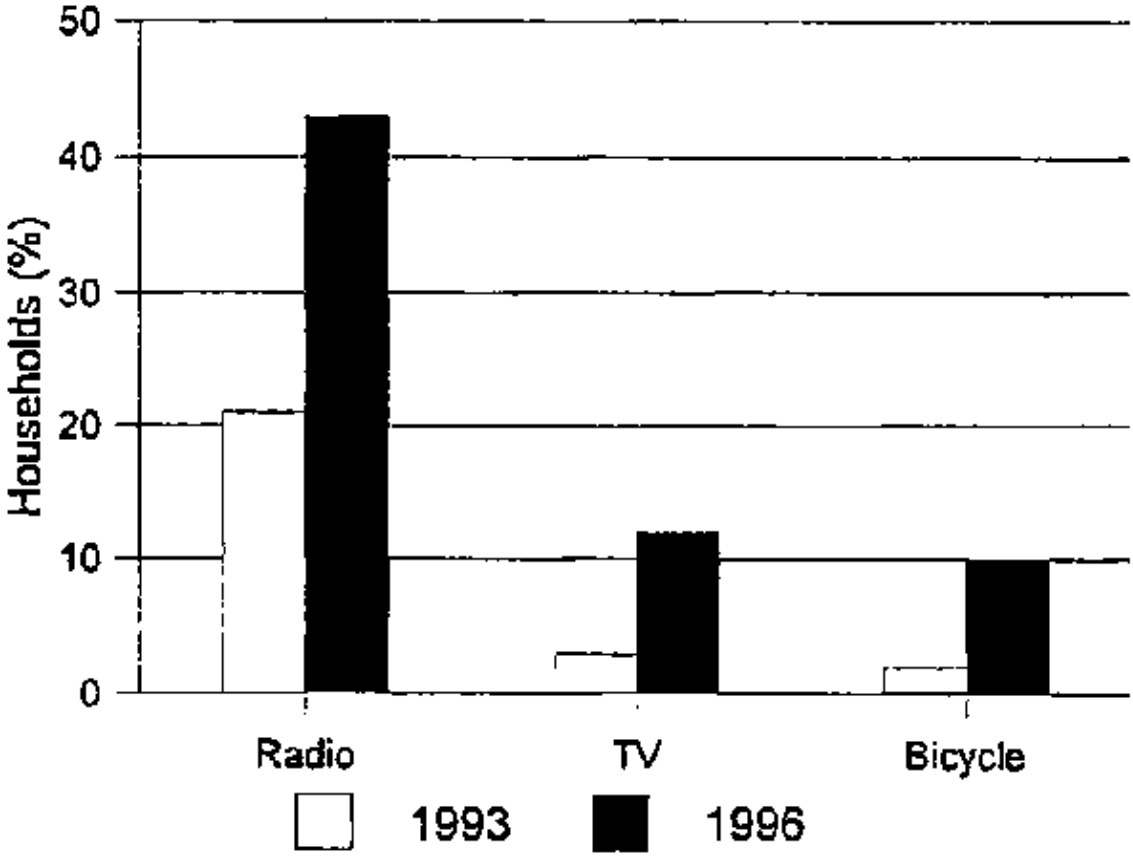
World Bank (1993) *Poverty reduction handbook.* Washington D.C., USA.

Annex



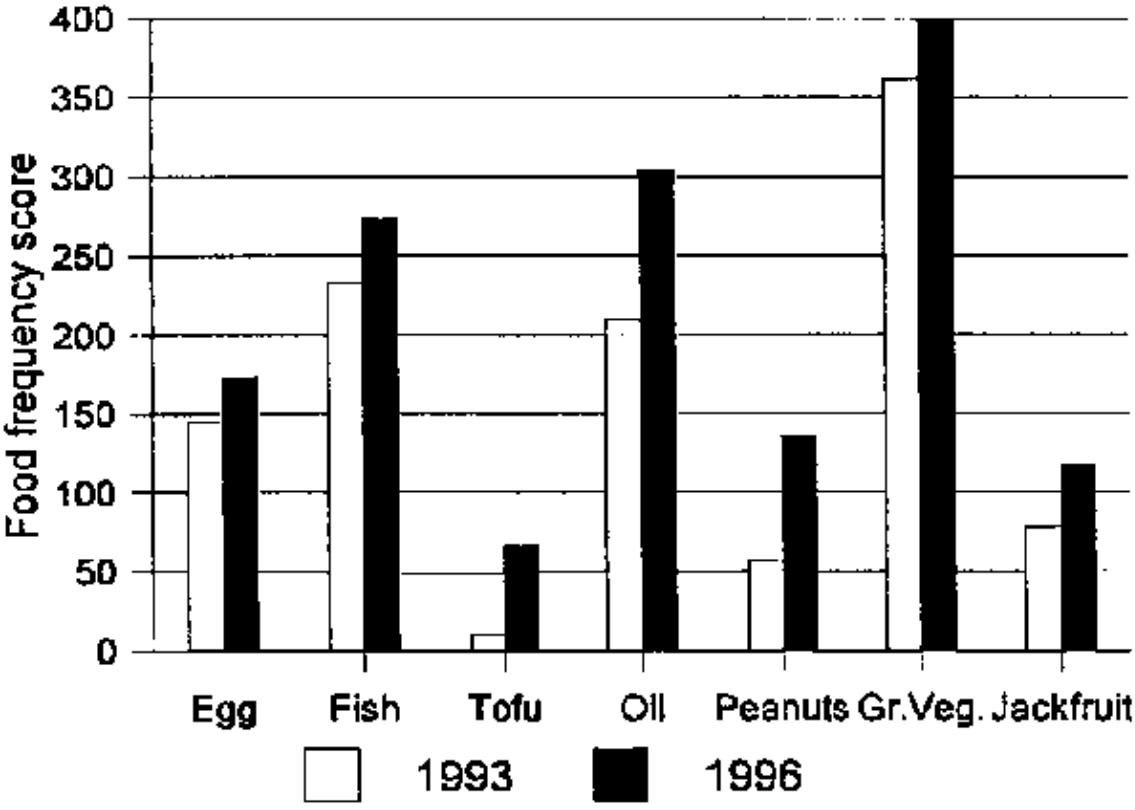
Poverty rate in villages at project beginning and after three years

Since 1993, the German Government has supported the Social Forestry Development Project (SFDP) in West Kalimantan, Indonesia. The project goal is to increase the welfare of the local population in a sustainable way and to maintain the forest resources. The impact of the poverty alleviation project can be observed already after a relatively short time. As shown in this figure, three years after the beginning of the project the prevalence of stunting of children who had been born after the start of the project had been reduced significantly. The perception of the people regarding their situation confirms the improvement of living conditions. Whereas at the beginning of the project, based on poverty criteria which were identified by the local community, 76% of the households were classified as poor, after three years only 47% belonged to poor households.



Possession of goods in households of SFDP

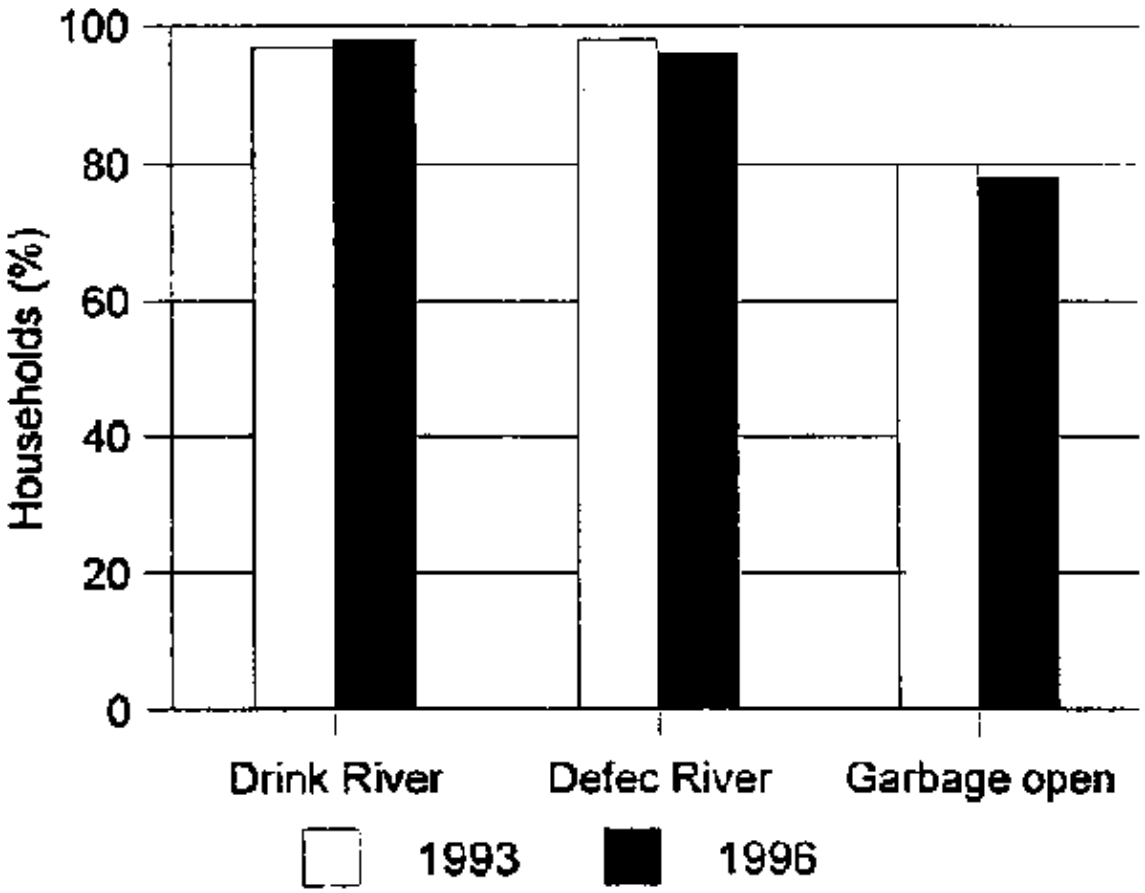
Three years after the beginning of the Social Forestry Development Project in West Kalimantan, the household incomes increased significantly. The higher ownership of radios, television sets and bicycles reflects the increased purchasing power of the households.



Frequency of consumption of selected food items

This figure shows the frequency of consumption of some food items at the beginning and after three years of implementation of the Social Forestry Development Project in West Kalimantan. Food frequency scores range

from 0 if never consumed to 400 if consumed at least once every day. After three years, the frequency of consumption of several non–processed and processed food items was significantly higher. Furthermore, whereas at the beginning of the project 81% of the households reported experiencing seasonal food shortages, in 1996 only 45% referred to food supply problems. The increasing purchasing power of the households had resulted in an increased access to food.



Sanitation practices at the beginning and after three years in SFDP

Practically all interviewed household members of the Social Forestry Development Project reported defecating in the river and at the same time used the river as their only water source. Furthermore, about 80% of the households disposed their garbage openly. After three years the situation had not changed. As a result, diarrhoea and parasitic diseases were widely prevalent. Increased income had not reduced the problem. Instead, by improved village infrastructure and appropriate information, basic resources such as potable water with adequate quality have to be brought closer to the villagers if poverty is to be further reduced.

Other ACC/SCN Nutrition Policy Papers

Nutrition Education: A state–of–the–art review, by Robert C. Hornik, January 1985. (*No. 1*)

Delivery of Oral Doses of Vitamin A to Prevent Vitamin A Deficiency and Nutritional Blindness, by Keith P. West Jr and Alfred Sommer, June 1987, *reprinted June 1993.* (*No. 2*)

The Prevention and Control of Iodine Deficiency Disorders, by Basil S. Hetzel, March 1988, *reprinted June 1993.* (*No. 3*)

Women's Role in Food Chain Activities and their Implications for Nutrition, by Gerd Holmboe–Ottesen, Ophelia Mascarenhas and Margareta Wandel, May 1989. (*No. 4*)

Malnutrition and Infection – A Review, by A. Tomkins and F. Watson, October 1989, *reprinted June 1993* (*No. 5*)

Women and Nutrition Background, and papers presented at SCN Symposium, held at UNICEF, New York, February 1989. Papers include "Beating the Zero Sum Game" by McGuire and Popkin, "Reflections from India and Pakistan" by Chatterjee and Lambert, "Grameen Bank Experience" by Quanine, "Improving the Nutrition of Women in Tanzania" by Kisanga, "Nutrition Security System at Household Level" by Bajaj, "Issues in Need of a Global Focus" by Ghassemi, October 1990. (*No. 6*)

Appropriate Uses of Child Anthropometry Report based on workshop held by ACC/SCN, June 1989. Basic concepts, uses for screening, growth monitoring, population assessment, and surveillance. Prepared and edited by G. Beaton, A. Kelly, J. Kevany, R, Martorell, and J. Mason, December 1990. (*No. 7*)

Managing Successful Nutrition Programmes Report of ACC/SCN workshop held at IUNS meeting in Korea, August 1989. Includes reports on 16 large–scale nutrition programmes, and summary of discussions on targeting, staff issues, community participation, management information systems, sustainability and replicability. Edited by Joan Jennings, Stuart Gillespie, John Mason, Mahshid Lotfi and Tom Scialfa, October 1990. (*No. 8*)

Controlling Iron Deficiency Report of ACC/SCN workshop held in Trinity College, Dublin, June 1990. Focusses on iron supplementation and practical means of improving large–scale programmes. Also introduces fortification and diet change. Gives information from six large–scale programmes. Prepared and edited by Gillespie, John Kevany, and John Mason, February 1991. (*No. 9*)

Nutrition–Relevant Actions – Some Experiences from the Eighties and Lessons for the Nineties Book developed from the original background paper for the ACC/SCN *ad hoc* group meeting held in London in November 1990. Proposes a framework for the analysis of policies and programmes affecting nutrition, before reviewing experiences during the 1980s in several countries, and moving on to consider options for improving nutrition in the 1990s. Complements and expands on Supplement to SCN News No. 7. Prepared by Stuart Gillespie and John Mason, October 1991. (*No. 10*)

Nutrition and Population Links – Breastfeeding, Family Planning and Child Health. Papers from the ACC/SCN 18th Session Symposium, held at UNFPA, New York, February 1991. Papers include "Nutrition and Family Planning Linkages: What More Can be Done?" by Sandra Huffman, "Reproductive Stress and Women's Nutrition by Reynaldo Martorell and Kathleen Merchant, "Breastfeeding, Fertility and Population Growth" by Roger Short, "Nutrition and its Influence on the Mother–Child Dyad" by Prema Ramachandran, and with final comments by Miriam Labbok, Barry Edmonston, and Beverly Winikoff. (*No. 11*)

Nutritional Issues in Food Aid Report of symposium on "Nutritional Issues in Food Aid" held at the 19th Session of the ACC/SCN in Rome, February 1992. Includes papers on the support of public works by food aid as a nutrition intervention, which age groups should be targeted for supplementary feeding, effects of supplementary feeding in the growth of children with infection, experiences of feeding programmes, and protecting refugees' nutrition with food aid. August 1993. (*No.12*)

Effectiveness of Vitamin A Supplementation in the Control of Young Child Morbidity and Mortality in Developing Countries, by G.H. Beaton, R. Martorell, K.J. Aronson, B. Edmonston, G. McCabe, A.C. Ross, B. Harvey. December 1993. (*No.13*)

Controlling Vitamin A Deficiency Report based on ACC/SCN Consultative Group Meeting held in Ottawa July 1993. Prepared by Gillespie and Mason, January 1994. (*No.14*)

How Nutrition Improves Report based on ACC/SCN Workshop held on 25–27 September 1993 at the 15th IUNS International Congress on Nutrition, Adelaide, Australia by S. Gillespie, J. Mason, R. Martorell. (*No. 15*)