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Commentary: The Asian enigma

By Vulimiri Ramalingaswami, Urban Jonsson and Jon Rohde

In the public imagination, the home of the malnourished child is sub-Saharan Africa. But the league tables clearly show that the worst-affected region is not Africa but South Asia. Just over 30% of Africa's children are underweight, but the corresponding figure for South Asia is over 50%. And in Bangladesh and India, the proportion of children malnourished is very significantly higher than in even the poorest countries of the sub-Sahara.

Measured by absolute numbers, it is to be expected that problems of poverty will be concentrated in South Asia, simply because of the sheer size of its populations (India alone has 50% more people than 47 countries of sub-Saharan Africa put together). But when the proportion affected is also far higher, as is the case with child malnutrition, then the centre of gravity of the problem shifts still further. That is why half of the world's malnourished children are to be found in just three countries - Bangladesh, India, and Pakistan.

Almost as surprising as these figures is the fact that they are so little investigated. Even among nutritionists, there is insufficient research and no clear consensus on why the rate of child malnutrition is so much higher in South Asia than anywhere else in the world.

In this article, three experts in child health and nutrition, all currently working in Asia, draw on their combined experience and the available evidence to suggest a possible explanation of the Asian enigma.

The key to South Asia's high rates of child malnutrition is not to be found in the obvious.

Poverty is a major underlying cause of malnutrition, and of course there is poverty in South Asia - but the average level of purchasing power in sub-Saharan Africa is almost identical.

Nor is the answer to be found in agricultural performance; food production per capita is roughly equal in both regions (but declining in sub-Saharan Africa and rising in South Asia).

Neither can it be claimed that the answer lies in Africa's higher child death rates, which remove many malnourished children from the statistics of malnutrition. With an average difference in under-five mortality rates of around 50 points between the two regions, of which perhaps one half can be assumed to be associated with malnutrition, the maximum effect of higher mortality on rates of child malnutrition could be only about 7 percentage points.

Extreme inequality, leading to widespread destitution, is another possible factor that average figures may conceal; but inequality does not appear to be significantly worse in South Asia than in Africa (indeed, Africa's reputation for greater equality may be something of a myth: the poorest 20% of the population share only 2% to 4% of national income in Kenya, Tanzania, and Zimbabwe as opposed to 8% or 9% in Bangladesh, India, and Pakistan).

Photo (above): Bangladesh and India have malnutrition rates that are higher than even the poorest countries of Africa. ©

Nor does it seem reasonable to give much weight to another popular belief - that malnutrition in South Asia is the result of its predominantly vegetarian diet. It is probably true that an exclusively plant-based diet cannot meet the high energy and nutrient needs (relative to body weight) of a small child. But vegetarian families in India have a wide choice of milk products, whereas animal protein may not feature prominently in the diets of Africa's poor; vegetarianism is not always a matter of choice.

Nor can the problem be laid at the feet of government neglect. The Government of India, for example, has sustained the largest effort in history to improve nutritional standards - through the Integrated Child Development Services (ICDS) programme, which was started over 20 years ago and now operates in 400,000 of the country's 600,000 villages.

Nor is the answer to be found in old theories about the inappropriateness of international growth standards for Asian countries. The debate about growth standards is dead. A recent investigation by the Nutrition Foundation of India has shown yet again that the growth curves of children in better-off Indian families follow the same pattern as those of adequately nourished children in other parts of the world.1 At least until early adolescence, well-fed and well-cared-for children follow the same growth patterns whether they are born in Nairobi or New Delhi or New York.

Different growth rates for South Asia therefore mean that the children of the subcontinent are either not as well fed, or not as well cared for, or both. We of course exclude from this generalization the victims of the specific famines which Africa has endured in recent years and which the governments of South Asia have, to their great credit, succeeded in avoiding.

So what factors, among the many that are associated with malnutrition, are so different in South Asia as to account for the very much poorer nutritional levels of its children?

To answer that question is to embark upon the risky task of generalizing about two heterogeneous regions of the world. But there is clearly a general difference in nutritional well-being, and it is this that justifies the search for other general characteristics that might help to explain that difference.

The birth weight factor

Birth weight is an obvious place to begin the search. In all countries and cultures, low birth weight is the best single predictor of malnutrition; birth weights below 2,500 grams have been found to be very closely associated with poor growth not just in infancy but throughout childhood. And it is when we close in on this subject that we find the first really significant clues to the South Asian enigma.

Approximately one third of all babies in India are born with low birth weight. In Bangladesh, the proportion is one half. In sub-Saharan Africa, the proportion is about one sixth (some of which can be put down to malaria). These variations alone go some of the way towards explaining the different rates of child malnutrition in the two regions.

But why should low birth weight be so much more common in South Asia?

Low birth weight indicates that the infant was malnourished in the womb and/or that the mother was malnourished during her own infancy, childhood, adolescence, and pregnancy. The proportion of babies born with low birth weight therefore reflects the condition of women, and particularly their health and nutrition, not only during pregnancy but over the whole of their childhood and young lives.

During the pregnancy itself, the average woman should gain about 10 kilos in weight. What evidence there is suggests that most women in Africa probably come close to that figure, whereas most women in South Asia probably gain little more than 5 kilos.2

Photo (below): Adequate food is certainly essential for the normal growth of a young child; but it is not

enough.©

Does this mean that girls and women in South Asia are less well regarded and less well cared for than in sub-Saharan Africa? The answer must be yes. And it is a conclusion which draws reinforcement from the fact that only in Asia do we find a ratio of female life expectancy to male life expectancy that is significantly below the worldwide norms.

To those who have worked in both South Asia and sub-Saharan Africa, visible differences confirm the story told by the statistics. Girls and women in South Asia seem to be generally less well cared for by their families, their partners, and their societies. In both regions, it is common for the men to eat the most and the best, leaving the women and children to eat the last and the least; in South Asia the mother will then feed her sons the best of what is left, at the expense of her own and her daughters' nutritional well-being. Women in both regions, indeed in all regions, may be subordinated; but the demands made in patriarchal South Asian societies on the time and energies of women are visibly more excessive and unfair than in other regions of the world.

The incidence of low birth weight is one clear marker of this process. Another is the level of anaemia. About 40% of women in sub-Saharan Africa suffer from iron deficiency anaemia, as opposed to approximately 60% of women in South Asia, a proportion that rises to 75% in pregnancy (and a staggering 83% in India).

In short, the poor care that is afforded to girls and women by their husbands and by elders is the first major reason for levels of child malnutrition that are markedly higher in South Asia than anywhere else in the world.

The good news is that there are signs that a change may be beginning. In India, in particular, the closing years of the 20th century may eventually come to be seen as an inflection point in the graph of women's status and well-being. Increasing action for women is reflected in the extraordinary rise in the numbers now being reached by antenatal services - approximately 60% as opposed to little more than 30% only a decade ago. Increasing action by women is also revealed in the rapid rise of organized women's groups of all kinds - from thrift societies to trade unions - from very few in 1980 to thousands in 1990 to several hundred thousands today.

Food and disease

Since the rates of child malnutrition are greater than the incidence of low birth weight, this factor alone cannot account for all of the difference in nutritional levels between South Asia and sub-Saharan Africa. But the social conditions that lie behind low birth weights continue to affect the nutritional well-being of the small child. The search must therefore now turn to what happens after the child is born.

To get a clear view of the main determinants of good nutrition in the early months and years of life, it is necessary to put aside a pervasive myth.

It is still widely assumed that lack of food is the only reason for malnutrition. But if this were true, why are there so many communities in the world where food shortage is not a problem but where malnutrition is? And why are there so many millions of families where very young children are malnourished but where adults and older children are adequately fed? Or why is it that children most commonly become malnourished between the ages of six months and two years, when the child's food needs are relatively small, rather than from the age of two onwards, when food needs are significantly greater?

The fact is that a very young child requires little in the way of extra food. Take a child whose daily requirement is 1,000 kilocalories but whose intake is only 700; the difference of 300 amounts to no more than 2% or 3% of the 12,000 or more kilocalories that the average poor family consumes each day.

For most poor families, the real food problem is not lack of food on the table but the inordinate costs, in money, time and energy, of putting it there - meaning that there is too little of any of these resources left over to invest in other aspects of life.

Nonetheless, for our purposes, food availability is not usually the issue. Adequate food is certainly essential for the normal

growth of a young child; but it is not enough. Good nutrition, in the early months of life, is more usually determined by feeding practices - whether the right food is given at the right time and in the right way - and by the frequency, severity, and duration of disease.

Disease depresses appetite. It inhibits the absorption of nutrients. It consumes calories in fever and in fighting off infection. It drains away nutrients in vomiting and diarrhoea. And it alters the body's metabolism, in ways that are still not entirely understood, so that less energy and nutrients are available for growth. All illnesses are therefore an attack on the child's growth. And if such illnesses occur often, and if they are not managed properly, then this steady onslaught causes nutritional reserves to fall and growth to falter. This in turn compromises the child's defences by causing mucosal damage and lowering immunity. The result is an increased vulnerability to illnesses, during which nutritional reserves are further depleted. So proceeds the downward spiral of frequent infection and poor growth leading to long-term stunting and, for many children, an early grave.3

Frequency of disease is dependent on many factors, but especially on safe water and sanitation. As all nations use their own definitions of water supply, it is impossible to make precise comparisons between the two regions. In general, it seems that a higher proportion of families have access to water supply in South Asia than in sub-Saharan Africa but that South Asia lags behind when it comes to safe sanitation, especially in the rural areas where most of the population still lives. But it is not so much water and sanitation that prevent disease; it is how such amenities are used. And again it is clear to those who have worked in both South Asia and sub-Saharan Africa that the differences in standards of hygiene between the two regions are very pronounced.

Hygiene tends to improve with incomes. For the poor anywhere, maintaining high standards is difficult. For the overcrowded poor, it is virtually impossible. And it is when we look at population densities that we see one of the most dramatic differences between the two regions. On average, South Asia has 10 times as many people per square kilometre as sub-Saharan Africa (230 to 23), many of them crowded into urban slums on a scale not yet seen anywhere else in the world. And whether we are talking about personal hygiene, hand-washing, keeping food clean, latrine use, safe refuse disposal, cleanliness of clothes, or the overall condition of the home, there is no doubt that overcrowding contributes to a less healthy environment for the child of South Asia.

This all-round poor hygiene increases the burden of illness, and constitutes the second major reason for significantly higher levels of malnutrition among South Asia's children.

But this gives rise to another enigma. If hygiene is markedly worse, and if child malnutrition is so strongly associated with child deaths,4 then why are child survival rates considerably better in South Asia than in sub-Saharan Africa? A possible explanation is that the South Asian child usually has better access to modern medical care, and especially to life-saving antibiotics. In general, health care in sub-Saharan Africa is more likely to be government-provided, and therefore somewhat more likely to be oriented towards prevention. In South Asia, the child is more likely to be taken to one of hundreds of thousands of private practitioners, most of whom are primarily interested in selling medicines. If nutritional advice is given, it is often wrong advice about not eating certain foods at certain times. In other words, private medical practitioners in South Asia may save more lives, but they do very little for nutrition.

Breastfeeding

Along with the availability of food and the prevention of disease, there is one other major determinant of whether a young child will be malnourished or not.

Exactly how an infant is fed is crucial to growth in the early months of life. First of all, a child of this age needs to be exclusively breastfed; breastmilk not only meets all a child's nutritional needs but also offers considerable protection against disease (both because of its inherent immunological properties and because it minimizes the chances of infection through unclean water and contaminated foods).

How do sub-Saharan Africa and South Asia compare in this vital matter of breastfeeding?

According to the best available estimates, almost 50% of all babies in South Asia are exclusively breastfed for the first four months of life - as opposed to only about 25% in sub-Saharan Africa (official figures record only 0 to 4 months rather than the most recent World Health Assembly recommendation of about 6 months).

In theory, then, the infants of South Asia should be better off.

But they are not. Evidence from all over India suggests that the growth curve of many infants begins to falter as early as the fourth month of life.

Conventional wisdom, well supported by research, says that breastfeeding meets all of the child's nutritional needs for the first six months. That is why exclusively breastfed infants in impoverished slums and villages of the developing world are often just as well nourished as any child in Europe or North America during those first six months - because the food they receive is the best, and no amount of money can buy better.

In Africa, this conventional wisdom holds good, and growth faltering is rare before the age of six months. But for many children in South Asia, growth faltering is common at four months.5 This is a significant difference at a critical stage, a sharp parting of the ways in the nutritional fortunes of infants in the two regions. Why should it be?

There are two obvious possibilities. One is that breastfeeding is somehow inadequate because babies are not being breastfed in the right way. If feeding is not frequent enough, for example, then the child's needs will obviously not be met. Or if breastfeeding is not started within a few hours of birth, then this may cause difficulties in establishing lactation. Or if the babies are not exclusively breastfed, then the risk of infection and growth faltering will be significantly higher.

This last point may well be critical. The phrase 'exclusive breastfeeding' gives rise to much debate. But it means exactly what it says - that nothing else at all should be put into the baby's mouth. If, for example, a baby is occasionally given water from a cup or a feeding bottle, or if small amounts of honey or other sweet things are occasionally given from an adult's finger as a treat, then this is not exclusive breastfeeding - and the result may well be increased risk of infection and growth faltering.

By all of these means, the particular way in which babies are breastfed can render breastfeeding inadequate for an infant's needs. But at first glance, it seems unlikely that the women of sub-Saharan Africa stick rigidly to the correct definition of exclusive breastfeeding, whereas the women of South Asia do not.

The other possible explanation, already referred to in another context, is that breastfeeding may be inadequate not because of the different way in which the women of South Asia breastfeed their babies, but because there is a significant difference in the well-being of women in the two regions, and that African women have better health, better nutrition, and better care - so enabling them to breastfeed successfully for longer.

Timing of other foods

At a certain point towards the middle of the first year of life, all children need other foods, in addition to breastmilk, if they are not to become malnourished.

In timing, manner, and content, the introduction of these complementary foods represents the next critical stage in the child's nutritional progress.

If other foods are introduced too late, the child's growth will falter; if they are introduced too early, growth will be threatened by infection. As an additional complication, a child's small stomach and high energy and nutrient requirements, in relation to body size, mean that he or she should be fed five or even six times a day, preferably with foods enriched with small amounts of fat or oil.

All of this is happening, or should be happening, at a stage when the growth of a child's brain and body is still rapid and vulnerable. Inadequate feeding practices at this point can therefore have a major effect on whether a child grows normally or not.

What differences in these feeding practices can be observed between South Asia and sub-Saharan Africa?

The critical difference would appear to be in the timing of the introduction of other foods. In sub-Saharan Africa, the proportion of breastfed children aged six to nine months receiving complementary foods is almost two thirds. In Bangladesh, India, and Pakistan, it is less than one third.

When national data are disaggregated the problem is even more dramatically revealed. In the Indian state of Rajasthan, only about 9% of infants are receiving foods in addition to breastmilk at the age of six to nine months. Almost certainly, therefore, the great majority of infants in Rajasthan, and in many other parts of India, are being set on the road to malnutrition because

there is a significant gap between the time when their mothers' milk alone is no longer adequate and the introduction of the other foods that are necessary.

The recent evidence that growth faltering is beginning as early as four months, for many Indian children, makes these differences even more critical. For if breastfeeding does not meet all of a child's nutritional needs over the full six months, for either of the reasons discussed earlier, then in practice millions of Indian children may need other foods at the age of four months if normal growth is to be maintained.

In other words, many children in South Asia may need complementary food earlier but receive it later.

Differences in breastfeeding and in the timing of the introduction of other foods, occurring at this vital and vulnerable stage of a child's growth, are the third and possibly most important reason for the differences in child nutrition between the two regions.

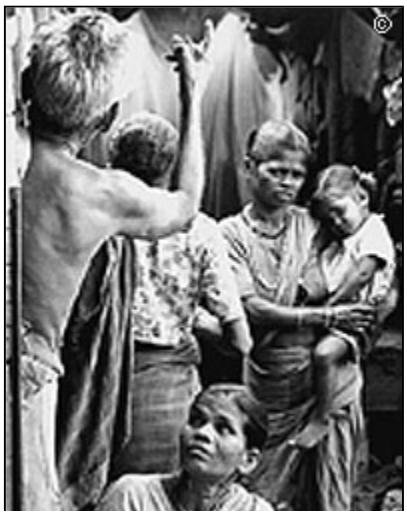
Finally, in respect to feeding practices, the way in which a young child is fed can also affect growth in at least three other ways, all of which are concerned with minimizing the impact of illness on growth. First, it is important to try to feed even small amounts to a child during illness (when the appetite is depressed). Second, it is important to continue giving food and fluids (and especially breastmilk) when a child is ill. Third, a child should be given an extra meal a day for at least a week after an illness so that he or she can catch up on the growth lost. These practices, all of which are affected by different cultural and traditional beliefs, have a significant cumulative effect on a child's nutritional well-being. Unfortunately, there is as yet insufficient evidence to identify any broad differences between South Asia and sub-Saharan Africa in these areas.

Child care

It will be clear from this discussion that perhaps the most important and most neglected determinant of whether a child grows well or not can be summed up in the phrase 'quality of child care'. Whether we are talking about exactly how well and how frequently a young child is fed, or about the degree of stimulation and interaction with parents, or about disease prevention and domestic hygiene, or about use of health services and regular growth monitoring, the issue to which we are constantly returned is the issue of how well the child is cared for.

Photo (below): The quality of child care suffers along witht he quality of women's own lives.©

Quality of child care is largely an avoided topic, perhaps because it is seen as a private activity, and one that is difficult to quantify. Perhaps, also, it has been avoided out of a proper concern that emphasizing care can too easily become an exercise in 'blaming the victim' - or in this case the victim's parents. But these cannot be excuses for avoiding an issue which so largely determines whether a child is malnourished or not.



Although greater involvement by fathers - in all countries and cultures - is one of the most fundamental priorities for improving the care and upbringing of children, it is in practice the mothers who are the principal providers of care. And the first thing to be said is that however much a mother may love her children, it is all but impossible for her to provide high-quality child care if she herself is poor and oppressed, illiterate and uninformed, anaemic and unhealthy, has five or six other children, lives in a slum or shanty, has neither clean water nor safe sanitation, and if she is without the necessary support either from health services, or from her society, or from the father of her children.

We are therefore talking as much about care of the mother as care by the mother.

There are a thousand ways in which care of the mother determines the quality of child care and therefore the nutritional well-being of children. But the question at issue here is whether there is a marked difference in the overall quality of child care between South Asia and sub-Saharan Africa.

We believe that there is, and that the differences are best summed up in the generalization that the women of sub-Saharan Africa, and particularly poor women, have greater opportunities and freedoms than the women of South Asia. It is a difference captured not so much in the statistics of literacy or age at first marriage, as in the evidently greater opportunities for social interaction and independent behaviours. The women of South Asia, for example, often face restrictions that prevent them even from leaving the household, let alone seeking out other opportunities for improving their own lives or finding paid employment (approximately 50% of the women in sub-Saharan Africa are involved in some kind of economic activity outside the home, as opposed to about 25% in South Asia).

This lack of freedom for women in many of the poor communities of South Asia limits opportunities for interaction even between women themselves. It therefore restricts transmission of new knowledge about health matters and child care, damages the self-esteem of women, and induces a kind of crushed dependency on the husband.

In Africa, it is accepted that the greatest obligation on a woman is to look after her husband's children and look after them well - an attitude which is noticeable in a thousand small details and even in the different perceptions of beauty and in male definitions of thinness and fatness in women. In South Asia, by contrast, society and tradition oblige a woman to make her husband and mother-in-law the central focus of her responsibilities.

Subordinated in a different way, judgement and self-expression and independence largely denied, millions of women in South Asia have neither the knowledge nor the means nor the freedom to act in their own and their children's best interests. Women are subordinated in both continents, as indeed they are in most regions of the world, but in kind and in degree the subordination of South Asia's women is of a different order. And the quality of child care suffers along with the quality of women's own lives.

Consensus

What solutions are suggested by these brief excursions into the possible reasons for the wide nutritional differences between sub-Saharan Africa and South Asia?

First, it is necessary to create a consensus on the nature of the problem.

Central to that consensus is a recognition that the exceptionally high rates of malnutrition in South Asia are rooted deep in the soil of inequality between men and women. And however intractable that most fundamental of problems might seem, it is worth remembering that profound change is today occurring in other societies where inequality between the sexes once seemed as eternal as the stars.

To bring change, a sustained, long-term effort must be made to promote equal freedoms, opportunities, and rights for women - including the right to participate in decision-taking both inside and outside the home. Signs of progress along this road will include better health, education, and nutrition for women; a reduced incidence of low birth weight; improved access to basic services; and increasing control over fertility. All of these are priority development goals in their own right - but they are also a means by which child malnutrition might be defeated.

This issue of gender equality is not amenable to any kind of technical fix, but still it can be said that the most powerful of all interventions, the 'key of keys', is the education of girls. Research in many parts of the world over the last two decades has consistently shown that if girls are educated then they are more likely to have wider opportunities, more likely to develop self-confidence and be less bound by tradition, more likely to exercise their own rights and their own judgements, more likely to use modern health and family planning services, more likely to share in decision-taking in the home and the community, more likely to send their own daughters to school, and more likely to have children who grow up healthy and well nourished.

Second, it is important that the issue of malnutrition should be moved from the agenda of welfare to the agenda of rights. It is the right of a child to have adequate care, and to grow to the mental and physical potential with which he or she was born.[6] But in practice this will mean little if the violation of women's rights continues to be regarded as normal and acceptable. The rights of woman - including her right to education, to dignity and respect, to time, to rest, to adequate food and health care, to resources, and to special care in pregnancy and childbirth - are a priority both in and of themselves and as a fundamental part of any permanent solution to the particular problem of child malnutrition.

The stress on a rights approach as opposed to a welfare approach may seem academic. But there is a very practical difference in the processes that are likely to be developed from these two different premises. The experience of the last two decades has shown that a welfare approach too easily becomes a process which treats people only as recipients, as passive beneficiaries,

resulting in all the familiar failures and problems which add up to alienation and unsustainability. A rights approach, on the other hand, lends itself to seeing the poor as key actors in the development process, building on rather than overriding their own coping strategies, and leading towards the kind of community involvement and ownership that is the key to all sustained improvement.

In particular, it is essential to involve a community's own organizations in the process of assessing, analysing, acting on, and reassessing the problem of poor child nutrition. Community awareness and understanding is the basic platform from which the problem will be solved, and around which support must be mobilized.

New understanding

Third, it is necessary to widen the nutritionists' consensus. Understanding of the particular causes of malnutrition has been revolutionized in recent years, but these advances in knowledge are as yet inadequately translated into new policies. Briefly, it is now established that the great majority of malnourished children (other than those born with low birth weights) become malnourished in the period from birth to the age of two years, and that the way forward must be through prevention based on what are now recognized as the essential elements of good nutrition - adequate dietary intake and adequate health, both of which depend on the well-informed and well-supported care of the young child. Yet still today, the majority of efforts to combat malnutrition - on which tens of billions of dollars are spent worldwide - are based on feeding programmes for children who are over three years old. India's previously mentioned ICDS programme, for example, is reaching two thirds of the nation's children in an attempt to improve their health, nutrition, and development; but it benefits mainly children between the ages of three and five and has therefore had little nutritional impact. All existing programmes specifically aimed at improving child nutrition should now recognize that the task is one of preventing a child from becoming malnourished before he or she reaches the age of two.

This new knowledge and new understanding of nutritional issues must now be translated into a wide understanding - among government ministries, planners, health services, communities, and parents - of the real nature of the problem. Without such a consensus on the causes of malnutrition, it is unlikely that there will be a consensus on the specific priority actions that are required.

Given progress towards equality for women, those priority actions could begin to make a significant difference in the years immediately ahead. They could include, for example, a major effort to ensure that all families and all health workers know the importance of better diet and more rest in pregnancy, of exclusive breastfeeding during the early months of life, and of introducing the right kind of complementary foods in the right way and at the right time. Similarly, if people are to be seen as the key actors in the process of improvement, then another obvious priority must be to increase access to today's information about how best to feed a growing child and how to prevent and manage childhood illnesses in such a way as to protect normal growth. Communities need not only access to clean water, safe sanitation, and primary health care - which remain a priority wherever these most basic of services are absent - but also the information, confidence, and support to translate such services into a reduced burden of disease.

Conclusion

The countries of the South Asian region must now face up to the fact that they have the worst nutritional levels in the world, and that the roots of malnutrition run deep into social soils.

This article has attempted to explore some of the roots of malnutrition in South Asia and to suggest some of the principal approaches which, we believe, could better protect the normal development of the region's children.

The extraordinary achievements of recent years show that South Asia has the know-how and the capacity to overcome the problem. In many parts of Africa, on the other hand, recent years have witnessed a deterioration in living standards, and in the capacity and outreach of government services. And as these pages show, there are several African countries in which the proportion of malnourished children is now rising under the impact of debt, structural adjustment, rising poverty, and deteriorating infrastructure. In addition, the appalling impact of AIDS in Africa is, by now, almost certainly bringing higher rates of child malnutrition as well as higher death rates to those many regions where up to 25% of pregnant women are HIV-positive. Sadly, it now seems that AIDS is poised to scourge South Asia with consequences that may be just as devastating.

It should be said in conclusion, therefore, that this comparison between the nutritional status of children in two different regions of the world should be interpreted not as a statement of complacency about the countries of sub-Saharan Africa, but

as a particular challenge to the countries of South Asia.

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Urban Jonsson is UNICEF Regional Director for South Asia. For most of the 1980s he was UNICEF Representative in Tanzania, where he was closely involved with the Iringa programme now internationally known for its successful efforts to reduce child malnutrition. A former head of the Nutrition Section at UNICEF headquarters in New York, he was largely responsible for the development of the organization's nutrition strategy. With wide experience of nutritional issues in both Africa and Asia, he has published extensively on the problems of nutrition and child growth.

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Although the authors conclude that sub-Saharan Africa is better off than South Asia in such areas as hygiene and social support of women, continued assistance to Africa in these areas is necessary and remains a high priority for UNICEF.

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