

responding to seasonal deprivation of rural children

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Some seasons are much worse for children than others. This seems more so in the South than the North, in rural than urban areas, and for the poorer people than the less poor. But many of those concerned with global and national policy for children are trained and trapped in environments which make it hard for them to perceive the seasonal deprivation of poor rural children in the South. Most professionals either live in, come from, or are influenced by the thinking and values of the industrialised, temperate North; they live in towns and do not experience the agricultural seasons; they are insulated against extremes of climate by adequate clothing, good houses, offices, fans, air-conditioning and central heating; and they are protected against adverse seasonality by regular salary cheques, dependable commercial food supplies, and services which operate all round the year. Policy-makers, like most of those who read this paper, are securely season-proofed.

Contrast the conditions for a child in a poor family in a remote or not so remote rural area in the tropical or subtropical South. That child's physical and social environment changes radically around the year; and the rains can be a season of sickness, hunger and neglect.

when the rains come

One scenario runs like this. A wet (rains or monsoon) season follows a dry season. Towards the end of the dry season, food gets scarcer. Anticipating hard work, some mothers take their children off the breast. When the rains come, the adults get very busy with urgent agricultural activities. Where mothers cultivate, weed, or transplant, they are occupied much of the day and have less time and energy for washing, cleaning, child care, food preparation and cooking. Small children are left behind in the village, looked after by elder siblings or very old people or not at all. In this hungry time before the next harvest, less and less food is available, and it is less varied, less nutritious and less well prepared. It is also more often contaminated by being left standing, and by lack of hygiene, by the hot humid conditions. Water, too, is more likely to carry infections as rains wash faeces into water supplies. Diarrhoeas are prevalent. The incidence of diseases like malaria, dengue fever, guinea worm disease, and skin infections rises. Huts leak or collapse under heavy rain and life can be wet, cold, dirty and miserable. If a child is ailing, it is less likely to be noticed or if noticed, attended to. Adults postpone action because they are exhausted, working hard, short of time to take the child for treatment

and of money to pay for it or sick and weak themselves. At this time of year children are worst fed, least cared for, most exposed to infections, and least likely to be treated when ill.

This is also the time of year when the season-proofed urban-based professional is least likely to appreciate what life is like for poor rural children. First, travel in the rains is difficult and unpleasant, at least off the tarmac, so personal contact and observation is rare. Second, a smaller proportion of the sick go for treatment during the rains. Seasonal shortages of drugs, physical problems of travel, and lack of money for travel and treatment all conspire to depress clinic and hospital attendance figures. Sickness is saved up for treatment after the harvest when travel is easier, work less pressing, and money less short. So urban-based analysts studying statistics are misled into under-estimating the seasonal sickness of the rains.

This said, the seasonal wet-dry scenario needs many careful qualifications. Each environment needs its own analysis to identify its own configurations, some or many of which may differ from this description. There are obvious exceptions. Pastoralists experience a different pattern: for them, the first month of the rains can be the worst crisis. In much of India the peak in diarrhoeas and associated malnutrition comes in the hot dry season rather than in the monsoon. Irrigation modifies the agricultural year. Families with adequate buffer stocks of food and cash, or with a regular income from an urban-based member, or other employment, are cushioned against some of the worst effects. Small farmers can be affected differently from landless labourers. All the same, in the tropics it is very common for the wet season to be the busy season, the lean season, the sick season, and also the poor season, the time when poor people are poorest. And as a result, it is also the time when children are worst off and most at risk.

seasonal vagaries

Seasonal stress and deprivation for infants and children, and for their mothers, has been explored and illuminated by research. Two outstanding examples are the work of the Dunn Nutrition Unit at Cambridge in Keneba village in the Gambia and that of the International Diarrhoeal Diseases Research Institute (formerly the Cholera Research Laboratory) in Matlab Thana in Bangladesh. Both these environments are highly seasonal and caution is needed in extrapolating from them. Nevertheless, evidence from other

places—in Upper Volta, Nigeria, Zaire, India and elsewhere—broadly substantiates the hypotheses generated by the Gambia and Bangladesh research, especially the general theme of marked seasonal variation in the well-being of mothers and children. Some of the hypotheses, to be confirmed or refuted for each environment, social group, and family type, are that during the rains and before the main harvest:

- **births peak**, especially during the late rains and around the time of harvest. This reflects a peak in conceptions during the less poor, healthier, better fed, and in the subtropics often cooler, period which follows the main harvest. In Matlab in Bangladesh, the variation in monthly birthrate, following this pattern, has been found to be 42 percent above and below the mean (Becker 1981).
- **birth weights decline**. Mothers' energy intakes are low because food is short and their energy expenditures are high because of hard agricultural work (in the Gambia, though not in Bangladesh where Muslim women do not work in the fields). In the Gambia, this was reflected during the worst month, August, on an average loss of 1.4 kg or weight in both lactating women and in women in the last trimester of pregnancy (Whitehead *et al* 1978). Birthweights fell by 0.48 kg in two months, June and July, corresponding with the onset of the rains (Roberts *et al* 1982).
- **breastmilk output decreases**. Some mothers stop breastfeeding when the rains are coming, anticipating hard work. For those that continue to breastfeed, studies in the Gambia and Zaire have found breastmilk output to decline by about one third (Whitehead *et al* 1978; Vis *et al* 1981). The drop in output was more marked for older (over 6 months) infants (Whitehead *et al* 1978) and among children in the 12-18 month age groups than among infants up to 6 months. This reflects not a reduced frequency of feeding but a reduction in the average amount of milk consumed in each feed, implying not a mother's reluctance to breastfeed, nor a lack of stimulation from the child, but a reduced capacity for lactation (Roberts *et al* 1982).
- **nutritional status deteriorates**. Comparative evidence for this has been documented by Longhurst and Payne (1979) and Valverde (1982). An excellent study in Bangladesh has identified

'dramatic seasonal differences in the average nutritional status and in the prevalence of malnutrition as defined by a variety of anthropometric indicators. For example, the percentage of expected monthly gain in length for weight varied 3- or 4-fold during different months of the study, as did the prevalence of third degree malnutrition as defined by the percentage of expected weight for age, and the prevalence of moderate wasting as defined by the percentage of expected weight for length'. (Brown *et al* 1982)

Growth faltering occurs and weight is often lost.

- **morbidity and mortality are high**. Morbidity often rises with the rains but it is highly environment-specific. The

diarrhoeas, as the single most important disease affecting infants and children, may peak during the rains or at other times (Drasar *et al* 1981; Cutting 1981; Tomkins 1981). These and other stresses are reflected in mortality. In the Gambian village half the infant deaths occurred during the three months of the rains (McGregor *et al* 1961; McGregor 1976). In Matlab in Bangladesh, both neonatal deaths and the neonatal mortality rate are at their highest before the main harvest, but the peak in deaths of infants of 2 to 12 months of age was later in the year due to dysentery and residual causes (Becker 1981).

- **health services are at their least effective**. In both Matlab in Bangladesh and Keneba in the Gambia, the researchers have themselves maintained and supported health services. Elsewhere, breaks in communications, shortages of drugs, sickness of health staff themselves, demands of agricultural activities on the time and energy of health staff including community health workers, the immobility of mobile clinics—these and other factors conspire to make the rains the time when health services are at their worst.

These adverse factors are mutually reinforcing. In the history of any one child, they interact and overlay each other. For example

'Many adverse factors operate mainly during one period of the year, the rainy season. The mother who produces her child at this time will have suffered more weight loss herself during pregnancy, producing a smaller child who gets less breastmilk and cannot 'catch up''. (Rowland *et al* 1981)

But once the most critical season has been identified, it can be explored and the adverse linkages unravelled. The challenge then is to see what to do, and to do it.

counter-seasonal actions

Counter-seasonal actions should be designed for each physical and social environment, and sometimes for each social group. There are no universal solutions. The syndrome of seasonal deprivation and risk for children can be attacked at many different points (Chambers *et al* 1981; Chambers 1982), including building up reserves during benign seasons, seasonal consumption credit, reducing the work of mothers, increasing mothers' calorie intake, improving child care, prophylaxis, better hygiene, and even the timing of conception and birth. Which at best will vary.

A first step is seasonal analysis to see the needs and opportunities. This can take two forms. It can be top-down from a national or regional level, to assess the seasonalities of nutritional status, morbidity, women's work in cultivation and postharvest-processing, neo-natal, infant and child mortality, and so on, depending on what data are available or can intelligently be guessed. Such mapping should point to the times and places where greatest stress may occur, and for whom. Perhaps more usefully, seasonal analysis can also take the bottom-up form or simple reviews by local-level staff, and interviews with vulnerable groups like the women who are heads of one-adult households, to ask them what times they find worst, and why, and what could help them at those times.

With or without systematic seasonal analysis, a repertoire of interventions can be suggested. Some of the more obvious direct counter-seasonal actions are:

- **seasonal stocking with medicaments**, to ensure adequate supplies to rural clinics and community health workers for the times when they are most needed, and especially for areas which are liable to be cut off during the rains. Voluntary agencies have the flexibility for this. Among government services, although this appears such a straightforward measure, standard monthly issues all round the year, regardless of need, still appear to be the most common practice.
- **seasonal measures against seasonal infections**. The most common example is anti-malarial programmes, both spraying and chemoprophylaxis. In Raigarh District in Madhya Pradesh in India, a voluntary agency's programme of issuing, and later selling, anti-malarial pills to tribals for the three months or so of the malarial season was very popular and reduced a high incidence of malaria to almost nil. Similar programmes can be investigated for other infections.
- **seasonal programmes for health and nutrition education, and for immunisation**, to coincide with the drier, healthier, better fed, and less busy times of the year. This is often the practice, not least for the convenience of the staff carrying them out. But routine inoculation programmes have been known in seasons when children are weak and vulnerable, and when mothers resist because their children are not well able to withstand the effects.
- **seasonal organisation of community child care** for the times when mothers must work in the fields. This already occurs, but is sometimes at first not welcome, as when mothers fear witchcraft on children left behind.
- **technology to reduce women's unpaid drudgery at critical times**. Opportunities are presented by the washing and drying of clothes, water collection, firewood collection, stove design, house and compound cleaning, food processing, and cooking methods. Except by poor rural women themselves, astonishingly little thought and ingenuity has been applied to most of these.
- **increasing the energy intake of pregnant and lactating mothers during seasonal crises**. Controversy surrounds special feeding programmes; but where they occur or are justified, a tight seasonal focus should reduce costs and raise cost-effectiveness. Yet often such programmes are planned on a year-round basis, although for much of the year they may be much less needed. Of more permanent value are changes in farming systems and gardening practices which increase family food supplies, enable larger food and cash stocks to be carried over into the hungry season, and shorten the time of food shortage through earlier harvests, for example through quicker-maturing varieties of staples like millets.
- **professional example and supervision**: Doctors and others responsible for rural programmes for health, nutrition, and mother and child care, can set an example by intensifying travel and supervision during

the rains and at other critical times. By visiting remote and poor areas at the times which are worst for children, they can encourage their staff, and themselves gauge the dimensions of the problems and the measures needed.

Seasonal analysis and counterseasonal actions cannot alone overcome the integrated deprivations of poverty, physical weakness, isolation, vulnerability and powerlessness which afflict so many rural families. The best defence against adverse seasonality is not being poor. But counter-seasonal interventions are one weapon in the antipoverty armoury, and one which has been neglected. Help for the worst time is the help that matters most, and may often be the most cost-effective. At least one can hope that as more and more professionals concerned with mothers and children think and act seasonally, so their actions should better fit the needs of the poor rural children at risk. The children, and the mothers, deserve it.

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