

SCN News, Number 05

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SCN News, Number 05

UNITED NATIONS



NATIONS UNIES

ADMINISTRATIVE COMMITTEE ON
COORDINATION – SUBCOMMITTEE ON
NUTRITION

Early 1990

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Food for thought.....nutrition and school performance

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ACC/SCN State-of-the-Art series. Nutrition Policy Discussion Paper No. 4, May, 1989.

MALNUTRITION AND INFECTION – A REVIEW

by A. Tomkins and F. Watson

with discussion by N.S. Scrimshaw and an introduction by the ACC/SCN Secretariat.

ACC/SCN State-of-the-Art series. Nutrition Policy Discussion Paper No. 5, October, 1989.

(A Charge of \$20 per copy will be made for 'Malnutrition and Infection' to those requesting from Australia, Europe, Japan, New Zealand, North America, to help cover costs).

Copies of these publications can be obtained by writing to the ACC/SCN Secretariat.

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FEATURES

Food for Thought – Nutrition and School Performance

Children's education is hampered by malnutrition; pre-school and school health and nutrition programmes improve performance.

The education of children all over the world is being held back by malnutrition. In humanitarian terms, it makes no sense that the children who manage to get to school cannot benefit fully from their education, because they are already malnourished, because they are currently hungry, or because of infection. Equally, from the educators' view point, dealing with severely limited resources means that the best efficiency must be obtained; yet it is now clear that educational efficiency is badly hampered by malnutrition and ill health amongst school children. Nearly 90% of the world's school children will be in developing countries by the year 2000, yet many of these will be physically ill prepared for school, will have poor attention, and will drop out – and nutrition plays a part in all this.

Not only has evidence for the extensive effects of nutrition on school performance been accumulating, but the beneficial effects of interventions are becoming better known. With attention focussing on basic education, for which an important step was the "Education for All" Conference in Bangkok in March 1990, the ACC/SCN's annual symposium was on the subject of "Nutrition and School Performance", held on 19 February 1990 as part of the SCN's 16th Session hosted by UNESCO in Paris. A book was published, sponsored by UNESCO and the ACC/SCN by Professor Ernesto Pollitt, University of Davis, California, which provided important background for the meeting. This book, "Malnutrition and Infection in the Classroom" is available through UNESCO and the ACC/SCN¹. A review was also commissioned from Dean Jamison and Joanne Leslie on "Health and Nutrition Considerations in Educational Planning"; and a paper by Ronald Israel on "Program and Policy Options" was prepared². These papers were presented at the Symposium, which was chaired by Dr Susan Van der Vynckt, UNESCO, and stimulated extensive discussion. The Symposium was summarized by Dr Pollitt. The Sub-Committee put forward a statement, endorsed by the ACC, drawing attention to the urgent need for effective control of health and nutrition problems of school children, and the likely benefits. This statement is shown in the box on page 2.

Nutrition affects school performance in many ways: malnutrition in the pre-school years leads to a child ill-prepared to benefit from schooling; hunger during the school day affects attention and learning capability; ill health and chronic malnutrition (here anaemia is particularly important) persisting during the crucial early years of education have a pernicious effect on educability.

Pointing out that while health outcomes may be difficult to define and translate into economic terms, Dr Pollitt suggests that educational variables can be exactly defined, scaled and quantified in economic terms. For example, enrollments rates, age of enrollment, drop outs, grades obtained, and the like, can be straightforwardly assessed. In practical terms for purposes of assessing nutritional effects, Pollitt uses four types of concern: aptitude, time-on-task, perseverance, and achievement. He demonstrates comprehensively in his book and in his presentation that "highly prevalent nutrition/health conditions are important determinants of educational outcome... improvements in health and nutrition offer a possibility of improving educational efficiency".

Delayed effects of early malnutrition

Malnutrition in pre-school years leads to stunting, and other results of malnutrition, and these have been widely observed to be associated with reduced school performance. Such relations do not prove that it is the malnutrition itself that is the problem – although it seems likely – and as Pollitt asserts "skeptics that attribute the developmental deficit observed among children with a history of undernutrition solely to the social environment face a formidable task of finding evidence that supports their position". This view was accepted by the SCN (as shown in the box) in saying that "malnutrition and infection during the pre-school period... are critical determinants of later school performance".

Physical damage to the child with protein-energy malnutrition (PEM) in the preschool years may or may not be the main cause of later difficulties. These may also relate to constrained psychological development from reduced play activity, for example. "Severe PEM during the pre-school years affects cognition and learning", says Pollitt. "In a population where malnutrition is endemic children with a history of severe and chronic PEM are handicapped in school... In those cases where the child's educational, social and psychological needs are met after rehabilitation from the episode of severe malnutrition, the handicap may be negligible". In other words, it is not that the child is necessarily irretrievably damaged, at least from PEM, but certainly needs every help he or she can get when attending school.

In other cases some of the damage of early malnutrition may be irreversible. Cretinism from iodine deficiency involves severe mental retardation. Here, the need is to prevent cretinism in the population, and iodine deficiency in the mother prior to pregnancy. Nonetheless, children with mild iodine deficiency do benefit in terms of increased activity and mental acuity from current iodine supplementation, although some damage could still have been done. Blindness and visual impairment following severe vitamin A deficiency may severely handicap education performance, and these too have to be prevented in the preschool years, as well as ensuring adequate vitamin A nutrition to school children.

Establishing the benefits of supplementation in the pre-school years on later school performance presents formidable problems of research. A few studies have demonstrated such an effect, most strikingly when other aspects of the child's environment were also improved. That is, when social interventions including stimulating the child were added to the dietary supplements and health care, clearer effects on development were found. In general, when interventions are effective in combatting preschool malnutrition, an important benefit can be expected in better performance at school later.

A. Statement on Nutrition, Health and School Performance

1. A symposium was held on 19 February on the subject of "Nutrition and School Performance". The following statement was approved by the Sub-Committee, which requested that it be endorsed by the ACC and disseminated widely.

2. *"On the occasion of the 16th Session of the Sub-Committee on Nutrition [ACC/SCN] of the United Nations, a symposium was held at UNESCO's headquarters on the subject of nutrition and school performance. Informed by state-of-the-art presentations from experts in this field and by the extensive discussion that resulted among the participants, the SCN notes that consensus exists about the following:*

– Enough is now known to recommend health and nutrition programmes among efforts to increase school enrollment and learning.

– Specific nutritional deficiencies and health conditions impact negatively on school enrollment, aptitudes, time spent in school, (i.e. attendance, drop-out rates) and achievement. Severe nutritional conditions (e.g. cretinism, blindness due to xerophthalmia, marasmus), as well as mild and moderate forms of these deficiencies, are known to be important factors contributing to the educational crisis facing developing countries.

– Malnutrition and infection during the preschool period, interacting with environmental factors related to poverty, are critical determinants of later school performance. The evidence is unequivocal in demonstrating that, in this setting, short stature in school children, a product largely resulting from growth retardation in early childhood, is an indicator of risk of poor school performance.

– Concurrent nutritional deficiencies and diseases plague school children, adding to developmental consequences of prior malnutrition. Short term hunger is known to affect attention and learning. Iron deficiency anaemia is linked to poor school performance. Parasitic diseases are most prevalent among school children and undoubtedly contribute to poor health and nutritional status and perhaps affect learning as well.

3. *The education sector should promote activities in its own and other sectors that would combat early childhood malnutrition and morbidity and hence would represent an investment in human capital. It is explicitly clear that one of the benefits of said investment will be in the area of school performance and hence greater effectiveness of activities in the education sector. The school setting itself offers opportunities to correct health and nutrition problems of public health and education significance. Through proper attention to curricular content and activities in and out of school, the school setting also allows educators to alter behaviour and dietary practices to the benefit of future generations. School feeding programmes may also contribute to the correction of specific nutrient deficiencies and short term hunger. Vitamin and mineral supplements may be required. Efforts should also be included to combat parasitic diseases when appropriate. In general, feeding and health programmes should be so placed that they facilitate unconstrained growth and development throughout the school age period, including meeting the special needs of adolescents.*

4. *The SCN is of the view that the education sector should give increased importance to the control of health and nutrition problems of school children because effective actions of this nature will result in increased school enrollment, improved school performance, and efficiency. In particular, the SCN enthusiastically acknowledges UNESCO's recent efforts in initiating and stimulating interest and action in this area and its effective catalytic role in pulling together the other agencies and the scientific community on this issue.*

5. *SCN recommends that, having laid the groundwork, UNESCO will now take the leadership role in developing a programme to fulfill the potential for this important, but heretofore, largely neglected area.*

6. *Finally, the SCN hopes that the upcoming **World Conference on Education For All** fosters the political will necessary for successful implementation. "*

Source: Summary Report of the Sixteenth Session of the ACC Sub-Committee on Nutrition, UNESCO, Paris, 19-23 February, 1990.

Short term hunger

"Hunger interferes with problem solving and concentration abilities", according to Dr Pollitt. "Overall the children affected detrimentally in most cognitive tests by missing breakfast were those who were.... previously malnourished".

Attention, interest and learning may be adversely affected by short-term hunger – a daily observation of many school teachers and parents. Skipping breakfast or having an inadequate morning meal before coming to school is the usual reason. Although findings on the beneficial effects of school feeding for educability have been inconsistent, this may be related to the differences in study design and interpretation of the data. For instance, mid-morning feeding might substitute breakfast in some while supplement it for other experimental subjects; or the recipients experiencing short-term hunger may or may not be chronically malnourished. In the light of available evidence, however, provision of breakfast may well benefit school children emotionally and improve their attention, problem-solving ability and educability.

The research evidence was also reviewed by Drs Jamison and Leslie, who noted that school attendance is affected by hunger, and that several studies "show feeding children breakfast or a snack early in the school day can have a significant, positive effect on school performance". Indeed, the weight of opinion is swinging towards the view that "school feeding programmes designed to alleviate short term hunger (e.g. school breakfasts or school snack programmes) will be less expensive and equally or more beneficial in terms of school outcomes than more elaborate school lunch or multi-meal programmes designed to address chronic PEM". Children are encouraged in this way to attend school, and do better when there.

Current chronic malnutrition in school children

In Sub-Saharan Africa over 4% of school-age children (and in developing countries as a whole about 2%) will die before school completion. This is despite the fact that school children have the lowest annual risk of death compared to any age group. School children in developing countries are 14 times more likely to die than children of the same age in industrialized countries.

Good health and nutrition are needed for attention, regular school attendance and optimum class performance. Clearly educational capabilities can be significantly diminished in undernourished children not only because of impaired ability to concentrate and learn, and decreased educability, but also due to irregular school attendance, as an outcome of poor health and nutrition-related illnesses. Mild to moderate malnutrition may alter the processes associated with cognitive function leading to passivity, apathy, shortened attention span, reduced short-term memory, failure to acclimate to repetitive stimuli and a lag in the development of sensory-integrative capacity³.

Attention among iron deficient anaemic school children is impaired, and iron nutrition has been the subject of considerable attention. In particular, the effects of iron treatment among anaemic school children have been shown to result in significant improvement in some aspects of school performance. Of practical interest, it was found that adequate iron treatment over no more than three months reversed deficits observed among iron deficient anaemic school children. Although the mechanisms are not completely understood – anaemia may not be the only one (see SCN News No. 3, pages 13–14) – it is clear that anaemia is often involved, and controlling iron deficiency important.

A number of other aspects of health in school children were emphasized. In particular, parasitic infections from worms and schistosomiasis are very widespread, but open to control. Lead toxicity – a particular risk where gasoline is leaded in densely populated urban areas – is of particular concern. Indeed "this risk is likely to be even higher among iron deficient children", according to Pollitt. While it is felt justified to conclude that the risk of high blood levels of lead among school children living in large metropolitan areas in developing countries, ranging from Lagos to Cairo to Lima to Bangkok, is sufficiently high to be a public health concern, the direct linkage of lead toxicity to school performance has not yet been established. However, if lead is causing ill health, and ill health reduces school performance, a connection is likely to be there.

The research evidence for relationships between nutrition and measures of educational outcome was summarized as shown in Table 1.

Finally to illustrate the cumulative effect of many of his points, it is worth recalling Dr Pollitt's example of a study in which 89 children in four villages in rural Guatemala were followed through their six years of primary schooling. "Under ideal conditions each child represented a six year investment. In reality, only 15 children graduated in six years. At the rate of progress observed, 1,131 child-years of schooling would be needed to

graduated the 89 children initially enrolled. The difference represents 520 child-years (47%) more than the ideal." The inefficiency, for the individual children, and for the education system, is clear.

Table 1. Strength of the association between nutritional and disease conditions, and educational outcomes

Time-on-Task				
	Aptitudes	Enrollment	Absenteeism	Perseverance
Protein Energy Malnutrition	+++	++	Not likely to be related	Likely related but no data available
Iron Deficiency Anemia	+++	+	Not likely to be related	+
Iodine Deficiency Disorders (1)	+++	++	Not likely to be related	Likely related but no data available
Hunger	++	Suggestive evidence	Likely related but no data available	+
Intestinal Parasites	+++	Likely related but no data available	++	Likely related but no data available
Schistosomiasis	++	Likely related but no data available	Likely related but no data available	Likely related but no data available
Lead Toxicity	+++	Likely related but no data available	Not likely to be related	Likely related but no data available
Vitamin A Deficiency (2)	Likely effect through risk to health; data not compiled			

Notes: (1). Mild iodine deficiency disorder; cretinism not included.

(2). Visually impaired or blind children require special education which is unavailable in most populations with endemic Vitamin A deficiency; this refers to possible effects of current mild Vitamin A deficiency in school children, mediated by effects on health.

Source: Derived from Pollitt (1990), table 11.1 and text.

Turning problems into interventions

The nutritional problems clearly identified are short-term hunger, protein-energy malnutrition, and deficiencies of at least three key micronutrients, iodine, iron and vitamin A. Substantial consensus exists on the type of solutions, moreover on their likely high return on investment. Ronald Israel divided the interventions into short-term and long-term baskets. In the short-term basket would be nutrition supplements, school feeding, first aid, and treatment of parasitic diseases. In the long-run, environmental controls, school food production, dietary change and first aid would all be needed. The means of delivering such interventions was given in some detail by Jamison and Leslie.

These authors began with laying out the interventions needed to deal with pre-school malnutrition. "Community-based efforts to improve health and nutrition of pre-school age children are already a priority activity of the health sectors in most developing countries", they note. "The role of educational planners would be to lend the weight of their support to the importance of such efforts, and, in some cases, to advocate the application of resources to interventions that are particularly important in terms of later school outcome. Such interventions would certainly include, for example, addressing problems of micro-nutrient deficiency disorders in young children, which is not now a component of the standard child survival package."

Intervention	Relevant to	Nature of school intervention and estimate of cost considerations
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School Facilities and Location	Diarrhoeal disease Lead Toxicity	Location of schools away from busy streets would reduce lead poisoning (and injury). Provision of water supplies and latrines would benefit hygiene. Costs depend on circumstances, but following estimates may be useful. Access to piped, stored or well water might cost in the range of \$0.25 – \$2.00 per student per year. Access to a functioning latrine might cost \$0.1 – \$0.5 per student per year.
School Health Worker	All conditions	The school health worker could be a nurse, or a teacher designated to be responsible for health and nutrition. The roles would be to provide contact and referrals to local health and family planning services, and/or a mobile team (see below). The school health worker could also provide health education, treat minor injuries, dispense chloroquine, iron supplements, etc. The main cost would be the teacher's time to supervise facilities and hygiene, liaise with health services, conduct health and nutrition education, dispense, etc. A commitment of 25% of one teacher's time per 500 students would generate a 1–2% increase in costs. Some training costs would also be incurred. Supplies might cost \$1.00 to \$2.00 per student per year for, e.g. chloroquine and iron supplements.
Mobile School Health Team	Micronutrient deficiencies Intestinal helminths Schistosomiasis	Mobile teams would visit schools probably once or twice a year. They would provide as needed: immunizations, supplements of vitamin A and iodine, treatment for helminthic infections; health nutrition or family planning education; consultation with school health workers, students, parents. They should service <i>all</i> school age children in the community, not just those enrolled. Costs are estimated to be around \$0.5 to \$2.00 per child per year, depending on the number of conditions treated per child.
School Feeding	Protein energy malnutrition Short-term hunger	Provision of adequate school meals (both in quantity and quality) may be expensive, but this will depend substantially on mechanisms for food preparation and delivery. Cost analyses are rare, but estimates from Brazil are of \$12.00 per beneficiary per year, from Chile \$15.00 per beneficiary per year (this was an extensive programme with breakfast and hot lunch). Efforts aimed primarily at relieving short-term hunger should focus on provision of breakfast or a small snack shortly after the students arrive at school. A small breakfast/snack (300 – 400 Kcals per day) might cost \$20.00 to \$40.00 per student per year; more substantial meals would cost more, but probably not proportionally.
Health, Nutrition and Family Planning Education	All conditions	Students, teachers and parents should be explicitly targeted by school-based information and motivational campaigns. In addition, appropriate nutrition, health and family planning information should be integrated into the regular curriculum. Although costs again are not well known, something useful could be done in the range from \$0.1 to \$0.5 per student per year.

Source: Extracted from tables 3.2 and 3.3 of Jamison and Leslie (1990) see end notes; please see paper for more details. Note that this refers to school interventions not those for the pre-school child which may also be essential for later school performance.

Possible interventions in schools are described in the box on p. 5. Clearly, the balance of needed interventions depends on local circumstances, in particular on the development of the school system itself. The actual construction and location of schools can have an effect on children's health and nutrition. "The location of schools close to where children live could not only make them more convenient, but also reduce the substantial energy cost associated with getting to and from school", suggest Jamison and Leslie. "Children in urban parts of the developing world are exposed to rapidly growing risks of both lead poisoning and injury associated with traffic. Modest but significant reductions in such risks could be achieved by locating schools away from busy streets and by designing smaller, more local schools. Provision of clean water and latrines at schools would improve the health of both students and teachers".

The school health worker idea is already quite widespread, and may involve designation of a teacher to be responsible for health and nutrition, and their training. This and other ideas have been promoted by UNESCO⁴. Costs and some of the functions of such an individual are referred to in the box.

Mobile school health teams are not yet used extensively, so there is limited experience in their operation and costs. This is one idea where some trials may be needed, and in the right circumstances such teams, visiting schools once or twice a year, might be cost-effective.

School feeding has a long history, and has been often evaluated. It is being repeatedly stressed that evaluation should look at effects on school attendance and performance, rather than on nutritional measures such as anthropometry – because school age children have limited capacity to catch-up in growth, as discussed in the later article on Uses of Anthropometry. "In general, school feeding programmes appear to have a significantly positive effect on school attendance in spite of limited evidence of a positive affect on nutritional status" (mainly growth), according to Jamison and Leslie. As noted earlier, the timing of school feeding – providing food early in the day – obviously has a better chance of helping children who arrive at school hungry.

The wide distribution and prestige of teachers and schools in developing countries give them a particular place in providing education and information on health and nutrition, for students and their families. Educating school children in health and nutrition practices and family planning can clearly have a most important long-term effect, when school children themselves become parents.

Helping girls remain in school

In many places, the participation of girls in the education system is relatively less than boys. This is for a variety of reasons, which are not gone into here, but it should be emphasized that particular attention to the health and nutrition of school girls is expected to help them remain in school. At the same time, the school system may be particularly useful for trying to supplement the diet of girls before puberty, to ensure that remaining growth potential is fully achieved at this critical stage. This would contribute to breaking the cycle of small mothers having low birth weight babies, who grow up to become small mothers again.

Economic benefits

Improving the use of the education system can be shown to bring benefits in terms of future productivity, and increased efficiency in using the capacity of the system itself. Jamison and Leslie provide estimates showing that even with conservative assumptions, benefits of investing in, for example, school feeding (the most expensive of the possible interventions) will far exceed costs. Better educated adults are clearly more productive, improving their own income and their contribution to the national economy.

The concept of installed capacity to provide educational services (analogous to hospital bed availability) has been used to assess the school system, and this can be developed, as suggested by Jamison and Leslie, to estimate capacity utilization. The idea is shown in Figure 1. This looks at two factors, both of which can be affected by health and nutrition interventions. First, there is inefficiency if the level of enrollment does not reach the number of places available – this is shown on the horizontal axis on the Figure. At the same time, the average daily attendance of pupils enrolled may be below the optimum and affected by ill health and malnutrition. This is shown on the vertical axis. Thus the extent to which the system capacity is utilized is shown by the cross-hatched area, and the inefficiency is illustrated by the proportion of the capacity (dotted) that is used. Expanding this proportion both by increased enrollment and better attendance can, it is suggested, be achieved at least partly by health and nutrition programmes.

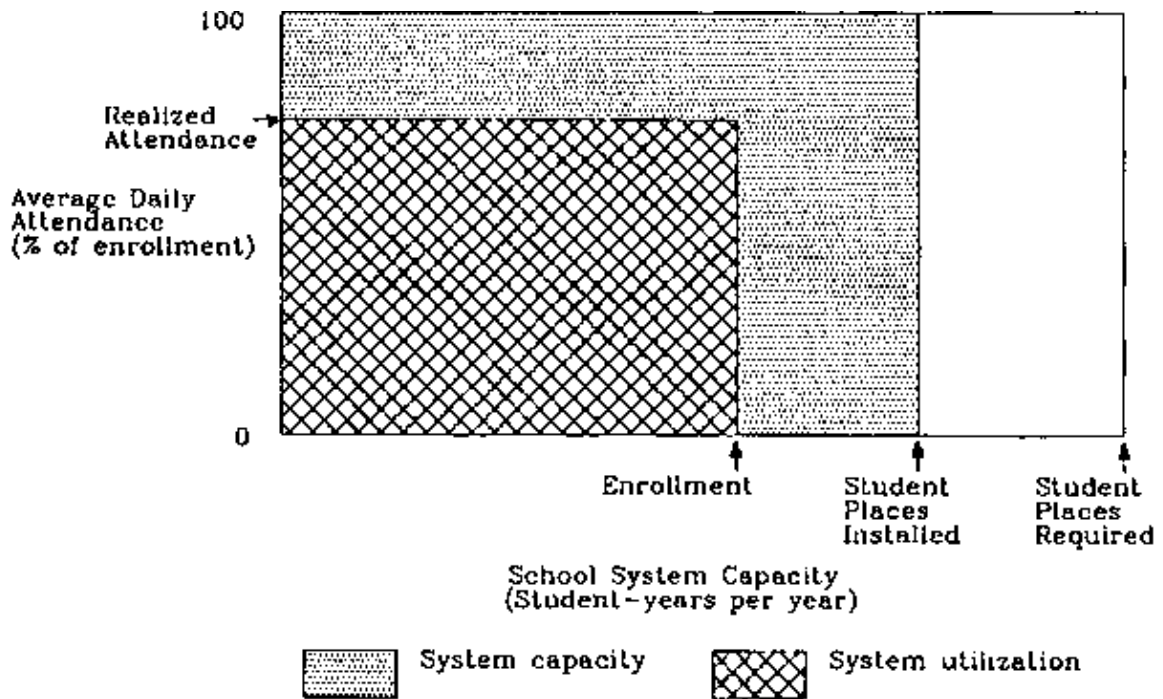


Figure 1: Capacity Utilization in Schools

"Obviously, only part of this quantitative inefficiency results from poor health and malnutrition, of students or of teachers", say Jamison and Leslie. But it is probably an important part. The implication for educational planners may be that more investment in child health and nutrition will pay off well for education.

—J.B.M./M.L.

Comments from Dr R. Martorell (Stanford) and Dr S. Van der Vynckt (UNESCO) are gratefully acknowledged.

NOTES

(1) *Malnutrition and Infection in the Classroom*, Ernesto Pollitt, UNESCO, February 1990.

(2) *Health and Nutrition Considerations in Educational Planning*, Dean T. Jamison and Joanne Leslie, February 1990. *Program and Policy Options for Improved School Nutrition, Health, and Learning in Developing Countries*, Ronald C. Israel, February 1990.

(3) Levinger, B. (1989) – quoted by Jamison and Leslie: *Effects of child health and nutrition on school performance*.

(4) UNESCO, 1989, *First Technical Report of the New UNESCO Project to Improve Primary School Performance through Improved Nutrition and Health*. Paris: UNESCO.

Measuring Children – the Uses of Anthropometry

Current recommendations for appropriate measures and interpretation, for screening, growth monitoring, population surveys, and nutritional surveillance.

Body measurement – "anthropometry" – has become increasingly used for diagnosing individuals and assessing populations, particularly children. For example, a global assessment in 1976¹ quoted only six national surveys of anthropometry; a recent count² identified more than 80 such national results published in the last 15 years. Equally, the growth chart as a fundamental tool for monitoring individual child health has spread over the years. Many countries now have their own charts. Mothers and clinicians all over the world are being helped in this way in early recognition of potential problems. UNICEF adopted growth monitoring as the first part of its child survival strategy (GOBI)³.

One appeal of using child growth – beyond its simplicity – is that almost everyone knows intuitively that when children are growing well, at least something is going right; but when children are becoming thin or stunted, something must be done. Child growth detects a problem well, but not its cause. This non-specificity has advantages: failed child growth catches many aspects of poverty and detrimental environment. But child growth has different features, primarily fatness or thinness (weight in relation to height), and linear growth or height. The uses of these measures depends on the circumstances, and the action that can be taken. In a crisis, severe thinness indicates serious risk; but chronic underfeeding and ill health cause stunting – shortness of height – often without thinness, and this growth failure is a sensitive way of detecting these. Such factors apply in principle to individuals and populations. But the handling of information, and consequent decisions, may vary.

"Malnutrition" and "nutritional status" have sometimes been used almost synonymously with low anthropometric measures⁴. This has implied that malnutrition *is* thinness or stunting. The issue goes beyond communication, important though it is, to touch upon the understanding of the problems we are trying to solve. Two steps have been taken to clear the air. First, the U.N. system in 1989 adopted a precise statement on the significance of small body size in populations – known colloquially as the SCN's statement on "big is better". The central point is that the *process of becoming small, rather than smallness itself*, is the concern⁵. This statement is given in box 3 at the end of this article. Second, a more rigorous specification of the causal mechanisms can be made.

This emphasizes that while a poor environment may cause *both* growth failure *and* sickness, growth failure itself does not *lead* to increased sickness. (This is discussed further with Figs 1 and 2 later). Anthropometry is a very useful measure of *both* a poor environment *and* risk of ill-health, death and constrained development. It is a *measure of "nutrition"*, but it is not the same thing.

Because anthropometry is becoming so widely used, for individuals and populations, in crises and for chronic problems, and since there are options of measurement, who to measure, and how to calculate results, the SCN held a working meeting of scientists in June 1989 to put together "State-of-the-Art" recommendations on "Uses of Anthropometry". Much of this article is drawn from the report of that meeting, shortly to be published by the ACC/SCN⁶. The introductory statement of the meeting is given in Box 1.

Appropriate use of anthropometry depends on a correct understanding of the biological processes involved. Child growth and development, and energy balance in children and adults, are two of the main processes.

Energy balance in humans is buffered by body stores, in both children and adults. Food energy intake goes to fuel physiological functions (in children, including growth) and physical activity. Any imbalance is taken from, or added to, the body's stores of energy – stores in fat, as protein (in muscle) and for short-term use as carbohydrate (in the liver and muscle). These stores can be measured as weight. The equation is shown diagrammatically in figure 1. The "energy stores" are labelled "weight-for-height", more precise than weight alone which has a different meaning depending on the individual's height. Thus *changes* in weight, ideally, or if measurements have to be made at-one-time, thinness/fatness as weight-for-height, measure body stores and indicate the energy intake/expenditure balance. In adults, negative energy balance often means hunger and reduced activity, and if persistent means starvation. In children, concern is also for their health and development, and growth as an integral part of this.

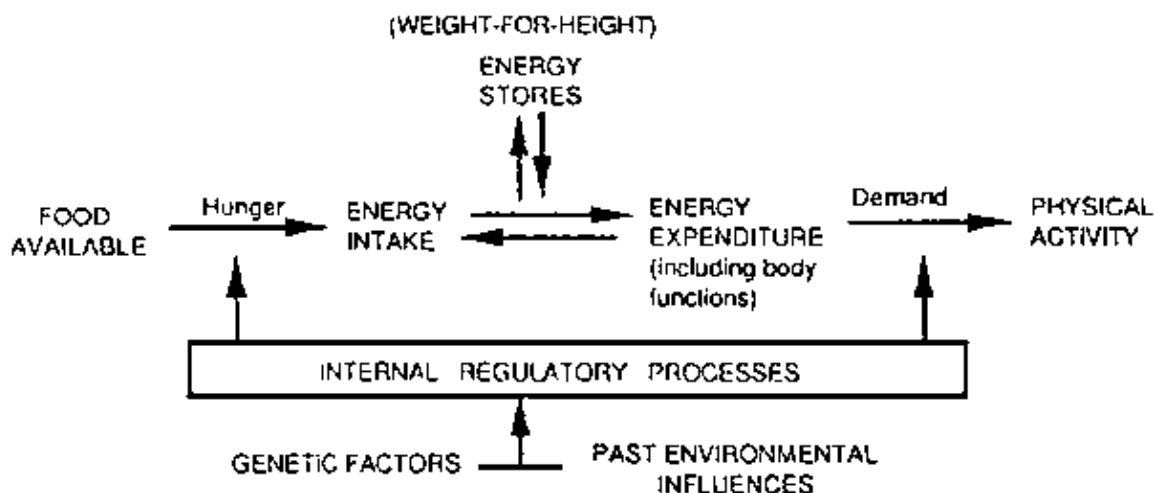


Figure 1. A portrayal of association between weight-for-height and the processes underlying energy balance.

BOX 1

Preamble (from June 1989 Workshop)

"The most extensive public health problem among children in developing countries results from the complex of nutritional, biological and social deprivation that is manifest as ill health, growth retardation, functional disadvantages, and high mortality. Rates of physical growth and achieved body size mark the process of failing to grow and the state of having failed to grow, as such they are generalized markers of the syndrome of deprivation. Height and weight may also be used to mark the development of severe malnutrition in individuals. Anthropometry is particularly useful because it provides:

- a practical way of describing the problem;
- **the best general proxy for constraints to human welfare among the poorest, including causes: of protein-energy deficiency, and environmental health risks;**
- excellent and feasible predictors at individual and population levels of subsequent ill-health and mortality;
- an appropriate indicator of the success or failure of interventions related to a myriad of economic and environmental factors.

Anthropometric information *per se* is non-specific and inadequate for identifying the cause of growth failure; anthropometry's usefulness stems from its close correlation with nutritional outcome and its socio-economic determinants. Because adverse economic and environmental factors lead - largely through dietary inadequacy and infection in poor communities - to growth failure, it follows that interventions may need to be directed at a number of points on the causal chain to effect recovery through improved diets and health promotion."

Source: "Appropriate Uses of Anthropometric Indices in Children". A report based on an ACC/SCN Workshop, 12-14 June 1989, Geneva.

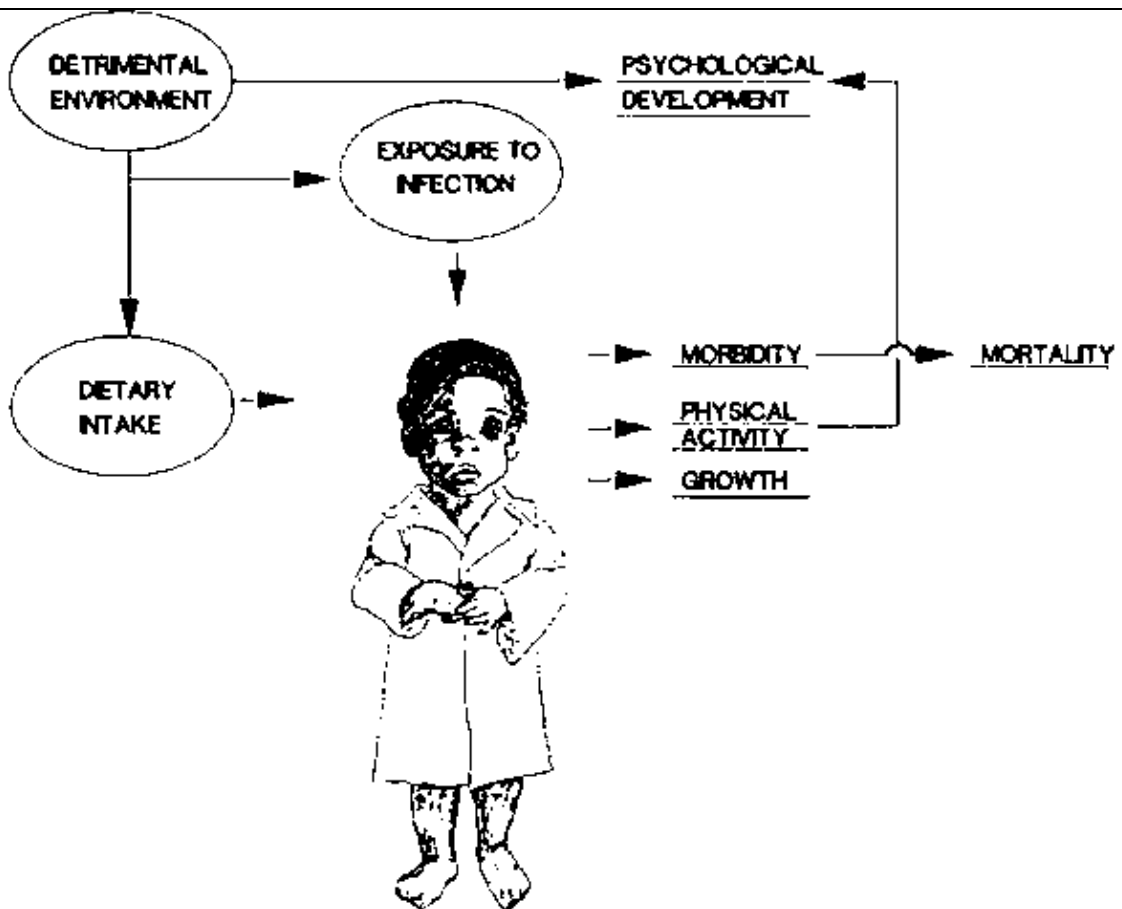


Figure 2. Environmental effects on the child.

The overall relation between diet, exposure to infection, and children's development is shown in figure 2. Mostly this illustrates what is well-known, except importantly that growth is a result *alongside* health and activity. It does not actually *cause* changes in these, but itself has a common precedent in diet and exposure to infection. Analytically, this means that anthropometric measures of growth are *correlates* of other concerns: thus they indicate causes and measure *risk*.

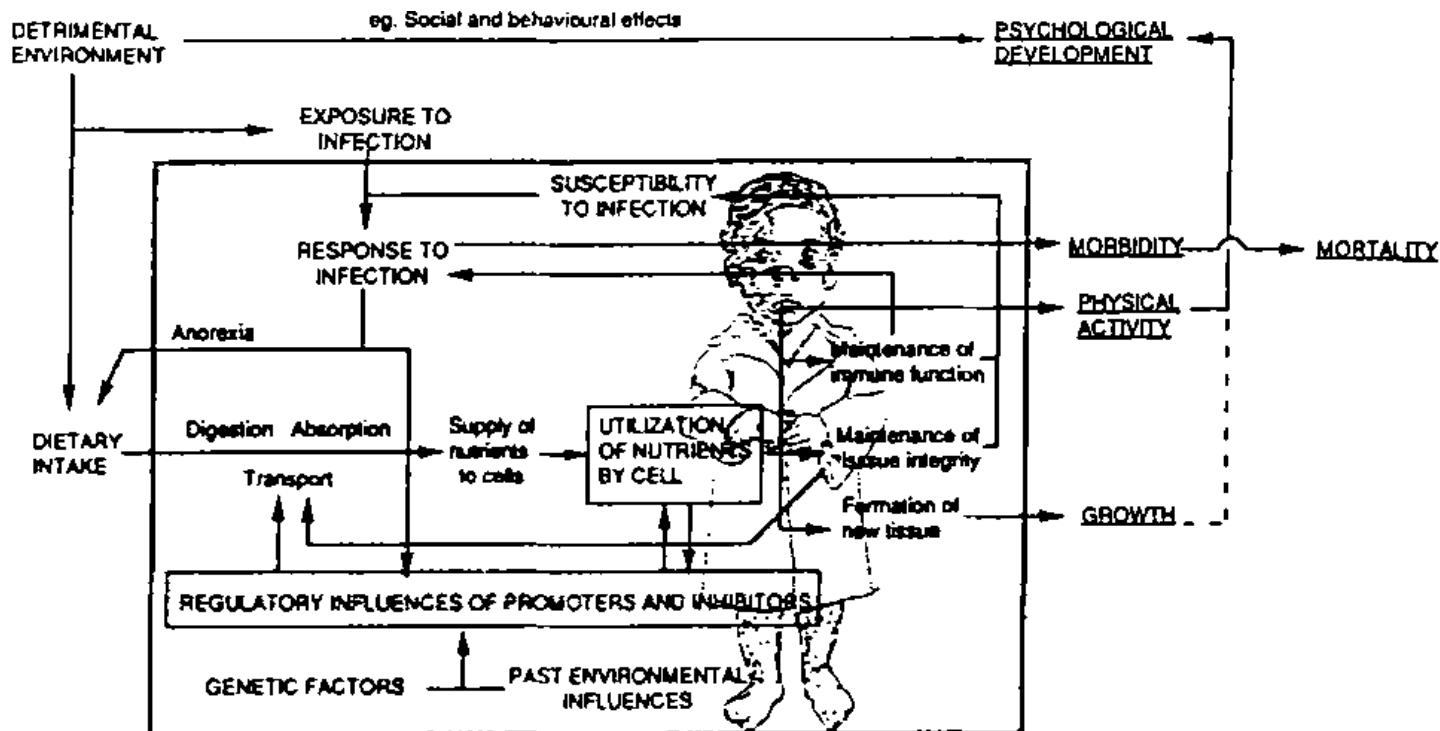


Figure 3. Influence of diet and other environmental factors (outside of box) on physiological processes in children (inside box) and outcomes (on right, outside box, underlined).

The mechanisms whereby diet and exposure to infection affect growth and development are now well understood, but the implications of these for interpreting anthropometry at different ages are only now being adequately stressed. For example, children of over two years old whose growth has been constrained may only slowly catch-up in height – if at all; but their body stores, fatness, may become normal for their height. This new emphasis on modifying interpretation by age is highlighted in the "Uses of Anthropometry" report. The mechanisms are shown in figure 3, where "past environmental influences" (last line in the box) refers to this effect.

The mechanisms shown in figure 3 are established physiology, but some of the feedback loops in particular merit renewed emphasis as central to the "malnutrition/infection" complex⁷ We can start with food intake, already influenced by infection by the common response to sickness of reduced appetite (anorexia). The digestion, absorption and transport of nutrients is affected by tissue integrity, itself requiring an adequate supply of nutrients at the cellular level; and also important in disease resistance. The supply of nutrients to cells and their utilization affects immune function, cycling back to mediate the response to infection. Finally, this supply affects tissue formation and hence growth.

The two large-scale aspects of growth, easily observed, are linear growth – height and frame – and body tissue (beside bone). (Microscopic aspects, such as tissue integrity, are not easily observed, but pathology is unlikely in the absence of growth failure where lack of dietary energy is the problem.) Thus the two main purposes of anthropometric measurement are to assess linear growth, and body mass given linear growth. These are commonly known as stunting and wasting (or thinness). These are of concern in different circumstances: very broadly, thinness in critical situations, and stunting in chronic deficits. Added to this, age must be considered.

Deficits in height take time to develop. Typically, a child in a bad environment will fail to grow as well as his well-nourished peers in both weight and height. But by age two it will be difficult to tell if the stunting is due to *current* or *previous* problems. Hence for immediate intervention thinness is more useful. A second complication is that by two years (or so), height deficits are difficult to reverse (because maturation has continued) – but this is less of a concern in itself, as it was the *process* of becoming stunted, not the stunting

itself, that is the issue. The main message is that interpretation of anthropometric measures depends on age; and the distinction is usually made at around 2 years old.

The causes of wasting and stunting change with age, so the responses must too. At birth, infant weight and length are determined by maternal factors – including nutrition – and by whether the infant is full term. Interpretation of birth weight must take these into account. During the first 4 to 6 months, breast-feeding practices and maternal health (and ability to take care of the baby) are major influences on growth; growth failure at this early stage, less common than later, must be interpreted in this light. From around six months to two years, weaning practices and exposure to infectious disease have a crucial effect. As the age of the child increases, access to household food may have more importance; growth failure here, although often less pronounced, may begin to be more related to poverty, as breast-feeding and weaning practices have less influence.

What we are trying to measure, when and why

Anthropometry is aimed at measuring wasting, or thinness; and stunting, or retardation in linear growth. The proper measures for these two processes are weight-for-height, and height-for-age. Thinness and stunting are indications of undesirable environment, and of risk of poor development, ill-health, and death, with specific uses in situations ranging from crisis to chronic deprivation. The *responses* to crisis differ from those to long-term problems. So the relative importance of assessing thinness vis-à-vis stunting depends on the circumstances and what is to be done.

Alternative measures of stunting and thinness are widely used. Weight-for-age, or growth measured by weight changes over time, is by far the commonest measure. Arm circumference is popular, for its apparent ease of measurement. These two are not precisely alternatives to height-for-age and weight-for-height; but they tend to correlate with these – weight-for-age with height-for-age; arm circumference with weight-for-height. They are useful as such, but less easy in interpretation, at least as at-one-time measures. Their utility also depends on severity. Their use as alternatives is referred to here, but not as primary measures.

Using anthropometry for screening individuals for attention, for targeting, and for assessing programme impact in populations, raises the question of whether success in response should be expected by the *same* anthropometric criteria. Generally, this would be so. Thin children, when fed, should gain weight. But in practice, there are complications, for several reasons.

One example is when only slightly thin children are selected into a programme – for example using a weight-for-height cut-off of 90% of standard. These children may have limited potential for weight gain, and evaluation *on this basis* may be disappointing. Although the children may well have benefitted in terms of increased physical activity, or they and their families from the income transfer in a food distribution programme, this may not be well assessed by weight gain.

A second possibility is that, for example, feeding thin children may be ineffective if the main cause of thinness is not food deficit. In most cases increasing dietary intake will in practice help considerably – even when for instance diarrhoea (see article in "News and Views"), malaria, or respiratory infections are the cause; in other cases, for example AIDS or tuberculosis, food may be of less use.

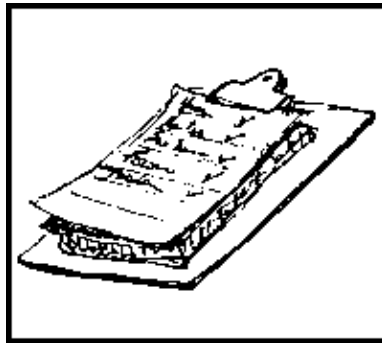
In older children especially, stunting may usefully identify individuals or populations needing intervention, but this may not change much the anthropometric measure, as stunting becomes partly irreversible. The benefits of feeding stunted children may be that activity and immunity (see figure 3) improve, even if the children are too old to regain lost height growth. Such children do not "respond" in terms of anthropometry, but benefit in other ways.

Different measures for different uses

Three distinctions define uses and appropriate measures: individual versus population assessment; whether measures are taken only at-one-time or repeatedly; and where the situation – individual or population – is in the range from crisis or emergency through to chronic deprivation, and the related decisions on intervention. Within these, the ages of children have an influence. The conclusions are described here under headings of: screening (individual assessment, measured at-one-time); growth monitoring (individual, over time); population survey (population level, at-one-time); and nutritional surveillance (population level, over time). Clearly anthropometric measures can be used for individual and *then* population assessments: screening can give situation assessment, with due regard to sampling issues; growth monitoring results can be aggregated

for surveillance purposes.

Screening



Selecting individuals for admission to a programme – supplementary feeding is the main example used here – is called "screening". Anthropometry is widely used for nutrition and health programmes, partly because it provides direct, objective measures, often to supplement clinical judgement or as a screen that can be done by less-trained staff. Here again the appropriate measure depends on the use, in the range from crisis to chronic problems.

Emergency situations Acute food shortages, triggered by drought, floods or conflict, frequently lead to large numbers of people requiring assistance. Often resources are inadequate to fully deal with the numbers involved. How then to select those – particularly children – who most urgently need help? First, *why* are they selected?

In acute emergencies the primary need is to prevent deaths, then increased sickness, by food and medical attention. Under these circumstances, the thinnest children are the most at risk. Weight-for-height is the best measure. The next question is at what cut-off level of thinness – of deficit in weight-for-height – should it be decided that a child needs (for example) supplementary feeding, or intensive (therapeutic) feeding?

Hard and fast rules cannot be laid down (the meeting recommended) for all conditions. *In principle*, if resources – of food, medicines, personnel, and so on – are quite inadequate to cope with the influx of people, then the cut-off should be lowered to select the most severe cases. That's common sense, but difficult in practice in a crisis when frequently the numbers involved at the time – let alone what happens tomorrow – are not clearly known.

In this case, as well as when resources are less constrained and better organization is possible, conventional cut-offs defining "malnutrition" and associated mortality risk were considered to provide useful guidance. Cut-off levels put forward by WHO in 1978⁸:

- severe risk (defined as severe PEM) at less than 70% weight-for-height;
- moderate risk at 70% – 80% weight-for-height.

(standard deviation or Z-scores, if used, are approximately: -2 S.D.'s = 80%, -3 S.D.'s = 70%; standards are NCHS/WHO)

Severe risk (or PEM) requires very urgent attention, and probably intensive feeding. Moderate risk requires attention very soon – partly to avoid deterioration to severe – usually including supplementary feeding. The measures and criteria apply particularly to children under 5 years, but older children who appear wasted should be similarly screened.

In emergencies the equipment and trained personnel for weight and height measurement may be inadequate or non-existent. Arm circumference was considered a possible substitute, particularly when wasting is extensive. (Arm circumference measurement also requires some skill and time: the mid-point of the upper arm must be measured, the arm must be relaxed, the tape must just lie on the skin, not too tight or loose, and so on. But it can be considerably quicker than weight and height.) Again, the conventional cut-offs (for under-5's) provide guidance (see note 8), as follows:

- severe risk at under 12.5 cm;
- moderate risk at 12.5 to 13.5 cm.

A multi-stage screening process, recommended by UNICEF⁹, seemed a useful procedure with a heavy case-load. This involved an initial screen by an arm circumference of less than 14.0 cm, followed by weight-for-height and clinical judgement. Again, weight-for-height of less than 70% of standard should receive intensive feeding; 70 – 80%, supplementary feeding.

Non-emergency nutrition programmes Criteria for selecting children for regular nutrition programmes – for example, food supplements and nutrition education – differ somewhat from emergencies. The concern is less for immediate mortality risk, but for ill-health, reduced activity and development. Wasted children should still be included, but stunted children (who may not be wasted) may also benefit. Research shows that in the longer-term (over months or years), stunting is generally a better predictor of mortality risk than wasting in children aged less than 2–3 years¹⁰. Including stunting as a selection criterion in practice thus applies particularly to children under two.

The preferred anthropometric measures proposed for selection into nutrition programmes were thus:

- children under 2 years: admit those with low weight-for-height (thin, wasted) or low height-for-age (stunted).
- children of 2 – 5 years: admit as priority those with low weight-for-height; if resources permit, stunted 2–5 year olds may also benefit. (They are likely to be continuing to have relatively low dietary intakes, which may be affecting at least activity and development – but note that this benefit may not be shown in reversing the stunting.)

Again, general recommendations cannot be made as to what constitutes "low" values of weight-for-height or height-for-age. This depends on resources, and if these are very limited the cut-off should be lowered to at least take in the most severe cases. Otherwise, the conventional cut-offs of 80% for weight-for-height (or –2 S.D.'s) and 90% for height-for-age (this is also –2 S.D.'s) may be appropriate.

A further issue is: what to do if height cannot be measured? Alternative screening criteria considered roughly equivalent to those given above were:

- children under 2 years: low weight-for-age (e.g. less than 80% of standard, or –2 S.D.'s)
- children 2–5 years: low arm circumference (e.g. less than 13.5 cm) or low weight-for-age (e.g. less than 80% of standard, or –2 S.D.'s).

Selecting for long-term risk and household-level intervention For long-term prevention, with the emphasis on providing assistance to the household, anthropometry is useful for identifying badly-off families and their children at most risk. In this case stunting in children from 0–5 years is the main criterion – differing from the previous case in not specifically selecting for wasting (the intervention, being long-term, is probably too slow to deal with this).

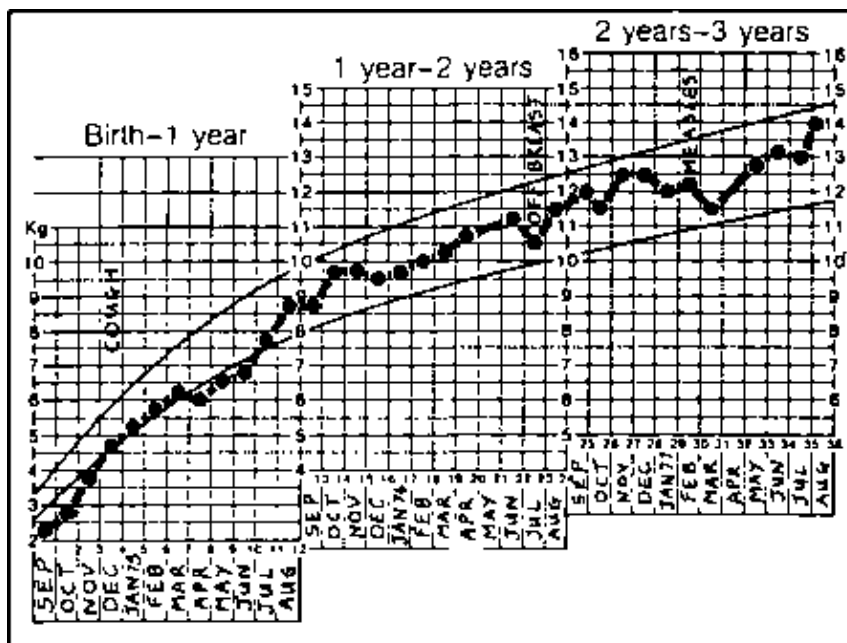
The criteria proposed are thus to select households with children, both 0–2 and 2–5 years, with:

- low height-for-age (e.g. less than 90%, or –2 S.D.'s).

If height cannot be measured, then a substitute is:

- low weight-for-age (e.g. less than 80%, or –2 S.D.'s).

Growth monitoring



Growth monitoring involves following changes in a child's weight on a growth chart. Growth charts are widely used for healthy children, under the normal circumstances of growing up, in both developed and developing countries. This early and continued use gives them a particular advantage for prevention. Thus, ideally all children should be regularly weighed and the results kept on growth charts. In practice, certainly all children enrolling in health and nutrition programmes should be issued with growth charts, and mothers motivated to ensure regular weighing – preferably every month but at least every three months. While priority is generally correctly given to children under five years, where resources and facilities exist it could well be valuable to continue growth monitoring through puberty; this would specially apply to young girls, where there is particular importance for ensuring as much growth as possible before puberty, to reduce inter-generational effects of small mothers having small babies – i.e. as a means of reducing low birth weight incidence in the long run.

Indications of growth faltering are useful for early detection of health and nutrition problems in children. But indications of growth failure alone are not readily related to specific causes, and often more information is needed to decide on the response. Growth monitoring also has the advantage of recording responses to intervention. In general, growth monitoring may provide for earlier detection of the need for intervention than screening measurements. Moreover, the trend measurement can distinguish children of adequate achieved size who are running into problems. Descriptions of growth monitoring methods are widely available¹¹.

The meeting, endorsing current practices in growth monitoring, drew attention to certain aspects requiring new focus.

The rapid changes in early life mean that interpretation of growth faltering – detected by serial weight measurements – depends heavily on the child's age. At the same time, criteria for defining *when* growth faltering is occurring, at different ages, have not been standardized, although a number of useful schemes exist. One set of criteria¹² is as follows:

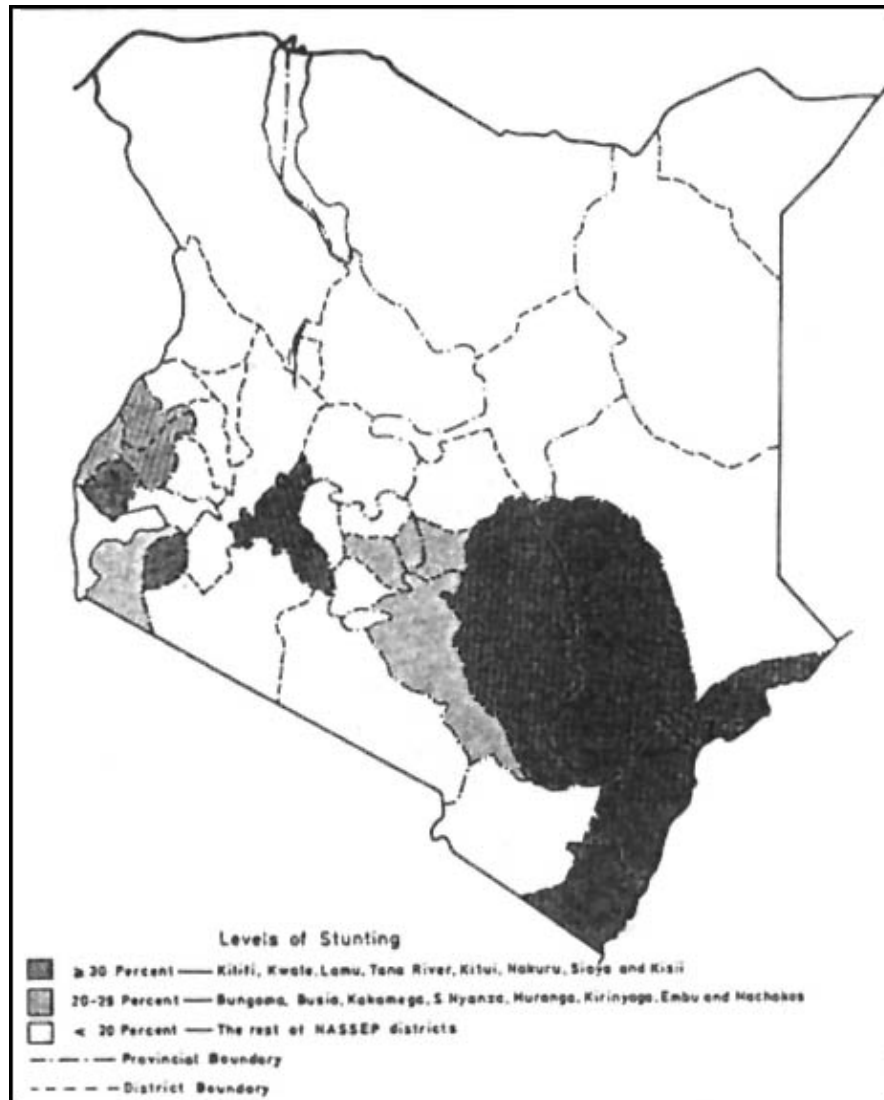
- age zero to four months: gains of less than 0.5 kg. per month;
- age six to 15 months: three horizontal or falling monthly weights, even if they are *within* the "road to health" area (usually from -2 S.D.'s or 80% of median, to the median);
- age 16 to 60 months: three horizontal or falling monthly values *below* the "road to health" area; any loss of weight of more than one kg. in a month;
- any value found more than 2 kg. below the "road to health" area.

A practical difficulty in assessing growth rates stems from normal fluctuation in body weight over short time periods. This may be due to changes in hydration, before/after a meal, etc. This variation can be significant, up to even 50% of expected normal monthly weight change, and complicates interpretation. An example of one approach to ensuring that genuine growth faltering is detected is in the Tamil Nadu Integrated Nutrition Project. Here, three sequential measurements, one month apart, followed by a fourth for confirmation, are the

basis for a decision that growth faltering is happening.

The use of growth monitoring extends beyond problem detection. It has been used to provide a basis for communicating with mothers and with health workers, concerning child health and nutrition, and to stimulate thinking about the causes of poor growth and malnutrition. This in turn has led to action at the level of the household and of the community itself. The meeting emphasized that the usefulness of growth monitoring depended on the weighing procedure never becoming an end in itself – the information must be understood and communicated, and action taken where indicated. Constant attention to this principle is essential. Then growth monitoring will come to be a cornerstone of individual child care.

One-time population assessment



Anthropometry readily indicates adverse conditions of environment and poverty, *and* shows risk of preventable suffering – death, ill-health, and constrained individual activity and development. The use of anthropometry in surveys and surveillance (see later) capitalizes on both these functions, with varying emphasis depending on the decisions to be made. We can refer to these uses as *proxies* for environmental and socio-economic factors; and as indicators of future *risk*. (This is implicit in figure 3.)

Using anthropometry at population level introduces new considerations. To begin with, the concerns need to be defined, again ranging between crises for immediate intervention, and for long-term programmes. Very generally, as for individuals, wasting is the required measure in emergencies, and stunting for long-term problems. However, estimates of wasting and stunting can give very different answers: for example, prevalences of wasting and stunting in different population groups within a country usually show *no* correlation. Hence quite different priority rankings may be obtained using these different indicators – depending also on cut-offs used. This again emphasizes that we must distinguish situations of crisis from those of long-term deprivation, and make decisions accordingly.

Sampling is a central concern in population assessment, methods also depending on the uses of the information.

For population assessment, measurements need to be summarized. Thus the individual assessment turns into a *proportion* at risk, or *prevalence*. Generally, cut-offs chosen for population assessment are, logically, similar to those for individuals. But presentation of results becomes important, and other information may be included.

Assessment in emergencies The usual emergencies where malnutrition is of major concern are acute food shortages – circumstances similar to those discussed for the first screening use of anthropometry. The assessment is required generally to help answer such questions as: how severe is the food shortage? how many people are affected? who and where are they? The information may be needed to make urgent decisions on relief and on preventing further deterioration, as well as for assessing future needs.

First, it is obvious that anthropometry provides neither early indicators in a food crisis, nor by any means the only information required. Reports of drought, measures of crop failure, population movements, distress sales, and prices, are all examples of earlier relevant indicators. Anthropometry has a role in measuring human needs.

When the concern is hunger and starvation in an emergency, wasting or thinness should be assessed. Severe wasting is related to increased mortality, and results from inadequate food and disease.

Two issues arise here in interpreting the wasting. First, the cut-off to define wasting itself. Second, what the resulting prevalence means – including "trigger levels" for initiating action. The common practice, considered appropriate, is to use the indicator of:

- prevalence of less than 80% weight-for-height (or -2 S.D.'s) of under 5 children in a sample of the vulnerable population.

This general rule will vary with local circumstances and prior information. As examples, a narrower age-range may be known to be more vulnerable; an additional lower cut-off point may be appropriate to draw attention to very severe cases.

Interpretation of a prevalence of wasting – has it reached emergency level? – requires some knowledge of non-crisis conditions. Preferably, a prevalence level at which action will be "triggered" should be decided prior to a survey. No *general* level of wasting that indicates emergency can be specified. This depends too much on local circumstances. The meeting recommended that previous experience in emergencies should be compiled. Until this is done, if there is a lack of information, survey data compiled by WHO may provide guidance¹³, and some illustrations are given in box 2. These indicate, for example, 5–10% prevalence of wasting (here, less than 2 S.D.'s) in African countries in normal times – around 12% in Sahel countries; rising to substantially higher levels (e.g. 35–40%, Somalia, Sudan) in times of drought. But seasonal effects may be strong (see SCN News No. 4 pages 1–4) and must be considered.

Arm circumference is a possible alternative to weight-for-height in surveys to assess emergencies. Its predictive value for short-term mortality risk is less well-established, however; cut-off points and common prevalence levels below these are less well-known.

Selecting a sample for population assessment in emergencies may be especially difficult. Constraints of time, migrant populations, remoteness, and others, militate against rigorous sampling procedures. Attempts should be made to use some kind of sampling frame such as lists of villages, with population estimates. Usually deliberate sampling of areas or people most likely to be affected will be appropriate, but it is important to have some idea of the populations to which the results refer. Use of even rough population data to select a sample (or sample sites) is better than haphazard selection. In presentation of results, some judgement as to whom the data refer to has to be made.

Assessment for long-term planning Inserting nutrition considerations in planning – for economic development, for agriculture, for health and other social sectors – requires data some of which can be provided by anthropometry. Here especially, anthropometric measurements may be useful both as proxy measurements of poverty and poor environment – themselves causes of malnutrition – and as indicators of risk of mortality, ill health and constrained child development – as human outcomes central to planning for socio-economic development.

Causes of growth failure are age-dependent. For example, where the concern is mortality risk of young children, the age group of priority would be from birth to two years, and the interventions would be aimed at mothers, infants and young children. In looking at the relationship between weaning practices and early growth faltering the key period is from 6–24 months. For more general economic planning, development of health services, etc., a wider age range may be selected, for example 0–60 months.

BOX 2 Illustration of wasting prevalences (% <–2 SDs weight–for–height)

Country	Prev. %	Country	Prev. %	Country	Prev. %
Botswana	6	Burkina Faso	12	Bangladesh	16
Burundi	6	Mali	11	Burma	11
Ethiopia	12	Niger (Drought)	23	India (Tamil Nadu)	21
Kenya	5			Thailand	6
Lesotho	5	Cameroon	2		
Malawi	3	Congo	5	Ecuador	2
Somalia (Drought)	40	Cote d'Ivoire	9	Peru	1
Sudan (Drought)	36	Ghana	7		
Tanzania	5	Nigeria (Drought)	21		
Uganda	4	Senegal	6		
		Zaire	5		

Source: taken from WHO (1989), "Global Nutritional Status, Update 1989"; results are to illustrate common prevalences of wasting, generally in 6 to 60 month old children in 1980's.

The recommended measurement for these purposes is:

- height–for–age, with the age–group depending on the specific issue as discussed above; for presentation, prevalences may be used, conventionally below 90% of reference or less than 2 S.D.'s; for examining associations with causal factors, the actual percentage of standard or Z–score (deficit in height as proportion of standard deviation of references at that age) is more often used, as a continuous variable.

Should height–for–age prove not feasible to collect, weight–for–age may serve as a substitute, although it is less well related to presumed causal factors. Here again prevalences may be used in presentation; and percentage standard or Z–score for detailed analysis. Arm circumference has been cited as relating well to long–term risk of mortality and to morbidity, and is a possible substitute for weight–for–age.

As an indicator of potential problems in the first year of life, birth weight is clearly important. (Birth length may in fact be better than birth weight as a proxy for perinatal and neonatal risk.) The usual problem with birth weight (or length) is availability and representativeness. Should coverage be less than say 60%, then its reliability must be suspect.

Adult anthropometry is becoming more widely used. Hitherto, mothers' weight gain during pregnancy has been the commonest measure, for individual assessment. Now, with concern for women's nutrition, as well as for adult men, measures such as "Body Mass Index" (BMI), calculated as weight (in kg) divided by height (in metres) squared, are coming into use. The meeting noted that cut–offs had been suggested for BMI of 18.5 – above which chronic dietary energy deficiency is unlikely; 16.0, below which chronic energy deficiency is very likely; and in the range of 16.0 to 18.5, further information on diet is needed¹⁴. (These values do not apply to pregnant women.)

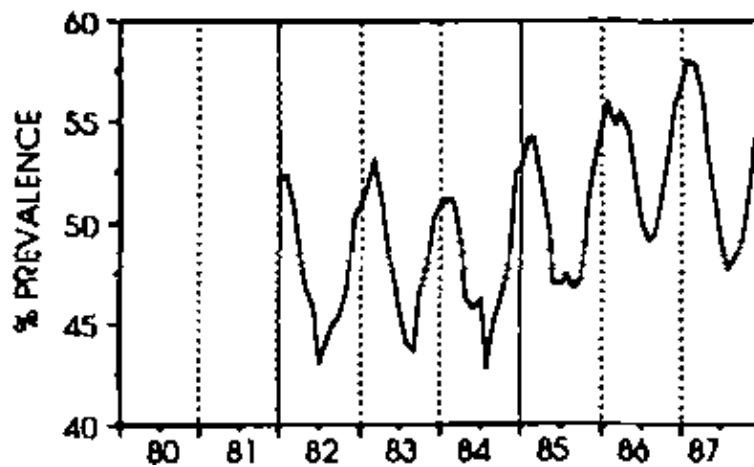
Sampling methods for surveys for these purposes can often – and certainly should – be rigorous. Time devoted to correct sampling procedures will be well–spent, because use of results frequently depends on clearly attributing them to specific population groups, and on assessing credibly differences between these –

often to specify who is most affected.

In practice, one-time surveys have most often proved useful for this purpose – showing which groups are most affected. Categories like administrative area and by urban or rural location have been important, for targeting and analysis. Other socio-economic breakdowns have proved informative: land-holding area, education level, housing and sanitation, and access to services are examples of associations commonly found. Generally prevalences of stunting or underweight by such categorization have been the main findings of large-scale – often national – surveys; for example, in the "functional classification" approach¹⁵. More complex multiple associations have been demonstrated particularly in intensive more focussed surveys.

An emerging analytical method is worth noting, where rather than cut-offs to define prevalences the overall distribution of results – say height-for-age Z-scores – is compared with the distribution in the reference population¹⁶. The area falling between the observed and the reference is then regarded as the excess prevalence of growth retardation. A striking example from a recent large survey in Brazil is shown in Fig. 4. Advantages include doing away with the need to define a single arbitrary cut-off, and sharpening differences between groups.

Nutritional surveillance



Surveillance systems – in public health, nutrition, or other subjects – link information with action, often pre-defined. For example, reports of cholera led to swift measures to immunize, deal with water and sanitation, and provide emergency treatment. Nutritional surveillance uses anthropometry in different ways depending on the problem and reaction – uses yet again distinguishable in the range from crisis and emergency to long-term development. A common feature of surveillance is that data are available repeatedly over time. A few resulting principles can be quickly put forward.

The *timing* of the information is critical to the response. This affects the indicators chosen.

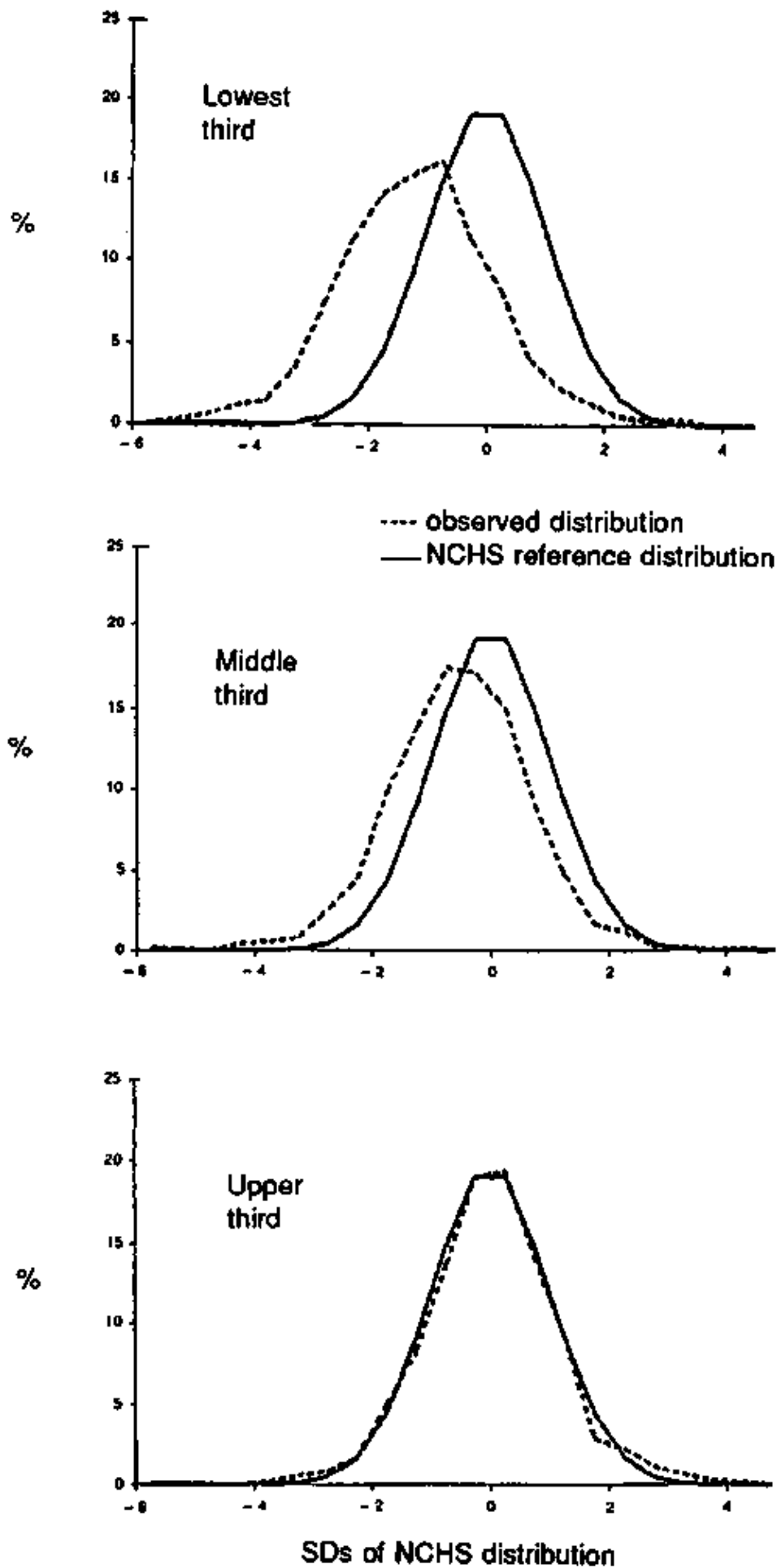


Figure 4. Distribution of height-for-age of 0-10 year-olds by tercile (third) of income groups, Brazil, 1989.

Source: Pesquisa Nacional sobre Saude e Nutricao. Resultados Preliminares. INAN, Brazil, March 1990. (Kindly provided by Dr C. A. Monteiro, FSP/USP).

Decisions are made based primarily on *trends*, rather than one-time prevalences: this gives much better focus on what is happening, and is also more powerful politically. The aim of determining trends means that samples must be self-comparable – representative-ness is desirable but now not the only question – moreover in terms of age composition as well as population drawn from. For practical reasons of data availability, an eclectic range of sources may be used – ranging from clinics, sentinel sites and schools, through to repeated modules in wider-purpose surveys. This leads to new analytical methods.

The varied uses of anthropometry can be considered – as at the meeting – under conventional headings from timely warning to long-term planning¹⁷.

Timely warning Response to acute food shortages early enough to prevent hunger and malnutrition is one aim of "early warning systems"; the designation "timely" is used in this context to stress that the information must be "early enough": that indicators relate to response. Increases in prevalences of wasting (for example) are precisely one of the outcomes the warning is meant to prevent. Hence the two main uses of anthropometry in timely warning are, first, to give a basis, by analysis of *past* events, for selecting effective early indicators – from rainfall, agricultural, or economic data, for example. And second, to provide a rapid if rough "fail-safe" *current* monitoring of nutritional conditions, for targeting and urgent additional response to needs.

In both cases, the anthropometric measure most relevant is *wasting* in the vulnerable population – as discussed for emergencies under "screening" and "one-time assessment". There is an important practical proviso, since trends are monitored. *Rapid* changes in weight-for-age in the population, usually detected as prevalences of *underweight* (e.g. less than 80% or 2 S.D.'s of reference) are likely to be due to wasting, not stunting. This means that the commonest anthropometric data, from weight measurements in clinics (for individual assessment and growth monitoring) can be used for this purpose: a rapid increase in proportion of underweight children may be a legitimate sign that food shortage is causing wasting.

Historical time series of changes in underweight (or other variables,) have been used effectively to select and validate early indicators. Not only the measure – e.g. crop conditions – but the cut-off points and warning levels – can be analyzed, with respect to what actually happened. Examples from Botswana and Indonesia demonstrate this¹⁸. More recently, steep rises in food prices have been shown to precede increases in underweight or wasting prevalences in a number of African countries in times of drought and economic stress¹⁹. The example of Ghana was shown in SCN News No. 4, pages 2–3. Food price based indicators may become increasingly important, also for monitoring effects of structural adjustment and compensating for short-run consumption effects on vulnerable groups²⁰.

For "real-time" monitoring within a timely warning system wasting is usually the condition of concern and weight-for-height is the appropriate index. Weight-for-age is a serviceable substitute and is most widely used at present. Reporting will be in terms of trends in prevalences based on weight-for-height (preferably), or weight-for-age. As noted, rapid changes in weight-for-age will be due to changes in wasting. Arm circumference, which can be considered for screening in emergencies, may be an adequate substitute for weight-for-height for estimating prevalences of wasting—Data are usually presented as trends in prevalences below the cut-off point. In this case, trigger levels for intervention may be related to *changes* in prevalence, not to absolute levels of prevalence itself, and therefore the choice of cut-off point is not critical but must be used consistently. Typically this will be –2 S.D.'s below the median using either internal or external references. No universal criteria for judging the rate and scale of prevalence change can be offered; local experience based on previous nutritional emergencies can provide guidance.

For long-term planning and programme management For these purposes longer-term trends in anthropometry are of interest, because the action generally is establishing and managing programmes, and/or policies for economic and service development. Trends in height-for-age or weight-for-age indices, by population group, are usually appropriate. Height-for-age (in particular) is the index most closely related to economic and environmental factors (albeit lagged), that development policies and specific programmes are to improve.

Height-for-age is also the better anthropometric predictor of mortality for young children in the longer-term (months or years), and growth performance thus measured correlates best with other aspects of child welfare (shown in figures 2 and 3), including individual development.

Viewed over months and years, trends in child height (and weight) give useful focus on progress or deterioration, for the national population and for groups within this. Many examples are given in the SCN's Update report²¹, some of which were quoted in SCN News No. 4. Comparing across countries, we can get a better sense of what is happening from such data; more so within countries.

The population to be measured again depends upon whether, for example, specific interventions or more general inputs to development are intended. The latter circumstance implies a need for broadly based, representative samples, covering such groups as preschool children, school entrants, and adults. It is vital that samples are comparable over time if trends are to be assessed.

Accounting for observed trends is the next step, preferably linked to targeting. Accounting for possible causes may be difficult analytically. One specific case where linkage to inputs and related decisions is relatively straightforward is within programmes with clear nutritional objectives.

As described in SCN News No. 4 (pages 14–16) quite a number of large-scale long-standing nutrition programmes now exist. Many of these anyway collect anthropometric data (most often, weight-for-age), as part of regular activities – for selecting participants for example. These results can be used both to track overall progress – including for evaluation – and to guide activities – for targeting, say. Results we quote in the "Update" report (page 99) from a project in Iringa, Tanzania, provide an example. Here, trends in underweight were estimated to have fallen during – and probably as a result of – project activities. These data were used within the project, for selecting and targeting, and as experience accumulated, to prepare for extension.

Different examples come from Central America, where school surveys – of height-for-age of school entrants – have been repeated over the years, to track trends and give information for new programme activities.

The meeting essentially endorsed such current uses of anthropometry for long-term surveillance. The need now is to continue application, as a basis to producing more effective and sustained support for combatting malnutrition.

–J.B.M.

Participants in the ACC/SCN workshops on 12–14 June 1989 were: G. Beaton, W. Bertrand, F. Falkner, P. Greaves, J–P. Habicht, A. Kelly, J. Kevany (Chairman), M. Lotfi, R. Martorell, J. Mason, A. Pradilla, F. Trowbridge, J. Waterlow, R. Weisell. Extensive comments and suggestions for this article from R. Martorell are gratefully acknowledged.

NOTES

(1) FAO, *Fourth World Food Survey*, p 30, FAO, Rome, 1977.

(2) *Summary of Current Country Activities in Nutritional Surveillance*, A. Kelly, ACC/SCN 16th Session paper (90/N Svl), 1990; plus internal update March 1990.

(3) UNICEF, *State of the World's Children*, 1982–3, 1984, UNICEF, New York.

(4) FAO, *Fourth World Food Survey*, footnote 1, p 29; FAO, Rome, 1977.

(5) ACC/SCN, *Report of 15th Session* (Feb 1989); paras 19–21, ACC/SCN, Geneva, 1989.

(6) *Appropriate Uses of Anthropometric Indices in Children*, A report based on an ACC/SCN Workshop, 1989, ACC/SCN, Geneva – forthcoming.

(7) *SCN News No. 4*, p 7; *Malnutrition and Infection: A Review*, ACC/SCN State-of-the-Art Series, Nutrition Policy Discussion Paper No. 5, by Andrew Tomkins and Fiona Watson, ACC/SCN, Geneva, 1989.

(8) *The Management of Nutritional Emergencies in Large Populations*, de Ville de Goyet, C., Seaman, J., Geijer, U., WHO, Geneva, 1978.

(9) *Assisting in Emergencies: A Resource Handbook for UNICEF Field Staff*, UNICEF, New York, 1986.

- (10) Bairagi, Radheshyan, Mridul K. Chowdhury, Young J. Kim and George, T. Curlin, 1985 *Alternative Anthropometric Indicators of Mortality*, American Journal of Clinical Nutrition, **42**: 296–306.
- (11) Lotfi (1988), *Growth Monitoring: A brief literature review of current knowledge*, Food and Nutrition Bulletin, vol. 10, No. 4, p 3–10; Yee and Zervas, 1987 *Issues in Growth Monitoring and Promotion*, LTS/International Nutrition Unit, In: Growth Monitoring Information Packet, Washington DC: American Public Health Association, Clearing House on Infant Feeding and Maternal Nutrition, 1987, and special edition of the Indian Journal of Pediatrics (Vol. 55, No. 1, 1988)
- (12) Stevany, J. (1982) *Standardized Interpretation of Under Fives Weight Curves*, Tropical Doctor **12**, 133–135.
- (13) WHO *Global Nutritional Status, Anthropometric Indicators*, 1987; WHO *Global Nutritional Status, Anthropometric Indicators, Update*, 1989, WHO *Weekly Epidemiological Record*, Part I, No. 7, 1987, pp 37–38; Part II, No. 8, 1987, pp.45–50; Part III, No. 9, 1987, pp.57–59. Part IV, No. 10, 1987, pp.64–6; Part V, No. 11, 1987, pp.71–73; Part VI, No. 12, 1987, pp.78–80.
- (14) *Definition of Chronic Energy Deficiency in Adults*, Report of a Working Party of the International Dietary Energy Consultative Group, W.P.T. James, Anna Ferro–Luzzi and J.C. Waterlow, European Journal of Clinical Nutrition (1988) **42**, 969–981.
- (15) *Food and Nutrition Planning*, Joy, J.L. & Payne, P.R., FAO, Rome, 1975 (FAO Nutrition Consultants Reports Series, No. 35).
- (16) Mora, J.O., *A New Method for Estimating a Standardized Prevalence of Child Malnutrition from Anthropometric Indicators*, Bulletin of the World Health Organization, **67**, (2): 133–142 (1988). **245**
- (17) *Nutritional Surveillance*, J.B. Mason, J.–P. Habicht, H. Tabatabai, V. Valverde, WHO, 1984.
- (18) (a) *Timely Warning and Intervention Systems for Preventing Food Crises in Indonesia*, Brooks, R.M., J.–P. Habicht, D.F. Williamson, Food and Nutrition (FAO), **11** (2), 37–43, FAO, Rome
 (b) Brooks *et al* Cornell University Press (forthcoming).
 (c) *Using Agricultural Data for Timely Warning to Prevent the Effects of Drought on Child Nutrition in Botswana*, J.B. Mason, J.G. Haaga, Tshire O. Maribe, G. Marks, Victoria J. Quinn & Karen E. Test, Ecology of Food and Nutrition, Vol 19, pp. 169–184, 1987.
- (19) ACC/SCN, 16th Session documents: *Economic Indicators of Access to Food and Nutritional Status*, Hamid Tabatabai, ILO, SCN 90 Str Adj B, 1989; *Forecasting the Prevalence of Underweight Children*, Alan Kelly, ACC/SCN, SCN 90 Str Adj C, 1989.
- (20) ACC/SCN, 16th Session document: *Suggested Approaches for Nutritional Surveillance with Particular Reference to Structural Adjustment*, SCN 90 Str Adj A, 1989.
- (21) *Update on the Nutrition Situation, recent trends in nutrition in 33 countries*, ACC/SCN, 1989.

BOX 3

Extract from: ACC/1989/PG/2

English

page 7

C. The Significance of small body size in populations

19. There is a debate about the concept of "small but healthy" concerning whether small body size is in itself significant for a lasting normal life. The implications of this for policies could be far-reaching, because of the widespread failure of populations of developing countries to reach genetic potential.

20. The Sub-Committee examined the issue and approved the following statement to ACC:

"The human response to adverse conditions during early life is a slowing of normal physical growth and development. When this failure of growth occurs in early childhood, it can persist throughout life, as smaller stature and weight in comparison to values seen in unconstrained populations.

"It is the factors associated with the process of becoming small, not the state of being small, that are the real concern, albeit both are marked by achieved size. Although the small individual may be healthy at a particular time, the conditions that have caused this smallness are basic deprivations, including poor diet and ill-health, frequently due to poverty. The reason that economic disadvantages and poor social performance are observed to be associated with smallness is that these frequently occur in conditions where health and diet are poor. But the resultant smallness itself – with two exceptions noted below – is not a primary factor perpetuating these conditions. Small achieved body size is often an indicator that conditions have detrimentally affected human development and may be continuing to do so in the population.

"With two exceptions it is not considered that 'being small' – as opposed to becoming small – is in itself harmful to the individual. One exception lies in the relationship between body size (lean body mass) and maximal physical working capacity as well as perhaps the capacity for sustained work (endurance). The other exception lies in the linkage between maternal size and infant birthweight – the inter-generational linkage of smallness and risk.

"Failure of growth in the individual may be a symptom of an underlying diet or health problem warranting intervention. It can also be seen as a marker of a high-risk environment.

"Smallness seen at the population level is explicit evidence for a generalized public health problem calling for policies and programmes designed to alleviate social and economic deprivations, in addition to direct public health interventions."

21. The Sub-Committee proposes that this position be drawn to the attention of United Nations member agencies and other interested parties, to contribute to the correct interpretation of conditions in developing countries.

Source: Report of 15th Session of the ACC/SCN. UNICEF, New York, February 1989, para 19–21.

Malnutrition and Infection (part II)

Operational implications of current knowledge on nutrition and respiratory tract infections, malaria, and intestinal parasites.

In 1989, SCN published – in its ACC/SCN State-of-the-Art series – the fifth Nutrition Policy and Discussion paper, an updated review on Malnutrition and Infection by A. Tomkins and F. Watson. Based on the data provided in the review and upon consultations with experienced individuals in the field, an introductory section was prepared. In this, programmes and policies to break the cycle between malnutrition and infection were discussed in relation to individual infections. The last issue of the SCN NEWS (No. 4) contained the first part of this section which included some background to the subject and issues in relation to nutrition and measles, and diarrhoeal infections. Part II in this issue concerns policy and programme implications as they are related to malnutrition and respiratory tract infections, malaria, intestinal parasites, and AIDS.

Respiratory Tract Infections and Malnutrition

Respiratory infections have been implicated in growth faltering, although there is as yet limited information on the mechanisms involved. Nevertheless, anorexia, fever, pain, vomiting (especially in pertussis) and associated diarrhoea, may all be important contributory factors. Recommendations in relation to diarrhoea largely apply also in the case of acute respiratory infections: sustained breastfeeding and nutritional

supplementation. There is accumulating evidence that vitamin A deficiency increases risk of developing respiratory disease; and that children who are vitamin A deficient are more likely to suffer from chronic ear infections.

Programmes to prevent and improve the management of acute respiratory infections are giving increased attention to pneumonia especially in young children, as the most serious illness with the highest mortality risk. Pneumonia is of higher incidence in developing countries than in the industrialized world, and is a major cause of death.

Malnutrition is considered a key risk factor for pneumonia, and maintaining good nutritional status is thus important in **preventing** infection. Children with poor nutritional status – as measured by growth – and of low birth weight merit priority for particular attention when presenting with respiratory infections. Breastfeeding is considered to protect against respiratory infections – as for other diseases – and should be strongly promoted. As well as vitamin A, other micronutrient deficiencies, notably zinc, and iron (and possibly vitamin D) have been implicated in acute respiratory infections, probably through effects on the immune system.

Adequate feeding is essential during **management** of acute respiratory infections, and requires emphasis. This applies, as for other illnesses, to continued breastfeeding of infants and young children, and provision of suitable weaning foods. It is expected that administration of vitamin A contributes to reduced severity in general, and that it lowers case–fatality in pneumonia.

Malaria and Iron Deficiency

Programmatic responses to the interactions between iron status and malaria need careful consideration. Iron deficiency depresses the immune response, increasing susceptibility to infection. However, the malaria parasite requires iron for its multiplication in blood, and thus may be less infective in the iron–deficient individual. Malaria causes haemolysis, which in turn causes anemia.

Preventive measures for malaria and anemia are thus often related, but each with its own considerations. For example, malaria chemoprophylaxis for young children on a population basis is not recommended for several reasons, including interference with the development of protective immunity to malaria, and possible acceleration of drug resistance.

One issue concerns iron supplementation with malaria chemoprophylaxis programmes. In general, iron (preferably with folate) should be administered to all pregnant women who are receiving malaria chemoprophylaxis in malaria endemic areas.

Iron supplementation programmes in the population as a whole are important to prevent anemia, particularly in women and young children. An issue that arises with general iron supplementation in malaria endemic areas concerns whether this should be done if malaria chemoprophylaxis cannot be administered at the same time. It is expected that the net effect of iron supplementation under these conditions would be a *decrease* in malaria, due to the immune effect. However, research into this issue, and monitoring of morbidity in a supplemented population, is urgently needed. In the interim, the recommendation is to proceed with *oral* iron supplementation, at the same time as malaria prophylaxis by itself, and monitor rates of infection.

In **treatment of malaria**, correcting iron–deficiency anemia is frequently indicated. Current evidence is that administration of iron by intra–muscular or intravenous *injection* is to be *avoided*, as it risks exacerbating the malarial (or other) infection. *Oral* administration of iron, in moderate doses (for example, 60–120 mg ferrous sulphate), is *recommended*, the benefits outweighing the risks.

Equally **treatment of anemia**, both in malaria–endemic areas and for individuals (particularly when underweight) in other contaminated environments where infections are prevalent, should use *oral* iron, in moderate doses.

Intestinal Parasites and Nutrition

Intestinal parasites* may be associated with a reduction in food intake, malabsorption, endogenous nutrient loss, and anemia. Behavioural effects of parasitic infestation may also be important: the blindness resulting from onchocerciasis may lead to malnutrition; discomfort and anorexia may also affect food intake. While it is clear that parasites may lead to malnutrition, the extent to which malnutrition itself causes increased parasite infestation is not clearly known. Nonetheless, the two conditions so frequently co–exist, and the potential for reinforcing programmes is so clear, that they frequently need to be considered together. While improvements

in environmental sanitation are essential for long-term prevention of infection by intestinal parasites, programmes of regular treatment of vulnerable populations with anthelmintics are widely used.

*i.e. *Ascaris*, hookworm, and *Trichuris* as well as intestinal and urinary schistosomiasis.

Treatment of intestinal parasites may often be a desirable accompaniment to food supplementation programmes to prevent malnutrition. Logistically, it may be less easy to include food supplementation with parasitic treatment, the latter commonly being carried out every three months; however, under many circumstances the benefits of parasitic treatment may be better realised when nutrition interventions are associated with them. WHO recommends that in areas where the prevalence of mild-moderate underweight in children is greater than 25%, and where parasites are known to be widespread, high priority should be given to de-worming programmes for treatment of parasites. Treatment of parasites may also be of particular priority in vitamin A deficient areas. It could be logistically appropriate to include vitamin A capsule distribution in parasite treatment programmes, since the time between doses is similar for both anthelmintics and vitamin A (i.e. 3 – 6 months).

Iron deficiency anemia is well known to be associated with hook worm infestation, and public health measures to deal with hook worm should routinely include iron supplementation. Similar considerations may apply for other intestinal parasites.

Cases of severe protein-energy malnutrition are frequently also suffering from intestinal parasite infestation, which should therefore be treated as part of nutritional rehabilitation. *Giardia lamblia* is often associated with severe malnutrition in certain areas, and may merit particular attention.

AIDS and Malnutrition

As noted by the SCN 14th Session (1988) the association of AIDS with malnutrition may indicate a useful role for diet during the disease. Unknown at present is whether nutritional deficiency has any effect in predisposing either to attack by HIV, or to progression from infection to the disease. Other factors in HIV infection are no doubt more important than nutritional ones, and research designs would not be simple. Nonetheless, this is a possible research area.

–J.B.M.

Additional material:

WHO (1981). *Field Studies on the Relation Between Intestinal Parasitic Infections and Human Nutrition*. Report of an Informal WHO/UNICEF Consultation, Geneva, 5–8 May 1981. World Health Organization, Geneva.

Stephenson Lani S. and Celia Holland (1987). *The Impact of Helminth Infections on Human Nutrition. Schistosomes and soil-transmitted helminths*. Taylor & Francis Ltd, London, England.

Estimation of Flows of External Resources in relation to Nutrition

Preliminary result from SCN study.

"Because of its magnitude, and its catastrophic impact on child and maternal survival and development, malnutrition is one of the most important global problems of the present time. It is therefore very disappointing and distressing to note that the global availability of total U.N. and bilateral funds for direct nutrition support is only 1.9 cents per caput per year (1987). Even should this estimate be an order of magnitude too low, this calls for immediate review of allocation of agency resources."

Source: ACC/SCN 16th Session, February 1990, Paris.

The resources required for development support have not been maintained from the international transfer of funds from the developed to the developing countries. In fact according to OECD, from 1979 to 1986 total net resource flows fell from US\$ 104.4 billion to US\$ 82.0 billion, a decrease of over 20 percent¹. Trends also show that external aid for health, education, and nutrition are decreasing as part of the total aid effort.

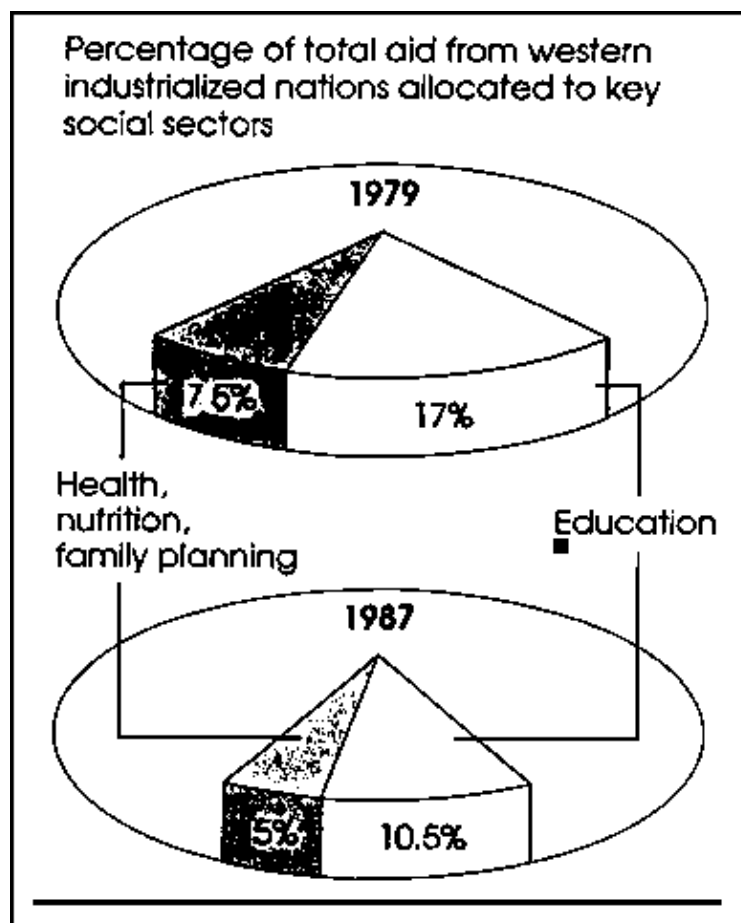


Figure 1. Aid for health and education.

The chart below shows that aid for nutrition, health, and education is a small and diminishing part of the total aid effort.

Source: UNICEF. "The State of the World's Children, 1990". New York, Oxford University Press, 1990. (Adapted from: Development Co-operation Reports, OECD, Paris)

Among the donor community, it is generally recognized that a substantial reduction in hunger, malnutrition, and poverty will require corresponding increases in resources. It may be possible to mobilize some part of these through re-directing current resource allocations and improving the effectiveness and efficiency of programmes, but major progress is unlikely without significant additional resources².

A prior step to re-allocating and increasing resources to reduce hunger and malnutrition is to assess resources globally, and comprehensively, that deal with nutrition problems, in relation to numbers and distribution of those affected. This has been a longstanding concern of the ACC/SCN. Here we give a preliminary report on recent research carried out by the SCN, based on a paper written for the SCN 16th session (and subsequently updated)³. Details will, we hope, be published later this year.

Beginning with reports on the world nutrition situation and a review of nutrition policies, the ACC/SCN is now completing an assessment of resource flows. These activities, which are clearly related to each other, will be used to look at the evolution of nutrition problems, the resources available to deal with them, and the best way to use these resources.

In order to arrive at a global estimate of the flow of external resources in relation to nutrition, all multilateral and bilateral activities must be accounted for and classified by their relevance to nutrition. ACC/SCN has recently carried out this process with the help of three databases consisting of: 1) development activities of the United Nations System compiled by the U.N. Advisory Committee for the Coordination of Information Systems (ACCIS); 2) bilateral activities of the DAC countries compiled by the Organization for Economic Co-Operation and Development (OECD); and 3) projects funded by the World Bank.

ACC/SCN Database

The ACC/SCN database which was compiled from the three existing databases consists of approximately 30,000 development projects for 1987: 22,757 U.N., 6,076 bilateral, and 1,776 World Bank. For each project or activity, the database contains information on: project title; descriptors; and financial information including grants, loans, credits, and expenditures.

The procedure essentially has been to try to list all externally-assisted projects in the world (on public funds; multilateral and bilateral; technical cooperation, grant and loan) in 1987, and code them according to a classification system based on relevance to nutrition. This database then led to numerous tables and charts describing the distribution of resource flows by development sector and geographic region.

Limitations of the data

Before proceeding with some of the results, the limitations of the data need to be considered. First, there are still possible gaps. The database deals with public flows – Official Development Assistance (ODA) – which are estimates of gross flows from donors to developing countries. Private flows – that is mainly private banks, but also NGO's – are not included. OECD estimates that for 1987 private flows totaled \$26,478 million accounting for approximately 38% of total net flows. In addition, it is not clear whether full estimates of resources from Regional Development Banks are included in the database which should amount to about 2% of total net flows. Activities carried out by UNHCR have also not been included because they were not reported to ACCIS. A second difficulty is that multilateral and bilateral flows are reported in quite different ways. Multilateral flows (i.e. ACCIS and World Bank data) are intended to give actual disbursements during the year, and in principle are addable. Bilateral figures are reported as commitments made in 1987, of generally multi-year grants or loans, not as flows. However, commitment data for years prior to and after 1987 reveal that the figures for 1987 may be considered as broadly comparable with gross disbursements because there is an ongoing balancing process. Although the use of commitment figures should not unduly affect the total estimates of flows, the number of on-going bilateral projects operational in 1987 will be substantially underreported. This affects the related inventory of projects which SCN is also working on, but has less effect on estimates of aggregated financial flows. Finally, for the direct nutrition category, only nutrition projects are identified, not components within either projects which will be scored under the main project type. This leads to some underestimation in the direct nutrition category.

Results

The total of Official Development Assistance for 1987 is estimated as about \$45 billion. This is equivalent to about \$12 *per caput* of the population of developing countries. Figure 2 shows the distribution of the use of funds in the first chart and the distribution by U.N. agency and bilateral donor in the second. The area of each subdivision is proportional to the funds in the category, so that a visual comparison of area is intended to give an image of the amount of funds in the category. The system used to classify the projects has 12 categories; Direct Nutrition, Food Aid, Emergency Food Aid, Health, Family Planning, Water and Sanitation, Other Food, Child Welfare, Literacy and Women, Community Development, Emergency Assistance and Rehabilitation, and "Indirect" which includes all other general development activities, and is the largest category.

	UN	World Bank	Bilateral		
Nutrition		All others	Food Aid		
Food aid		Comm Devl	Water/Sanit		
Emer Food		Water/Sanit	All others		
Health			Health	Comm Devl	Emer/Rehab
FP					
Water/Sanit					
Other Food					
Child Welfare					
Liter/Women					
Comm Devl					
Emer/Rehab					
Indirect		Indirect	Indirect		
	\$2,900 M	\$13,400 M	\$28,600 M	Total: \$44,900 M	
				Per Caput: \$12.2	

Figure 2 (a). Distribution of total external resources (1987) by nutrition-related category and source

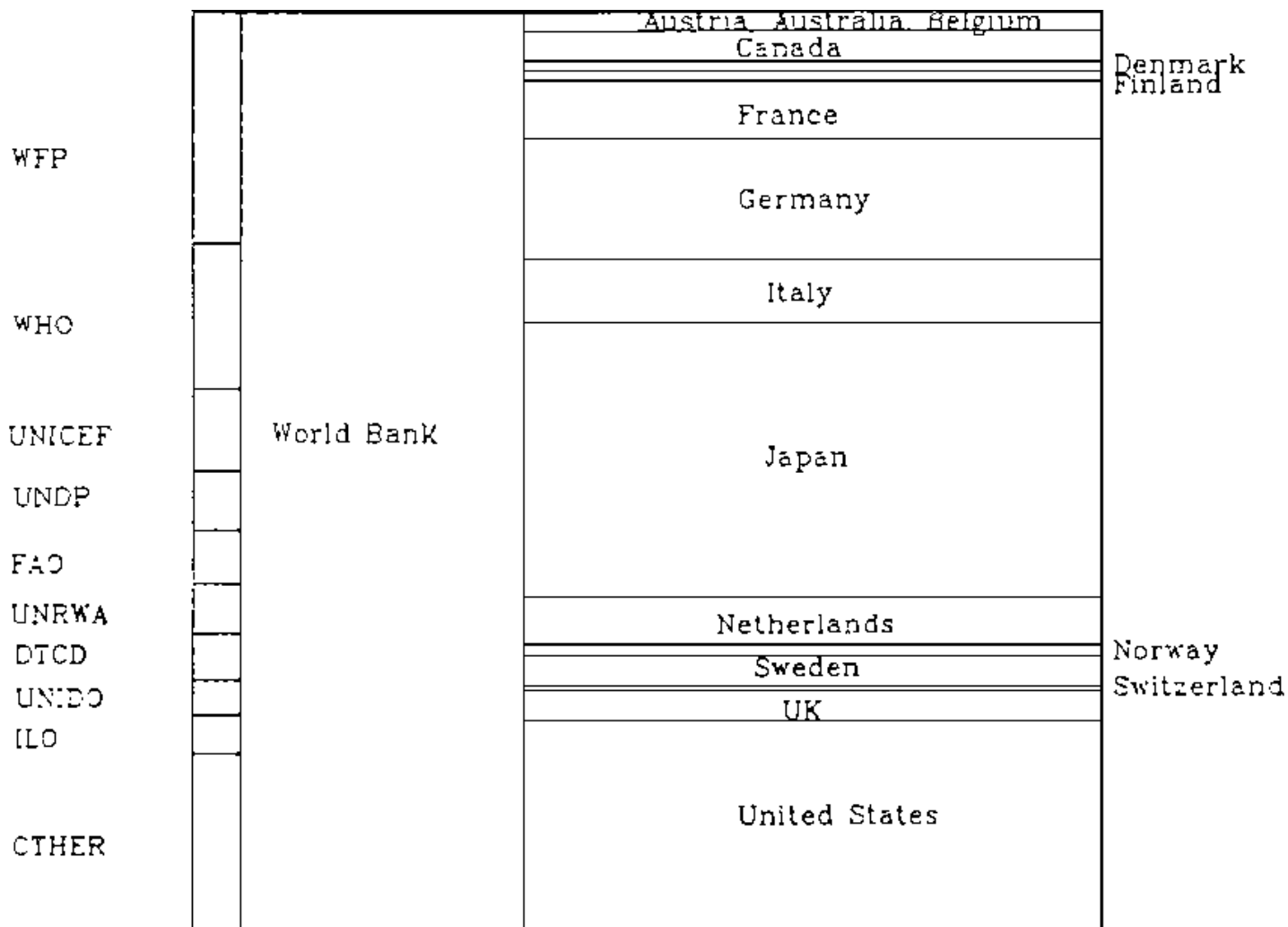


Figure 2 (b). Distribution of total external resources (1987) by funding source

Source: "Estimate of Flows of External Resources in relation to Nutrition". Draft 1. 4/4/90.
 Paula W. Yoon and John B. Mason. ACC/SCN, Geneva.

The overall availability of external funds – for all purposes – by region can be displayed as shown in Figure 3. This shows a range from around \$7 *per caput* in Asia to \$33 *per caput* in Middle America and Caribbean. Sub-Saharan Africa was estimated to have about \$22 *per caput* available as Official Development Assistance in 1987.

Figure 3. Display of estimates of *per caput* flows of total external resources (1987) by region

Areas of charts are proportional to \$ per caput – charts drawn to the same scale

On a regional level the *per caput* funds – see Table 1 – show a considerable range from \$33.2 in Middle America and Caribbean to only \$6.7 in South Asia. The global *per caput* availability for those projects classified as "direct nutrition" was estimated as \$0.02 (2 cents), ranging from 4.4 cents in Africa to 0.1 cents in Near East and North Africa. For food aid, global *per caput* availability was estimated as \$0.49, ranging from \$0.09 to \$2.2. (In this database, "direct nutrition" projects do not, as far as possible, include food aid components; this is intended to mean also that when a nutrition project includes use of food aid these two expenditures are distinguished).

Table 1 1987 Official Development Assistance (ODA) per caput of population of developing countries

Region	ODA per caput	ODA for nutrition per caput	ODA for food aid per caput
Sub-Saharan Africa	\$21.8	\$0.044	\$1.4
Mid America & Caribbean	\$33.2	\$0.036	\$2.2
South America	\$15.1	\$0.017	\$0.42
South Asia	\$6.7	\$0.005	\$0.38
Near East & North Africa	\$29.8	\$0.001	\$0.66
Southeast Asia & China	\$6.8	\$0.014	\$0.09
Global	\$12.2	\$0.019	\$0.49

For direct nutrition projects and for food aid, it is easier to grasp *per caput* figures when the population used is that estimated to be malnourished, rather than the total population. The best estimate available for this was for malnourished *children*, which may be not too bad as many nutrition projects are targeted at children. The estimates for multi- and bilateral funds by region for \$ per malnourished child are shown below in Table 2.

Table 2 Official Development Assistance (ODA) for Nutrition and Food Aid Per Malnourished Child

Region	ODA for nutrition per malnour. child	ODA for food aid per malnour. child
Sub-Saharan Africa	\$0.93	\$33.3
Mid America & Caribbean	\$2.71	\$180
South America	\$1.96	\$50.0
South Asia	\$0.05	\$4.25
Near East & North Africa	\$0.10	\$43.6
Southeast Asia & China	\$0.60	\$3.88

Notes: 1) Prevalence malnourished taken from the SCN supplement on the "First Report on the World Nutrition Situation".

2) Food aid includes emergency and non-emergency food aid.

Does the current level of resources make a difference?

One yardstick for assessing whether the external resources estimated to be available are within orders-of-magnitude of being likely to contribute to improvement of nutrition on a wide scale is to consider recent experience in nutrition programmes, and their associated expenditures. An important proviso is that external resources have varying roles depending on local circumstances: in poorer countries, they may amount to significant proportions of government budgets, and be directly used for providing goods and services; in other cases – in many Asian countries for example – they are less significant overall, and tend to be used more catalytically, for planning and technical cooperation purposes, for example.

A number of examples now exist of operational programmes, as for instance discussed at the SCN symposium in Korea in August 1989; projects in Botswana, Costa Rica, Indonesia, Iringa (Tanzania), Tamil Nadu (India), Thailand, and many others are beginning to show some consistency in effects. These experiences may give some rough guidance. Broadly, it seems that around \$5 per recipient per year is the sort of level of non-food expenditure associated with reported impact; and in the range of \$10 – \$50 per recipient per year for food-related expenditures. These are not usually distinguished between external and internal resources, and this needs further work; the impression is, as expected, that in higher income countries there is a greater proportion of internal resources. Thus we are at present only able to compare *overall* expenditures at project level with *external* resource availabilities. Nonetheless, on this basis, it might be considered that somewhat less than 10% of the necessary non-food resources, if targeted to malnourished children, was available; and that food aid resources may be relatively slightly less constrained.

Another way of viewing the results is to consider total numbers. Approximately 160 million children were estimated to be underweight in 1984; \$5 per head is \$800 million, \$50 per head is \$8 billion. Total "direct nutrition" resources are estimated at \$71 million – less than 10% of need. Alternatively, \$71 million could perhaps have an impact on 10 million or so children. The prevalence of *severe* malnutrition is clearly much less than "underweight" (less than 2 SDs of NCHS standards); it is conceivable that this sum might make a significant impact if it could be targeted very specifically to severe cases only.

Overall, now that we have some idea as to the funding position, the usual options for deciding what to do under circumstances of inadequate resources may be considered in this context. These clearly encompass better use, including targeting, of the resources available. Increasing the resources can mean reallocation from other uses, and increasing the overall size of the pie – of total funding allocations. In public health doctrine, when resources are inadequate the criteria for intervention may be made more stringent until only the number that can be adequately dealt with are admitted into the programme; the analogy here would again be with targeting, by location based on need, and by more stringent screening.

Finally, when the resource availabilities not only for nutrition but for other related activities – for example health care and water and sanitation – are viewed, resources might not look quite so constrained if coordination in practice could be achieved. This might be worth exploring soon.

– Paula Youn & John Mason

NOTES

(1) *"Development Co-Operation: 1988 Report"*, OECD, Paris, 1988.

(2) From *"Action by Developed Countries to Assist Developing Countries in Their Fight Against Hunger"* World Food Council, WFC/1990/4, 6 April 1990.

(3) *Estimate of flows of external resources in relation to nutrition*. Draft 2, 4/4/90. Paula W. Youn and John B. Mason. ACC/SCN, Geneva.

NEWS AND VIEWS

including:

World Summit for Children/Eradicating IDD/Vitamin A progress/Street Foods/Diarrhea, supplementation and growth/Baby Food Code/Forthcoming meetings/Chernobyl assessment planned/more.

World Summit for Children

United Nations Secretary-General Javier Perez de Cuellar announced on 9 February 1990 that a summit meeting of world leaders will be held at United Nations Headquarters in New York on 29–30 September 1990 to address the urgent needs of children in the 1990s. The World Summit for Children will be the first global summit of heads of state or government from the East, West, North and South. They will address the single issue of children. The initiative was taken by Egypt, Mali, Mexico, Pakistan, Canada and Sweden. The announcement of the Summit for Children followed a series of consultations among the six Initiating Governments and other States since 1989. Since then the initiative has been endorsed by UNICEF Executive

Board in a special session in late December and an expanded Planning Committee of some 22 Governments has been established.

The immediate purpose of the Summit is to focus world attention on the plight of children.

As UNICEF has emphasized, some 40,000 children die every day – one every two seconds, more than half of them from readily preventable causes. A substantial number are left disabled. Most of the endangered children are in the developing countries, but their counterparts in the industrialized world are increasingly imperilled by drugs, crime, homelessness and neglect. A new and more direct focus on the problems world children are facing is badly required. Further extension of efforts taken in the 1980s, with strong political support could help prevent some 50 million child deaths over the 1990s.



CHILDREN CANNOT SPEAK FOR THEMSELVES

They depend on us to speak for them.

They are powerless.

They suffer most when resources are maldistributed.

They need us to bring their very special needs to the notice of the powerful.

(Source: Reproduced from 'My Name is Today' (1986), Fig. 2. D. Morley and H. Lovel, TALC, P.O. Box 49, St. Albans, Herts AL1 4AX, UK)

The Summit will lead, it is hoped, to a major new commitment by governments at the highest level to improve the conditions of children through both specific interventions on their behalf and by ensuring that the interests of the children are protected in national economic and social policies. The unprecedented summit meeting is seen as the launching of a decade of government action and society-wide mobilization for the benefit of children, built upon the encouraging experience of the 1980s in which major progress for children was made despite difficult economic conditions and constrained resources.

(Source: United Nations' Information Office, Geneva, 19 February 1990)

Eradicating Iodine Deficiency

National programmes for combatting iodine deficiency have enough promise that it is realistic to aim at "eliminating iodine deficiency disorders (IDD) as a major public health problem in all countries by the year 2000". The World Health Assembly passed a resolution to this effect in May this year.

Iodine deficiency "is so easy to prevent" – according to Dr Basil Hetzel, Executive Director of ICCIDD – "that it is a crime to let a single child be born mentally handicapped for that reason". In fact, knowing the progress in the last few years contributed to the decision on the ambitious objective. Significant progress was noted in prevention and control of IDD in some 40 countries. IDDs have been virtually eliminated in 20 developed countries, mainly through salt iodization, assisted by the increased dietary intake of iodine associated with development. Positive examples exist for a number of developing countries. For example, Nepal eliminated cretinism from many mountain districts through mass injections of iodized oil, followed by salt iodization. Similar progress was made in Indonesia and Zaire.

A striking example of success in eliminating IDD, and the benefits, is quoted from China. "The Jixian village of the Heilong-jiang province in Northeast China was known as a 'village of idiots'. Of its population of 1313 individuals the goitre rate was 65% and 11.4% were cretins. In 1978, the village began using iodized salt. No cretins have been born since, and by 1982, the goitre rate no longer posed a health problem. There were also

clear economic advantages. The average annual income per person rose from 43 yuan per year in 1981 to 414 yuan per person in 1984."

(Source: WHO, June 1990).

A New Technology for Water Iodination

In relation to IDD control measures, the results of successful application of a new method developed by French scientists to prevent environmental iodine deficiency have recently been released. In several villages in Mali, where the project was carried out, inhabitants were provided with iodinated drinking water. Both humans and animals consuming such water showed physiological levels of iodine in their blood and urine samples.

The method is based on continuous diffusion of iodine from silicon polymer iodine containers to water in wells and boreholes.

The Rhone–Poulenc Foundation, which collaborated in this project, has estimated that with the help of various organizations and on a non–profit basis, IDD eradication using this measure may cost one French Franc per person per year. From 1993, the Foundation can provide 100,000 of these containers per year in order to prevent IDD in around 50 million people. It is interesting to note that the method can be adapted so that other nutrients like vitamin A, iron or products to kill larvae may, similarly, be added to water resources.

(Source: Le Monde, 31 May 1990. For more information contact Dr Robert Sebbag, Delegue General de la Foundation Rhone–Poulenc Sante, 20 Avenue Raymond Aron, 92165 Antony Cedex, France)

One day's military expenditure would cover needs to reduce child death rates by half

The North–South Round Table of Nations held a two–day conference on the Economics of Peace in Costa Rica, on 4–5 January 1990. A statement by the Chairman of the meeting, Richard Jolly, UNICEF's deputy executive director, reflected the main ideas expressed by 25 high level policy makers and scholars from 12 countries participating in the meeting.

"We are now at a unique moment in world history. The reduction of East–West tension and the surge of democracy in Eastern Europe, and in parts of Asia and Latin America, provides the sudden opportunity for a breakthrough into a new way of ordering world relationships. It is now quite possible that human beings in the 21st century can settle conflicts through negotiation and the rule of law, without the use of military violence.

"...We must seize the new opportunity. We must develop a new vision of the world after the Cold War. It has to be a vision in which security is achieved not through reliance on armed forces and external defence but through negotiations to settle outstanding conflicts and through global efforts to tackle the roots of violent conflict – poverty, environmental degradation, injustice and inequity.

"The most urgent security need is a re–definition of the concept of security. Instead of one–sided national security, we need an international security system based on the rule of law. And in order to guarantee the rule of law, we need the active participation of non–governmental groups, movements, associations and institutions, and the mobilization of an international public opinion. In short, we need to aim for an international civil society.

* "Every minute 15 children in the world die for want of essential food and inexpensive vaccines, and every minute the world's military machine takes another \$1,900,000 from the public treasury."

* "In the 1980s, two governments in three have spent more to defend their citizens against military attack than against everyday hazards of disease, accidents, and ill health; one in three spent more on military power than on education and health care combined."

* "...Since 1960 developing countries have increased their military expenditures more than twice as fast as living standards, measured by per capita income."

(Quoted from: "World Military and Social Expenditures", 13th edition, by Ruth Leger Sivard)

"Military spending currently amounts to over \$1,000 billion a year. It is rising fastest in the Third World. Even so, over half of world military spending is devoted to the confrontation in Europe. The end of the Cold War could free the resources necessary to meet the real and ever growing threats to human existence. It would only cost, for example, \$2–3 billion a year – one day's military expenditure – to tackle the readily preventable causes of child mortality worldwide and thereby reduce by half the 14 million under–five children dying unnecessarily each year.

"...In drawing up this declaration, we have been inspired by the example of Costa Rica, where our meeting is held. Costa Rica abolished its army in 1948. An active civil society has ensured that resources released by the elimination of military spending have been devoted to human development and to environment. Costa Rica has shown how a small country can make a powerful contribution to peace both in its own region and in the world. The voice of Costa Rica is respected because it is not a military power. This is the new realism."

(Source: Press release, North–South Round Table Conference on Economics of Peace. San Jose, Costa Rica, 4–5 January 1990)

International Conference on Nutrition

Preparations for the International Conference on Nutrition, co–sponsored by FAO and WHO, are proceeding. The date has been decided as December 1992, and the venue will be Rome. The Conference will be inter–governmental, involving all member governments – some 167 countries. It will be organized by WHO and FAO in close cooperation with other U.N. agencies, as appropriate through the ACC/SCN. Roles are foreseen for non–governmental organizations, scientific institutions, and industry. Already, the Conference has been discussed at all the FAO regional conferences, with presentations and participation by WHO. An extra session (the 17th) of the SCN is being held at the end of July, to involve all the U.N. agencies and bilateral donor representatives, review documents in preparation, and contribute to planning the next steps in the preparation.

Nutrition – One of Five Priorities in WHO's New Programme

"Every WHO programme is a contributor and a partner in advocacy for health through peace, equity and social justice" said WHO Director General Dr. Hiroshi Nakajima in the opening meeting of the 85th Session of the WHO Executive Board in Geneva on 15 January 1990. He however listed five areas which will be particularly emphasized in the implementation of WHO's general programme of work. One of these priority areas is nutrition. He went on to say that in spite of improvement and gains in agriculture and health technology in many countries, the fact that there is still widespread malnutrition and improper nutritional practice is "an unacceptable situation", and is affecting human resources development, which is fundamental to the infrastructure for overall development. WHO Director General announced to the Board that with FAO and other concerned parties an international conference of nutrition will be organized in 1992. Other priority areas to be emphasized are: relationships between world economy and health developments; environment and health; integrated approach to disease control and communication.

(Source: WHO Press Release WHOM, 15 January 1990)

"Starvation Facing Mankind: Report"

A flurry of such headlines appeared over press articles recently. The trigger was the launch of the World Watch Institute's "State of the World 1990", led by Lester Brown. Here is an example.

"Our careless misuse of the planet's resources threatens much more than our air, our water and our climate – it is now posing a serious and very real threat to future food supplies, according to a disturbing new report".

"With the world's population spiralling out of control, the planet's capacity to provide enough food is fast running out. Every week, the population swells by about 1.7 million people, all of whom need to share limited food. "We'll be facing a food emergency in a few years" says Lester Brown... "we now have barely sixty days of emergency stocks left. Just one more summer in the United States like we had in 1988, and that will be the planet's Pearl Harbour, when it will wake up to reality"."

What is the reality?

Trends in the 1980s of *per caput* food availability showed slow *rises* in the developing world, except Africa – as for example shown in the SCN's First Report on the World Nutrition Situation. Most projections, for

example FAO's "Agriculture towards the Year 2000" predict a continued slow overall rise in *per caput* food availability. Here again Africa is of particular concern. Sustainable development and environmental degradation are major concerns – however imminent global starvation is not generally considered to be the issue.

Making some enquiries and examining "State of the World 1990" gives the impression that a useful and timely debate may be stimulated. Some factors arguing for great uncertainty for the future are, for example, the direction in which biotechnology will go (notably animals or plants), the effects of economic and political developments, how prices will respond, etc. A major point made by World Watch is, however, that growth in grain yields are nearing their limits. But the supply-driven view is only one dimension. *Physical* availability of food is in principle not critical in global terms: World Watch's figures themselves (which are however not interpreted in this way) estimate current *per capita* grain availability as 316 kilograms, declining to 295 kilograms by 2000. Recalling that as much as 2000 calories/caput from grain per day (more than is normally eaten) equals around 210 kilograms per caput per year illustrates other dimensions. One is that substantial amounts of grain are used for animal feed. Another is that sheer global physical lack of grain is not the primary issue. Demand for food, its distribution, mechanisms for shifting in and out of different uses, and many other complex factors need to be fed into the equation.

At the same time, the figures quoted by World Watch should also be seen in proportional terms. For example, the quoted 18 million MT shortfall in grain in 1989 needs to be seen in the light of their overall projected consumption of 1,685 million MT – i.e. around 1%. This is serious, and should not be minimized, but needs to be seen in proportion. Equally, the World Watch estimates of loss of grain output due to environmental degradation are only given in millions of tons – which are difficult to conceive of. Their figures give a grain output loss from soil erosion of 9 million MT (which is 0.5% of total production) and from air pollution – including from ground level ozone – of 1 million tons; this is serious, but needs perhaps to be seen as a 0.05% loss.

Maybe viewing the figures in this way gives the perspective that World Watch's position is an early, perhaps timely, warning. No one doubts that environmental degradation and population pressure are among the most serious issues of our time. In a complex and integrating world, simplification gets attention, but can obscure the many facets of the concern.

(Sources: State of the World 1990, World Watch. Evening Press, Dublin, 9 June 1990.)

See also "People, Food and Resources" in Publications Section.

Education for All – A Renewed Commitment

A global consensus on a World Declaration and Framework for Action to achieve Education for All was reached during the World Conference on Education for All, which was held in Jomtien, Thailand, from 5 to 9 March 1990.

The Declaration documents the persisting realities that "more than 100 million children, including at least 60 million girls have no access to primary schooling; that more than 960 million adults, 2/3 of whom are women, are illiterate, and functional illiteracy is a significant problem in all countries, industrialized and developing; that more than 1/3 of the world's adults have no access to the printed knowledge, new skills and technologies that could improve the quality of their lives and help them shape, and adapt to, social and cultural changes; and that more than 100 million children and countless adults fail to complete basic education programmes, millions more satisfy the attendance requirements but do not acquire essential knowledge and skills". The participants in the conference reaffirmed that education is a fundamental right as the Universal Declaration of Human Rights asserted forty years ago. But an expanded vision for meeting basic learning needs is necessary to improve the seriously deficient provision of education and to increase effectiveness of current efforts. The Declaration makes it clear that basic learning needs "comprise both essential tools (such as literacy) and the basic learning content required by human beings".

The World Declaration on Education for All adopted by the participants in the conference contains ten Articles addressing the complexity of the challenge. Seven of these elaborate the "Purpose", while the last three describe the necessary "Requirements" for reaching the goal of education for all.



Young or old, it's always a good to learn to read or write.

(Source: Reproduced from 'INTERCOM', UNICEF, April 1989, No. 52.)

The expanded vision, as elaborated in Articles 3 to 7 encompasses: "Universalizing access and promoting equity; focussing on learning; broadening the means and scope of basic education; enhancing the environment for learning; strengthening partnerships".

Article 6 on enhancing the environment for learning highlights the importance of sound nutrition and health care for improved learning capacity. The Article stresses that "Learning does not take place in isolation. Societies, therefore, must ensure that all learners receive the nutrition, health care, and general physical and emotional support they need in order to participate actively in and benefit from their education".

Developing a supportive policy context, mobilizing resources and strengthening international solidarity (Articles 8–10), are the necessary cited requirements for meeting the basic learning needs of all.

Reallocation of resources between sectors (e.g. a transfer of military expenditures to education sector), as well as special protection of basic education during structural adjustment programmes in particular in countries with high external debts would be urgently necessary. The least developed countries would also need international support both financial and otherwise, in order to meet the basic learning needs of their people.

The conference participants called on governments, concerned organizations and individuals for a renewed commitment towards achieving the goals of education for all.

(Source: Proceedings [preliminary version] of the World Conference on Education for All. Thailand, March 1990)

Roundtable on School Performance, Nutrition and Health

A thematic Roundtable on School Performance, Nutrition and Health was held during the World Conference on Education for All. It was chaired by the Kenya Minister for Education, Mr. Oloo Aringo.

The theme arose out of increasing experience in many developing countries about the centrality of nutrition and health factors as determinants of learning.

The presenters were Dr. Susan Van der Vynckt (UNESCO), Dr. Cecilia A. Florencio (University of the Philippines), Dr. John A. Nkinyangi (University of California, Los Angeles) and Ms Judit Katona–Apte (WFP). It was noted that not only does the literature underscore the fact that the incidence of malnutrition and poor

health are widespread in developing countries but that up until now there has been no recognition among many Third World governments and donor agencies that these problems render children "unteachable". The studies show how highly prevalent nutrition and health conditions such as undernutrition and short-term hunger, lack of essential micronutrients (particularly iron and iodine), infection with intestinal parasites, and schistosomiasis are inhibiting children's learning, thus directly hindering many countries' efforts to provide effective learning opportunities to all their children. It was argued how in many developing countries school attendance in particular is greatly influenced by seasonal food shortages ("temporary hunger"), as well as by endemic diseases and illnesses resulting from poor living conditions.

(Source: Report on Thematic Roundtable No. 9, Bangkok, March 1990)

See also "Food for Thought" in this issue.

Solving practical problems in controlling iron deficiency

Iron deficiency is the most common nutritional disorder in the world, with an estimated 1.3 billion people suffering from anaemia, half of which is due to iron deficiency. Anaemia due to iron deficiency affects around half the pregnant women and pre-school children in many communities, and severe anaemia is a main cause of up to 20% of maternal deaths. Maternal anaemia leads to low birth weight, and iron deficiency in early life is associated with a significant loss of cognitive abilities.

Most national programmes to control and prevent iron deficiency anaemia are based on iron supplementation to achieve short term effects. Such programmes are usually targeted to sub-groups such as pregnant women or to areas where, for example, hookworm is prevalent. While experimentally the efficacy of iron supplementation in raising haemoglobin values in at-risk groups is well demonstrated, large-scale programme effectiveness has often been difficult to obtain.

Despite prevention and treatment being inexpensive, difficulties are still experienced with iron deficiency control programmes. The ACC/SCN organized a workshop to examine operational problems in controlling iron deficiency, on 6–8 June held in Dublin, chaired by Dr J Kevany of the SCN's Advisory Group on Nutrition. A full report of the meeting will be issued shortly, and here we give a brief summary of some of the major recommendations.

Pregnant and lactating women are the highest priority for iron supplementation, and where the deficiency is common, blanket coverage is recommended. The constraints in achieving this range from simply the supply of the supplement and its distribution, which needs to be increased many times; through to counselling by health workers, training, and other factors influencing compliance. Premature and low birth weight infants are another priority group, for whom a simple liquid preparation needs to be developed for administration in the first few months of life. For older preschool children where anaemia is common, screening and supplementation may be important.

Supplementation programmes are the major line of attack for these groups, but for others fortification and modification of diet are likely to be more effective approaches.

The cost of supplementation – which needs to be daily, which is part of the problem – is low, only around US\$0.20 per pregnancy. The problems of supply need to be overcome by careful planning, procurement and additional (although relatively minor) financing. Distribution and ensuring compliance through antenatal and other health services requires raised priority, and support to make it succeed.

Preventing iron deficiency will lead to improved health especially in women and children, reduction and infant mortality, and increased productivity and learning capacity.

(Source: From background materials and the report of Workshop on Iron Deficiency, Trinity College, Dublin, 6–8 June 1990)

Plant-based Eating Plan

Some preliminary results from a large international research project on the interrelationships among health, eating habits, environment and social practices within China were quoted in our last issue of the SCN News (No. 4, late 1989, The Cornell–China–Oxford Research Project on Nutrition, Health and Environment). The results of this huge study are now appearing in the press. Jane E. Brody recently reported on some of the early epidemiological findings of this research in The New York Times, May this year.

These reported results are related, mainly, to the variations found in the dietary habits of the Chinese as compared to those of Americans, particularly in respect to animal fat and protein intakes. The study reports that the much larger intakes of fat and protein of animal origins in current American diet may be related to the existing higher risk of cancer, heart diseases and diabetes in this society. A more plant-based eating plan, it is reported, may promote health. This seems to be just a beginning for a chain of articles and reports on the findings of this massive research. The following quote is taken from the New York Times article.

"We are basically a vegetarian species and should be eating a wide variety of plant foods and minimizing our intake of animal foods" says Dr. T. Colin Campbell, a nutritional biochemist from Cornell University. The Chinese have already begun to capitalize on these findings, using them to develop national food and agricultural policies that will promote health. "Usually the first thing a country does in the course of economic development is to introduce a lot of livestock. Our data are showing that this is not a very smart move, and the Chinese are listening. They're realizing that animal-based agriculture is not the way to go."

(Source: Science Times, The New York Times, May, 8, 1990)

Greater Opportunities for World Bank Lending for Nutrition

An important ruling from the World Bank Legal Department broadens opportunities for nutrition lending by the Bank. Setting a significant precedent for those planning nutrition projects, the Bank's Legal Department has concluded that provision of food supplements under circumstances common in World Bank nutrition projects "constitutes a clear productive purpose", and therefore can now be financed in such projects. This analysis stated that "while the supplements are a kind of food, i.e. enriched and fortified cereals, they are also specialized and are available to a particular group of individuals only under circumstances which are intended to be therapeutic.... These nutritional activities appear to be distinguishable from disbursing general food in a relief situation". Projects may now address food issues directly if analysis points to the limitation of food as the main constraint to achieving a key productive objective. And developing human resources through better nutrition is accepted as a productive objective.

(Source: The World Bank, May, 1990).

Role of Nutrition Research in WHO

The important role of nutrition research in promoting health and development was highlighted in the WHO's Technical Discussions – on the role of health research in the strategy of Health for All by the Year 2000 – during the 43rd World Health Assembly this year. The report from this session emphasized the crucial role of nutrition in health, the importance of establishing national research priorities in nutrition, strengthening research capabilities. Among the points covered in the report were the following.

"...It is evident that there are insufficient centres for nutrition research so WHO has a particularly important role to play in encouraging the initial development of regional centres and subsequently the nurturing of national resources as well as the strengthening of the already existing ones. At least two research institutions in each of the WHO regions should take responsibility for conducting advanced degrees in nutrition. Training in regionally-related institutions should be encouraged.

"These centres should have their priorities set by local needs and by their governments but collaboration and the development of networks to amplify their effectiveness is important...."

"WHO itself needs to change dramatically its approach to nutrition.... given the importance of nutrition to so many health problems, a higher profile and a more systematic approach to promoting nutrition is a prerequisite if national governments are to be encouraged to follow suit."

The background paper prepared for the session assessed the global and regional state of nutrition research and gave suggestions for its development. It stressed that "...Because promoting healthy nutrition and preventing and managing malnutrition offer one of the most direct and effective means of improving the duration and quality of life, research into the interrelationships between food policies, diet and health has much to recommend it."

Dr. Dutra the president of the International Union of Nutrition Sciences (IUNS), in his speech to the 43th World Health Assembly in May, 1990, noted that "there has been a gap between nutrition knowledge and its application. The number of trained persons in nutrition is small, the recognition for their work is far from what would be expected and their brain drain to developed countries, including to international organizations, is

going on. Countries and international organizations should stimulate the build up of training, research and countries nutrition centres in the area of nutrition specially in less developed countries. Nutrition has to be seen as a major factor for health and development. Everyone has the need and the right to eat everyday a balanced diet for better nutrition. The International Union of Nutrition Sciences along with governments and other NGO groups are certainly willing to see this goal to come true."

(Source: Report of Technical Discussions, 43rd World Health Assembly, May 1990)

IDRC Calls for Re-evaluation of the Current Strategies in Nutrition Research

Extensive re-examination of the current strategies and priorities in nutrition research is needed, according to the Nutrition Technical Advisory Committee of the International Development Research Centre (IDRC) of Canada. Examining the global trends in nutrition research over the past forty years, a recent report notes that more attention should be given to the actual situation in communities, including resources and knowledge. Some of the views in this context are reproduced below.

"The IDRC experience in dealing with nutrition has not been unique in its piecemeal approach. This experience parallels the evolution of concepts and knowledge within the greater nutrition research and development community. Research on nutrition has generally reflected views on causes of malnutrition current at the time.

"In the 1950s and 1960s, protein deficiency was considered the major cause of third world nutrition problems and this led to substantial investment in protein technology research. The complete failure of these technologies to make any indent on malnutrition resulted in a radical re-thinking of nutrition policies and priorities in the 1970s, with a new emphasis placed on the socio-economic context of malnutrition and the need for multi-sectoral nutritional planning. Nevertheless, by the 1980s, this new approach had proven to be overly ambitious, expensive, insensitive to the needs and desires of intended beneficiaries, unrealistic in terms of national government capabilities and its expectations for intersectoral collaboration, and too demanding on facilities for data collection, analysis and use.

"Some lessons may be learned from these past experiences in nutrition interventions and these can be applied to new initiatives. The extremes of "magic bullet" technical solutions and unwieldy, bureaucratic multi-sectoral interventions have not had much impact. Although a deeper understanding of the causal factors of malnutrition and their interactions are evolving, practical and analytical work is still required to develop and validate new approaches. A major conclusion is that not enough attention has been paid to the actual situation, resources and knowledge of malnourished people. For example, long-term trends and patterns in food availability and consumption should be understood as they relate to seasonal and demographic changes over a number of years. It is becoming increasingly clear that malnutrition is intimately linked to inequitable access to productive assets, low income, social discrimination and poverty. In many cases, total food production is adequate but the incidence of malnutrition is worsening. The food is there but beyond the reach of the poor. In other cases, however, and particularly in Africa, nutritional improvement may indeed be constrained by food shortages and environmental degradation.

"By focusing most analytical and promotional attention on the large centralized schemes, a whole range of smaller community-based experience and their lessons has been all but ignored. There is much potential for achieving improvements by involving local community members in the identification and analysis of their malnutrition problems. This local analysis can then lead to the choice of interventions, the identification of obstacles which can be addressed by the community members themselves, and those in which specific sectoral agencies and institutions could be effectively involved. NGO's in particular can be important vehicles for nutrition improvement programmes but their past track records and experiences have not been well documented or analyzed. In general, they are closer to communities and can assist in the articulation of local perceptions, needs and priorities. The challenge is to link these groups with national support programmes and to assess the replicability of their approaches."

(Source: Dr. Richard Young, Nutrition Unit, Agriculture, Food and Nutrition Sciences Division, International Development Research Centre (IDRC), P.O. Box 8500, Ottawa, Canada)

Vitamin A – Impresario of Life

Epidemiological evidence is accumulating on the profound effects of vitamin A deficiency on resistance to infection and mortality risk. Basic research results from the laboratory are now beginning to show that vitamin A metabolites may be remarkably important in control of cell differentiation both in embryogenesis and

throughout life. These results have far-reaching implications. It may turn out not to be media hype to label vitamin A "the impresario of life". Recent findings have been readably summarized by Natalie Angier in the New York Times, from which the following quotes were taken.

"The question of how a single fertilized egg blossoms into a complete human infant is one of the magnificent puzzles of biology, and scientists are just beginning to pinpoint the key genes and molecules that direct the intricate unfolding. But in a rush of new experiments, researchers have made the surprising discovery that one of those crucial impresario molecules of life is not some exotic or arcane compound, but retinoic acid, a familiar derivative of vitamin A.

"Emerging as a potent controller of development, retinoic acid evidently plays a pivotal role in normal cellular differentiation. It helps determine the shape and pattern of a broad array of the body's organs, including parts of the brain and spinal column, the face, the limbs, the heart, the skeleton, the liver and the skin. The molecule appears to work by nicking on whole groups of genes during key moments of development.... The results indicated that retinoic acid works as a morphogen, a molecule that helps cells to migrate and form patterns characteristic of mature organs. The vitamin derivative operates by entering a cell and somehow arousing one or more of its designated receptors. The receptors then glide over the cell's DNA molecule and flick on a battery of genes. The timing and amount of the retinoic acid that infiltrates the cell seem to help determine which genes become activated.

"These results come largely from studies of chicks and mice, but researchers believe that they are likely to apply to human development as well.

"It is believed that retinoic acid remains important in cell control throughout life, particularly in orchestrating the growth and health of epithelial tissue, which makes up the bulk of the skin, breast and the lining of the lungs, intestines and other organs. This information will be particularly stimulating for those researchers investigating the role of vitamin A in reducing morbidity and mortality, due to acute conditions, in children under five years of age..."

(Source: Science Times, The New York Times. Tuesday 20 March 1990)

IVACG Remarks

The International Vitamin A Consultative Group (IVACG) held its 13th meeting in Kathmandu, Nepal, on 10 November 1989. Global dimensions of vitamin A deficiency, intervention strategies and long-term solutions for its prevention and control as well as new aspects of the vitamin A biology and assessment techniques were the main topics discussed in this largest IVACG meeting so far.

A number of important advances in this field were highlighted in the closing remarks of the IVACG Chairman Dr. A. Horwitz (who is also SCN Chairman). Here are some extracts from his speech.

"We celebrate this year the 76th Anniversary of the discovery of Vitamin A by E.V. McCallum. I had the honor to be his student at the Johns Hopkins School of Hygiene and Public Health, 45 years ago. He taught us nutrition. I remember well how modest he was, despite the greatness of his spirit and the significance of his discoveries for the well-being of the people. With the arrogance of the young, we underestimated the social consequences of the message he was conveying to us, namely, that vitamin A was essential for normal growth, resistance to infection and maintenance of ocular integrity..."

"...Out of a complex and diversified agenda, we single out three major issues: vitamin A in morbidity and mortality in children; new assessment techniques; and the reports of country programmes from multilateral, bilateral, and nongovernmental organizations.

"With reference to the impact of vitamin A on morbidity and mortality of children under five, we all came to the IVACG meeting full of hope that the fundamental observations of Sommer and his colleagues in Ache, Indonesia, would be confirmed in other ecological and cultural settings where incidence and prevalence of vitamin A deficiency as well as food availability, eating patterns and health problems, may be different. We expected morbidity and mortality rates to be significantly reduced as compared with placebo controlled groups, linear growth increased, and hemoglobin levels raised.

"At this meeting, additional data which confirmed previous reports was presented from research projects in India, showing that improved vitamin A nutrition of pre-school children reduces mortality. Data from Thailand, Indonesia, and some other countries, suggest that vitamin A deficiency also increases childhood morbidity

and that improving vitamin A nutrition of deficient children will reduce their rate of death and blindness.

"In interpreting the sense of the XIII IVACG Meeting, I believe that we can all agree that where vitamin A deficiency constitutes a significant public health problem, governments should initiate and/or extend appropriate programmes for improving vitamin A status, recognizing that deficiency generally exists within an environment of multiple deprivations that also require attention.

"Ongoing intervention trials will better define the level of impact that improved vitamin A nutrition will have in populations with different geographic, socioeconomic, and disease patterns and, thereby, assist government planners in choosing between alternative strategies and allocation of health and nutrition resources. Continuing research is needed to assess the mechanism(s) by which vitamin A exerts its effects, the impact that supplementation may have on less severely deficient populations, and the development of better methods for assessing and improving vitamin A status. In addition, operations research is needed to better identify constraints and barriers to implementation of various interventions as well as to improve the quality of services delivered. Better outputs and outcomes could be obtained with available resources....

"The reports from countries and the international community of agencies show progress in diverse degrees. A common denominator is that better information is available for defining country situations, particularly in Asia.

"The evidence that emerged from this meeting and the outcomes of studies underway should be carefully analyzed by the United Nations Sub-Committee on Nutrition (SCN) and its member Agencies in order to decide on policy implications. The question is, should vitamin A interventions be integrated regularly in the primary health care armamentarium to reduce morbidity and mortality of under fives, due to acute infection? Many of us believe that this should be done. I submit that the best forum for this highly significant decision is the forthcoming International Conference on Nutrition sponsored up to now by WHO and FAO, to be held in 1992. We hope that other major agencies, such as the World Bank, UNICEF, and UNESCO will also join to ensure well planned discussions on the basis of the best scientific evidence available on nutrition problems. IVACG should play a very active role in the planning phase of the conference.

"When all results are put together, this may be seen as a fundamental breakthrough in the history of vitamin A deficiency and public health."

(Source: Dr. A. Horwitz, Director Emeritus, Pan American Health Organization).

Street Foods: Socioeconomic Benefits Versus Potential Health Implications

Street foods have an enormous impact on the urban food supply, economically as well as socially and nutritionally. They also make a very large contribution to the national economy of those countries where they are being sold. Internationally, the financial turn-over of this unofficial industry runs into billions of dollars. For instance the annual sale of street foods in Malaysia is around US\$2.2 billion. In the city of Bogor in Indonesia, annual sales of street foods are estimated as US\$67 million.

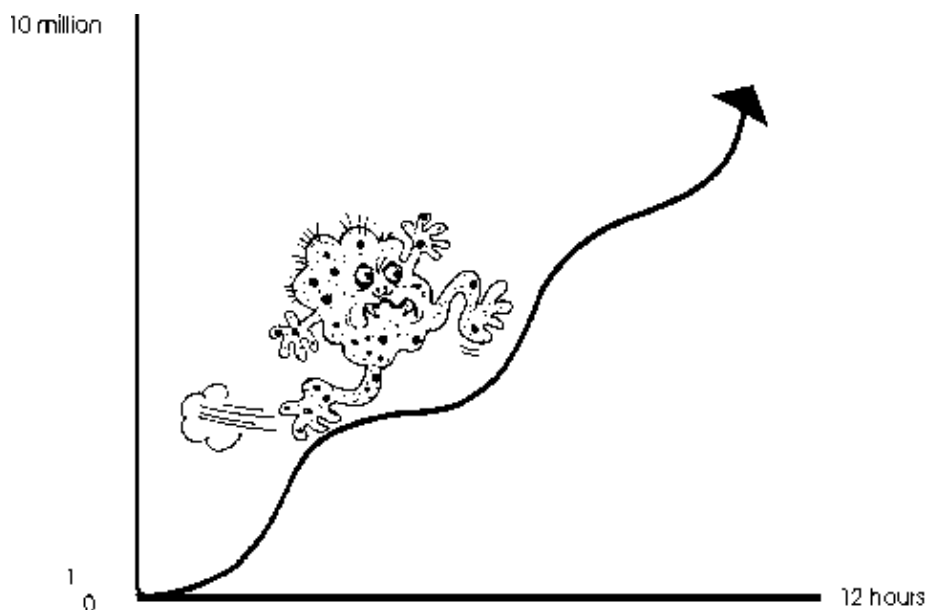
Such facts were brought out in a Consultation on Street Foods convened by FAO in late 1988. Other points from this report (see source) were these. Street foods are an important part of urban life in many countries, playing an increasingly greater role in many others. By the year 2010, almost 40–45% of the population of India, Pakistan and Thailand will be urban. The movement of people from rural areas to urban centres has led to a need for feeding large number of working people on a daily basis. For instance, in Singapore one million street food meals are purchased every day. In Kuala Lumpur, Malaysia, an average of 25% of all household food expenditure goes for street foods. In addition to offering quick meals, to mainly lower income people and students, the vendors are a positive factor in the local economy providing employment. It is estimated that some 100,000 food vendors are employed in Malaysia and a million in China are believed to be involved in various aspects of this business. The numbers in other countries like India, Indonesia, Nigeria, Thailand and Peru must also be substantial. Based on a UNICEF report, 40,000 to 50,000 people were engaged in this informal trade in Senegal in 1979 while modern agribusiness and food industry provided jobs for just 6,800. Studies in Nigeria, Colombia, Peru and some Asian countries show that street food vendors usually earn more than the country's minimum wage and in some countries as much as three to ten times this level.

Street foods are inexpensive, provide variety and include traditional foods, are quickly served, ready to eat immediately, may provide nutritionally balanced meals and are tasty. Yet they have definite potential for serious health hazards due to microbial, and to a lesser extent, chemical contamination. Inadequate hygiene

and sanitation in preparation and storage of food, particularly use of contaminated water, often result in various food-borne diseases due to pathogenic bacteria, as well as contamination with unsafe and non-permitted chemicals, colourings and food additives and presence of other adulterants such as road dusts and filth. In addition to fatal and/or various serious food-borne disease consequences, contaminated foods can also cause mild diarrhoeal diseases many of which are of short duration. They frequently are not reported to public health authorities, and almost become an accepted normal event. These have, however, significant economic importance when considering possible work absence, decrease in productivity, etc. In most countries the production and sale of street foods is not regulated by a food control organization.

In collaboration with a number of countries in Africa, Latin America and Asia, activities have been carried out with FAO assistance in reviewing various aspects of street foods as they pertain to their composition, availability and safety. An FAO Expert Consultation on Street Foods met in Yogyakarta, Indonesia from 5 to 9 December 1988. Realizing the socioeconomic and nutritional significance of street foods as well as their potential for health hazards, the Consultation upon reviewing the available information, strongly recommended official recognition of street food vendors, assisting the industry through development measures, and ultimate absorption of the vendors as partners in the urban food supply system and establishment of agencies responsible for providing control and supervision as first steps towards improving the situation. Not only training of vendors on the basic principles of sanitation, manufacturing quality and safety, but also consumer education would be necessary to enable them to evaluate the nutrition and safety value of the foods offered to them. Future studies should explore the feasibility of introducing new, low cost technology and inexpensive and effective fuel resources in the marketing of street foods. The Consultation recommended that FAO continue its efforts to coordinate and assist countries in their efforts to improve the food handling practices of street foods and to develop codes of practices. Appropriate action was suggested to be taken to bring the issues to the attention of national governments and international organizations so as to gain support and assistance.

(Source: Report of a FAO Expert Consultation on Street Foods. FAO Food and Nutrition Paper No. 46, 1989)



Under favourable conditions, a single bacterium can reproduce itself 10 million times within 12 hours,

Food Borne Illnesses

Food-borne diseases are still a major public health problem in the world, both in developed and developing countries. This is true in spite of the fact that food safety has been one of the main objectives of modern technology. While hundreds of thousands of cases of food borne diseases are reported from all over the world annually, WHO estimates that only a small fraction of these diseases is currently recognized and reported as being of food-borne origin. In developing countries, the ratio between real and reported cases may be as high as 100:1, while in developed countries only less than 10% of the total number of actual cases are in fact reported. WHO defines a food-borne disease as "a disease usually either infectious or toxic in nature, caused by agents that enter the body through the ingestion of food". Most food-borne diseases are caused by microbiologically-contaminated food. Such food is responsible for a high proportion of diarrhoeal and other infectious diseases, particularly in the developing world. Diarrhoeal diseases cause an estimated 1300 million

episodes in the world annually, and result in some 4 to 5 million deaths among children under five years of age. **As much as 70% of diarrhoeal diseases in the developing countries are now believed to be of food-borne origin.** Repeated diarrhoea attacks are one of the main causes of malnutrition and account for 30% or more of paediatric hospitalization in many areas of the world.

(Extracted from: In Point of Fact, Health Organization) No. 67. April, 1990, World

Breastfeeding Has Beneficial Effects Long After Weaning!

A longitudinal study by P.W. Howie *et al* on 674 pairs of mother–infants in Dundee, Scotland showed beneficial effects of breastfeeding on gastrointestinal and respiratory illness during the first year of life. When the effect of breastfeeding of different durations on gastrointestinal illness was studied, it became evident that even breastfeeding for only 13 weeks may protect the infant against gastrointestinal illnesses up to the 24th month, demonstrating that breastfeeding has benefits long after it stops.

These findings provide yet further evidence on the crucial importance of proper feeding, by breast milk, in infancy.

(Source: British Medical Journal (1990), **300** (6716): 11–16)

Supplementary Feeding Counteracts Effects of Diarrhoea on Growth

Children living in poverty are at risk of malnutrition because of both inadequate food intake and infectious diseases, of which diarrhoea is particularly significant. When diets are limiting in energy and protein, increasing dietary intake is of obvious importance and is a key pathway through which nutritional supplementation is thought to influence nutritional status. The effectiveness of supplementation, however, may vary depending on the increased need for nutrients imposed by diarrhoea. Ascertaining the relative impacts of nutritional supplementation and diarrhoeal disease on growth and their interaction is thus important to clarify the mechanisms and conditions under which supplementation is most effective in improving growth. This was the topic of two recently completed studies that asked the question, "what are the effects of diarrhoea and nutrition supplementation on growth and are these effects additive or interactive?"

One recently completed study (Lutter *et al*, 1989)¹ has compared child length and diarrhoeal morbidity at 36 months of age for Colombian children supplemented from birth, and unsupplemented. Among unsupplemented children diarrhoea was negatively and significantly associated with body length. Among supplemented children diarrhoea had no effects on length. The more frequent the diarrhoea, the more effect the food supplement had. One way this was shown was to examine the effect of the supplement from 0 to 36 months. The difference in attained length between supplemented and unsupplemented children in the lowest quartile of diarrhoeal disease was small and not significant statistically. The difference became, however, progressively larger and more significant with age, so that in the highest quartile the difference was nearly 5 cm among supplemented and unsupplemented children.

Regression analysis confirmed significant differences in the slopes but not in the intercepts for supplemented versus unsupplemented children (see Fig. 1). Lack of a significant difference between the two intercepts indicates that in the *absence* of diarrhoea there was no difference in attained length due to the supplement.

The slope for *supplemented* children did not differ significantly from zero (but significantly differed from that of unsupplemented children), which indicates that among these supplemented children diarrhoea had no effect on attained length. In other words, supplementation completely offset the negative effect of diarrhoea on growth in these children. In contrast, the slope for *unsupplemented* children was significantly different from zero, showing that each day with diarrhoea was associated with a reduction of 0.03 cm in attained length at age 36 months.

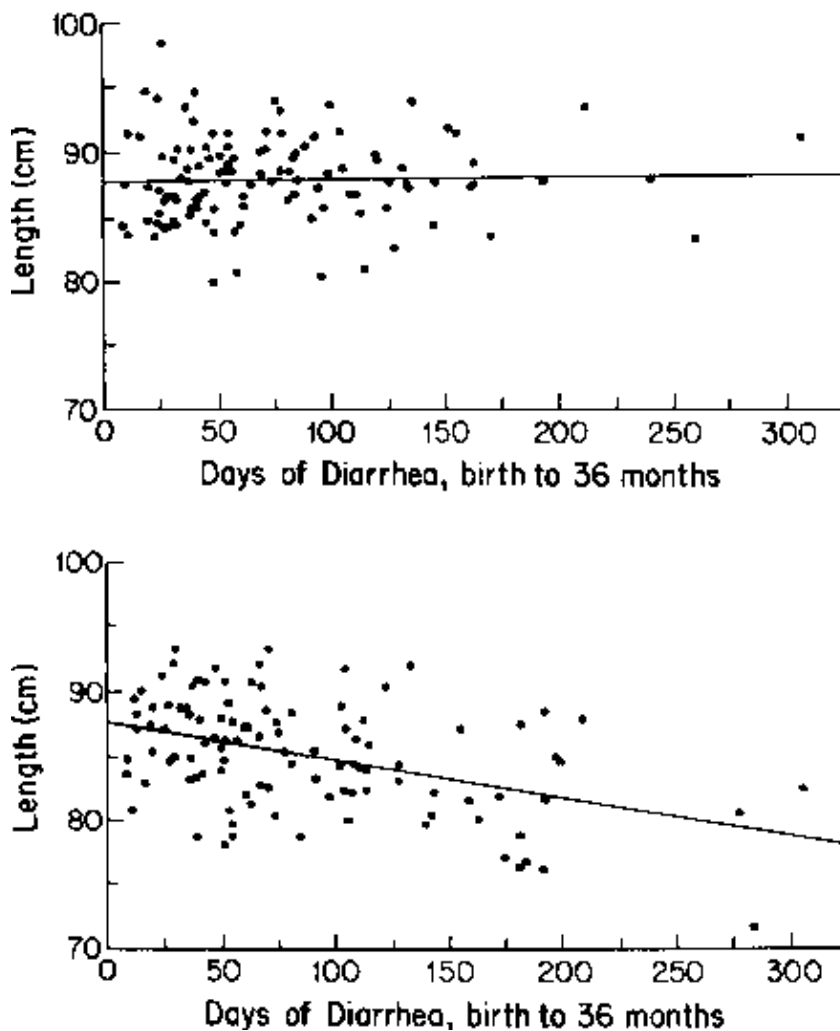


FIG 1. Linear regression model for combined effect of supplementation and diarrhea on attained length. Supplemented (up), Unsupplemented (down).

In a second study, Martorell *et al* (1989)² also examined growth in length in Guatemalan children between 3 and 36 months, in relation to percent time ill with diarrhoea, and supplemental energy intake from two traditional beverages: one with a high amount of energy and one with lower energy. They found that the negative effect of diarrhoea on length was significantly less among those children who were high consumers of the high energy supplement compared to children who were consuming the low energy one. In contrast to the Colombian study the type of supplement was found to significantly affect length even at low levels of diarrhoea so that such children consuming the low energy supplement were approximately 1 cm shorter than those consuming the high energy supplement.

Results from both studies are consistent with a biological model, which predicts that the effect on attained length of a given level of nutritional supplementation will depend on *both* the prevalence of diarrhoea *and* the energy content of the home diet. The relationship between inadequate energy intake and diarrhoea is thus synergistic, and affects growth in a manner far greater than the simple additive effects of diarrhoea or inadequate intake alone would predict. Previous analyses, which did not consider the effect of diarrhoea, have shown the cumulative effect of nutritional supplementation on attained length at 36 months to be only 2 cm for these same Colombian and Guatemalan children. In contrast, Lutter *et al* have shown that among the Colombian children studied those in the highest diarrhoeal disease quartile the difference between supplemented and unsupplemented groups was nearly 5 cm.

The differences that were found between the two studies (in Colombia and Guatemala) are not the result of differences in the underlying biological model, but the result of vastly different amounts of energy available in the home diet in the absence of supplementation. While the percent time ill with diarrhoea was similar in both populations, unsupplemented Colombian children consumed almost twice as much energy as Guatemalan children (1329 versus 778 Kcal/day). The net increase in energy intake among supplemented Colombian children averaged 120 Kcal per day, and among Guatemalan children consuming high amounts of the high energy supplement, 124 Kcal per day. Thus, the finding in Guatemala of a supplement effect across high energy supplement categories even in children without diarrhoea can be attributed to the larger energy deficit

in their home diets. This is not the case in Colombia where supplementation did not contribute to improved growth in the absence of diarrhoea, presumably because home diets were adequate.

Two mechanisms through which supplementation and diarrhoea interact to affect growth are possible: 1) if supplementation results in increased dietary intake during the illness episode, the immediate negative effect of diarrhoea on nutritional status may be offset; 2) if supplementation leads to increased dietary intake immediately after an illness episode, catch-up growth may occur. The latter pathway may be particularly important if intake cannot be increased during a diarrhoeal episode because of anorexia and if catch-up is constrained during convalescence for lack of nutrients. The two mechanisms, increased intake during diarrhoea versus during convalescence, are not mutually exclusive and both may be operating.

The results presented in both studies were based on the effect of supplementary feeding. Similar results might be expected from any nutrition programme that leads to increased dietary intake. Thus one important strategy to reduce the nutritional deficits and growth retardation associated with diarrhoea is to encourage continued feeding during the diarrhoeal episode and increased feeding during the convalescence period. Combining nutrition programmes with diarrhoeal treatment programmes should encourage maternal compliance with this strategy. Combining nutrition supplementation programmes with diarrhoeal disease control programmes would also provide a highly targeted setting in which to provide nutritional supplementation and, thus, should increase its effectiveness in preventing growth retardation associated with diarrhoeal disease.

(Source: Based on article provided by Dr Lutter and "Nutritional supplementation: effects on child stunting because of diarrhoea." *American Journal of Clinical Nutrition*, 1989, 50:1-8)

NOTES:

1) Lutter, C.K. *et al* (1989). *Am. J. Clin. Nut.* **50**, 1-8.

2) Martorell *et al* (1989) In: *Breastfeeding, Nutrition, Infection and Infant Growth in Developed and Emerging Countries*, SA Atkinson *et al* (eds) ARTS Biomedical Publishers and Distributors, St. John's, Newfoundland, Canada. 1989)

Breastfeeding in the 1990s

An informal group of officials and consultants from WHO, UNICEF, USAID and SIDA, known as the Interagency Group for Action on Breastfeeding (IGAB), has been meeting periodically to consider strategies to protect, promote and support breastfeeding. The Group agreed that breastfeeding can be viewed as both a goal and a strategy: it is a key strategy for the attainment of so many goals, relating to the survival and development of children, child nutrition, control of diarrhoeal diseases, birth spacing, and mothers' health and well-being, that it is expedient to regard it as a legitimate goal in itself. The strategy to achieve those goals is to create an environment of awareness and support such that those women who choose to exercise their right to breastfeed are able to do so. Mothers should be empowered to practice exclusive breastfeeding through the first four to six months of life and to continue breastfeeding with complementary foods well into the second year – or longer.

On the following critical areas reviews and workshops have been, or are being, conducted: Current status and trends of breastfeeding and modern knowledge of its benefits; practices of health services relating to breastfeeding; education and training in lactation management; women, work and breastfeeding; linkages with other primary health care programmes (notably control of diarrhoeal diseases), information, education and communication; and marketing of breastmilk substitutes.

A technical meeting organized by WHO from 25 to 28 June in Geneva reviewed the results of these exercises. The outcome of this was then considered at a meeting for senior policy makers from governments and agencies held at the International Child Development Centre in Florence, Italy from 30 July to 1 August this year, in order to reach consensus on a strategy to increase prevalence and duration of breastfeeding, and mechanisms to implement it as part of overall efforts to improve infant and young child health and welfare. Recommendations from this meeting will be presented to the World Summit for Children (29-30 September 1990).

(Source: UNICEF, CF/Prog/HN/1990/002).

A UNICEF Perspective on Nutrition

"The first two years of life are the most critical for the child, for it is during this period that the pattern of its future growth and development is established. Thus, the only way to reduce the prevalence of stunting is to take preventive action, ideally monitoring growth from birth, creating an environment of awareness and support such that mothers are enabled to breastfeed their children exclusively for the first four to six months of life, and ensuring that complementary foods in addition to breastmilk are provided thereafter. Such foods need to be of appropriate quality and provided in appropriate quantity and at appropriate frequency.

"Growth and activity are dependent on the intake of nutrients from the diet (and perhaps from nutritional supplements), but are also influenced by exposure to infection, which affects intake and the utilization of nutrients by the body. Therefore each household or family must be able to enjoy *food security* meaning assurance of foods to meet the needs of all its members throughout each season of the year, and also *health security*, meaning access to appropriate health services, in a healthy environment. But in addition a third component is essential, which may be termed *caring capacity*, encompassing knowledge and understanding of the mother – and other members of the family – about the dietary, health and social, psychological and cognitive needs of the infant or young child, coupled with the ability to provide child care. These characteristics are much influenced by attributes such as literacy, education, independent source of income and – notably –sufficient time.

"Although these three components of food, health and care are each necessary, in a sense the greatest of them is care, for whatever foods and health services may be available they are unlikely to benefit the child below two years of age if care and developmentally sensitive interaction are lacking; while if care and commitment to the child are abundant then, even if food and health security are marginal, resources can more readily be mobilized in favour of the child. Moreover, developmentally sensitive interaction – interaction that includes early stimulation and satisfies a child's need to grow socially, psychologically and cognitively – has a direct and measurable impact on the health and nutritional status of the young child. Effective and sustainable programmes to improve the nutritional status of infants and young children must address simultaneously, therefore, all three needs: for food security, health security and developmentally sensitive care."

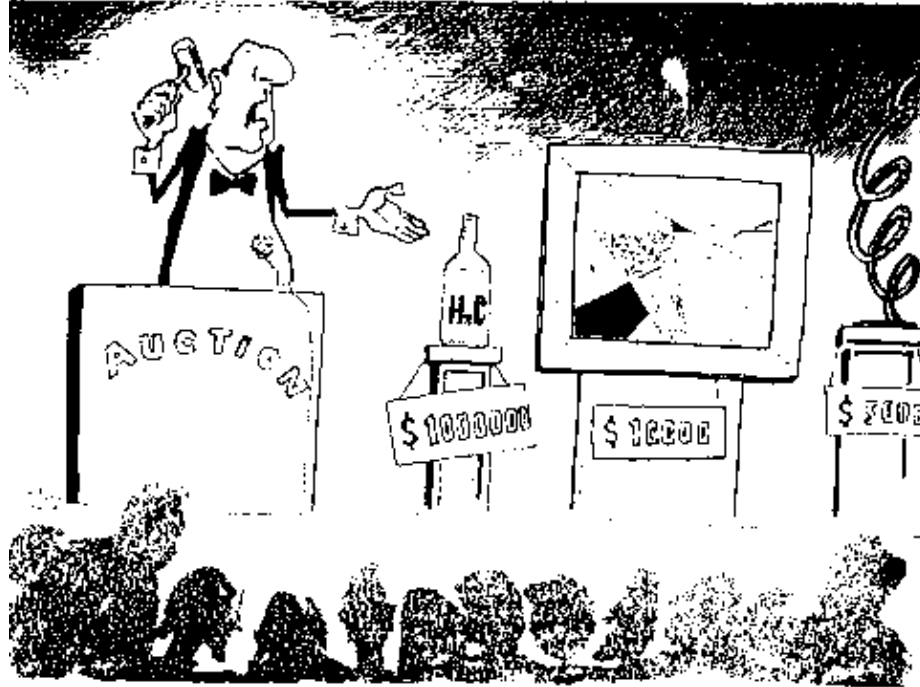
(An excerpt from the Foreword, by Mr James P. Grant. Executive Director of UNICEF to the forthcoming book "Infant and Child Nutrition Worldwide: Issues and Perspectives", edited by Frank Falkner, M.D., F.R.C.P., Professor Emeritus, Maternal and Child Health Programme, University of California, Berkeley, to be published by The Telford Press, New Jersey, in Mid-1990.)

Safe Water 2000

By the end of this year, the International Drinking Water Supply and Sanitation Decade launched by the UN 10 years ago – as a tool for promoting the goal of water and sanitation for all – will be over. While 600 million new users now have safe water and 250 million people are now supplied with proper latrines installed for better health and hygiene, much still remains to be done.

"Urban water supply and sanitation is improving. In rural areas, water supply coverage has risen from 30% to almost 50% in the past ten years, but only 17% of the rural population has access to appropriate means of sanitation. Everywhere, the world is facing pollution and loss of natural resources – water, land, air, vegetation and even genetic diversity – with many unknown adverse consequences for human health."

(From the statement made by Dr. H. Nakajima, Director General of WHO to the World Health Assembly and the Executive Board. WHO, January 1990)



Ladies and gentlemen, this is the last bottle of unpolluted water in the world. China Daily cartoon by Zhang Yaoning

A Global Consultation on Safe Water and Sanitation for the 1990s (Safe Water 2000) will be held in New Delhi, 10–13 September this year, to provide a forum for the exchange of experience and planning, in which the governments of developing countries and external support agencies will participate. The Consultation is expected to arrive at strategies, built on the world-wide experience during the past years, which could be supported by the international community. The results of the consultation will be brought to the attention of the United Nations General Assembly at its 45th session, in November 1990.

For more information contact: Ms Eirah Gorre-Dale, Information Co-ordinator. Global Consultation on Safe Water and Sanitation for the 1990s. UNDP, 16 Avenue Jean-Trembley, Petit-Saconnex. CH-1209 Geneva, Switzerland. Telex: 415464 udp.

(Source: UNDP Newsletter; January 1990)

Sustained Livelihoods through Substituting Employment for Scarce Resources

The objective of sustainability should benefit employment by substituting employment for scarce physical resources. Views on "New strategies and successful examples for sustainable development in the Third World" were presented by Michael Lipton at a hearing on "Sustainable Development and Economic Growth in the Third World" which was held, on June 20, 1989, by the Joint Economic Committee of the US Congress, Subcommittee on Technology and National Security. He concluded his paper by the following remarks.

"...Whether intensive or marginal cultivation is emphasized, we all – in rich and poor countries and in education, research, or technology transfer – need to recall a central issue. What needs to be "sustainable" is not a particular form of farming, nor a particular use of this or that piece of land. What has to be sustained is the capacity of people, countries, and the world to support decent livelihoods. An important implication of this becomes clear when we consider that a growing majority of the world's poor derive their sustenance not from farming their own land, but from working for other farmers as employees. How are their livelihoods, and the soil and water that support them, to be sustained? Patterns of farming that are labor-intensive yet resource sparing need to be extended, transferred, or (sometimes) invented. Examples are using more labor but increasing the productivity of small amounts of nutrient by placing slow-release or mudball fertilizers in the root zone, thus substituting employment for chemicals; and intensive management (for example, by cross bunding) of irrigation and drainage, substituting employment for water. Such inputs as tractors, threshers, and weedicides – which substitute cash purchases for employment, and at the same time may require more skillful management to sustain the environment – are sometimes desirable in Third World agricultures. But if our perspective is that of sustainable livelihoods, there is always a strong presumption against any subsidy to such inputs, or to research on them."

(Source: IFPRI Reprint No. 170)

New Solutions to Old Problems –Hand–Held Computers

When computers were first used for health data analysis, their speed compared to manual methods felt like old dreams coming true. Soon the main drawback of these devices became apparent: their dependence on mains power supply and the fact that they were not portable, restricted their value for field data collection. Furthermore, data collection had to first be made by filling in recording forms, which occupy storage space in extensive field surveys and often get damaged or misplaced if insufficient care is exercised.

The use of hand–held computers (HHC) for health data collection is reported to solve many of these problems. HHCs are portable, battery–operated computers about the size of a pocket calculator, with the ability to capture and retain data which can subsequently be uploaded directly to a host computer locally or transmitted accurately to a host computer from a remote site over standard telephone lines. Electronic versions of the recording form can be generated on HHC directly or on a microcomputer then downloaded to the HHC. Operational time is between 10 to 15 hours for fully charged nickel–cadmium batteries. The batteries can be recharged overnight ready for field operations the next day.

A collaborative project between WHO's Division of Information System Support (ISS) and the Department of Community, Occupational and Family Medicine of the National University of Singapore on the use of HHC for health data collection started in July 1987 and ended in May 1988. In this study three models of HHC were tested and evaluated and the results from field trials demonstrated the advantages over the use of recording forms.

The models tested (Telxon, Epson, Hunter) were 64K to 144K machines costing \$600 to \$2000. The potential applications of these new devices could be enormous. They can be adapted to a diverse range of activities in which desk type computers are inappropriate and may change the way health (and other) statistics are collected.

For more information, please contact Dr. S.H. Mandil, Director of Information Systems Support (ISS), WHO, 20 Avenue Appia, 1211 Geneva. Telex: 415 416.

(Source: World Health, September/August 1989)

UNICEF and the Baby Food Code

The so–called infant formula controversy became once again a matter of public debate when in October 1988 Action for Corporate Accountability launched another boycott of Nestle products, for alleged violations of the International Code of Marketing of Breast–Milk Substitutes. This time the boycott included the major manufacturers of breastmilk substitutes in a country, as well as Nestle. The issue of chief concern was the continued provision of free supplies of breastmilk substitutes to hospitals.

UNICEF had facilitated discussions between the International Nestle Boycott Committee and Nestle which had led to the ending of the first Nestle boycott, after seven years. The boycott was ended on the understanding that this issue of free supplies would be clarified and addressed.

Because of its earlier involvement UNICEF last year received hundreds of letters from the media, individuals and organizations enquiring about its position. This led to the formulation by UNICEF of a concise statement setting out its position on infant feeding. This statement (dated 10 July 1989) is reproduced in the box opposite.

The statement clarifies UNICEF's stand regarding the issue of free supplies, reaffirms support for the World Health Assembly resolutions, and confirms UNICEF's continued commitment to the protection, promotion and support of breastfeeding.

State–of–the–Code

IBFAN monitors compliance with the International Code of Marketing of Breast–Milk Substitute. 1988 State of the Code by Country – a survey of measures taken by governments to implement the provisions of the International Code of Marketing of Breast–Milk Substitutes – shown on margin (see opposite).



IBFAN SCALE – The code in 168 countries

1. Every effort should be made to promote and ensure the initiation and maintenance of breast-feeding, beginning at birth. UNICEF believes this to be the right of all newborn infants and their mothers.
2. In May 1989 the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) published a joint statement on the protection, promotion and support of breastfeeding, with special reference to the role of maternity services¹. This statement describes in detail activities that every facility providing maternity services and care for newborn infants should undertake to encourage the initiation and maintenance of breastfeeding, and summarizes them as "ten steps to successful breast-feeding".
3. UNICEF urges each concerned party referred to in the International Code of Marketing of Breast-Milk Substitutes² (adopted by the World Health Assembly (WHA) in 1981) to implement and monitor its provisions. The parties include Governments and United Nations agencies (Articles 11.1 and 11.2), manufacturers and distributors of products within the scope of the Code (Article 11.3), and non-governmental organizations and individuals (Article 11.4).
4. Since the adoption of the Code, Article 6.6 has received much attention. This article states that "Donations or low-price sales to institutions or organizations... of supplies of infant formula... may be made. Such supplies should only be used... for infants who have to be fed on breast-milk substitutes. (They) should not be used by manufacturers or distributors as a sales inducement". It is important to recall that the reference to "institutions or organizations" was intended to ensure that institutions, specifically orphanages and social welfare agencies, caring for deprived children, could obtain donations to meet the legitimate needs of children in their care. In making this provision for free supplies, the drafters of the Code did not intend to include direct health care providers such as maternity hospitals.
5. UNICEF endorses subsequent resolutions of the WHA on infant and child feeding, especially resolution 39.28³ which clarifies Article 6.6. Resolution 39.28 noted that "only small quantities of breast-milk substitutes are ordinarily required to meet the needs of a minority of infants (in maternity wards and hospitals) and they should only be made available in ways that do not interfere with the protection and promotion of breast-feeding for the majority". Para 2.6 urged Governments "to ensure that the small amounts of breast-milk substitutes needed for the minority of infants who require them in maternity wards and hospitals are made available through normal procurement channels and not through free or subsidized supplies".
6. Virtually all women can lactate; genuine physiopathological reasons for not being able to breastfeed are rare¹. Health care providers should help to ensure that women who choose not to breastfeed fully understand the financial implications of their decision.
7. It has been shown that the ready availability of breastmilk substitutes can undermine the successful initiation of breastfeeding and because the quantities really needed by maternity wards and hospitals are so small, UNICEF advocates that these small quantities should be purchased. However, in institutions such as orphanages where the genuine need for breastmilk substitutes may be substantial, UNICEF supports the donation of free supplies, as provided for in Article 6.6. of the Code. Furthermore, UNICEF urges that donors as well as institutions bear in mind their responsibility to ensure that supplies, when distributed through institutions, are continued as long as the infants concerned need them, as provided for in Article 6.7.
8. UNICEF's mandate is to protect children and promote their optimal survival, growth and development. UNICEF appreciates the work of the many organizations monitoring and aiding in the implementation of the Code. UNICEF is always concerned at any evidence that the Code is being violated.
9. UNICEF reaffirms that all infants should be exclusively breastfed for the first four to six months of life, and that women should receive the support they need to enable them to do this. Thereafter foods complementary to breastmilk need to be introduced, but breastfeeding should continue well into the second year of a child's life and for longer if possible. Specially formulated milks (so-called "follow-up milks") are not necessary. Complementary foods should be prepared at home from foods available to the family. Industrially prepared foods, which are suitable as part of a mixed diet to complement breastmilk, may be a convenience under certain circumstances. They provide an option for some mothers who have both the means to buy them and the knowledge and facilities to prepare and feed them safely to their children. But they are not nutritionally indispensable.

10. UNICEF, as part of its programmes of country cooperation, will continue to support national efforts to implement the International Code of Marketing of Breast-Milk Substitutes, WHA 39.28, other WHA resolutions and all other activities aimed at improving infant and young child feeding. Because of the continuing decline in breastfeeding, UNICEF is accelerating its efforts in this area in order to enhance the gains made over the past decade in other areas of child survival and development.

(Sources: Dr J. P. Greaves; UNICEF document 10 July 1989)

NOTES

(1) Protecting, Promoting and Supporting Breast-feeding: The Special Role of Maternity Services. A Joint WHO/UNICEF Statement, WHO, Geneva, 1989.

(2) International Code of Marketing of Breastmilk Substitutes, WHO, Geneva. 1981.

(3) Infant and Young Child Feeding, WHA Resolution 39.28, WHO, Geneva. 1986.

Commission on Health Research for Development Reports

Global disparities in health are the result of uneven progress in health and development. Health interdependence in our world is increasing, paradoxically, when the economic gap between poor and rich is widening. By the beginning of the last decade of the 20th century, advancing health status of the poorer countries has proved to be much more complex than previously thought. An under-recognized and neglected yet powerful tool to aid in this and to overcome these hindrances is research. Wise policy and management decisions in health and development depend on the results of research. But while research results are needed urgently to empower those who must accomplish more with fewer resources, "there is a gross mismatch between the burden of illness, which is overwhelmingly in the Third World, and investment in health research which is overwhelmingly focused on the health problems of the industrialized countries".

A comprehensive analysis of global health status, key problems and obstacles to its betterment, and proposed strategies to use research in order to overcome health disparities and accelerate development and health improvements worldwide, has recently been reported by the Commission on Health Research for Development. This is an independent international initiative to strengthen worldwide research on the health problems of developing nations, formed in 1987. It is supported by 16 funders from North America, Europe, Asia and Latin America. The Commission's mandate was to survey current health research worldwide, identify strengths and weaknesses, and propose improvements. Health research includes any scientifically based research that is aimed at improving health and health systems.

The report – "Health Research, Essential Link to Equity in Development" – was released at the Nobel Conference on Health Research held in Sweden, 22–23 February this year. It has been the result of two-year extensive worldwide research, country case-studies, commissioned special papers and consultations with world leaders, policy makers and health and development experts around the world. The report thus represents the ideas and experience of many people. It makes a strong case for research as a powerful tool to bring about health and development equity throughout our globe.

The results of a survey, the first of its kind, of global research on the health problems of developing countries plus a study of the main resource flows to supporting it has produced a range of useful basic information on the present state of health research. For example, it is estimated that worldwide annual investment for research on health is about US\$30 billion, but only about 5% is devoted to the health problems of developing countries, which account for 93% of the years of potential life lost in the world.

The book, published by Oxford University Press, has three main parts. In the first, profound global inequities in health are reviewed. On the relationship between health and development, it is argued that health is not only a beneficiary of development but a driving force for it as well.

The essentiality of research, a systematic process to generate new knowledge, in order to improve Third World health and its links to equity in development is brought to light. Part two is devoted to the Commission's findings from surveys and country studies. These relate to the financing research on developing-country health problems, where it is done and how it is promoted. Conclusions and recommendations form the third part of this report.

A set of strategies is proposed. Suggestions are based on envisaging a pluralistic worldwide health research system that will nurture productive national scientific research groups linked together in transnational networks to address both national and global health problems. The Commissions major recommendations are the following:

* All countries should vigorously undertake *essential national health research* to accelerate health action in diverse national and community settings and ensure that resources available for the health sector achieve maximum results. Research should not be limited only to the health sector but should include the health impact of development in other interacting sectors. At present the most urgent need in virtually all countries is for a rapid enlargement of capacity for country-specific health research. It is suggested that at least 2% of national health expenditures should be devoted to essential national health research.

* World scientific capacity should be mobilized and focussed, through international partnerships, on the highest-priority health problems.

* Larger and more sustained *financial support for research from international sources* should be mobilized to supplement investments by developing countries.

* An *international mechanism* should be established, as a forum for review and advocacy, to monitor progress and to promote financial and technical support for research on health problems of developing countries.

Conference participants proposed a task force be created to pursue these recommendations and monitor this international collaborative efforts.

(Source: Report of the Commission on Health Research for Development "Health Research, Essential Link to Equity in Development", 1990)

M.L.

Professor Tandon Honoured at WHO

Professor B.N. Tandon of the All India Institute of Medical Research, was awarded the Sasakawa Health prize for 1990, at a ceremony during the World Health Assembly in May. His acceptance speech included the following.

"Our National Children's Board is the first body to lay down the policies for child welfare. It has always been chaired by the Prime Minister. Several programmes for children have been launched in the country. We are very happy that today we have the largest national programme for child development in the world. It is neither a pilot project nor a demonstration project, but a national programme which covers about 50% of my large country. The programme has been on the ground for 15 years. It has been gradually 40 expanding with the goal of covering the whole country by the year 2000. It is neither dependent on foreign aid nor on loans, so it can be sustained by national resources. We have given it the name of *Integrated Child Development Services* (ICDS). The major component of this programme includes the essential components of primary health care, education and psychosocial development. I state with all humility that this programme has achieved substantial success."

(Source: Provisional Verbatim Record of the Sixth Plenary Meeting, World Health Assembly, May, 9, 1990)

Nutrition Training Workshop – Vietnam

The University of Agriculture and Forestry in Thu-Duc, Ho-Chi-Minh City – jointly with the Nutrition Unit, Institute National Agronomique in Paris – is organizing a workshop on nutrition training at postgraduate level for students in Agriculture and Health Sciences from South-East Asian countries.

The workshop will be held at Thu-Duc, August, 27–31, 1990. For further information please contact: Dr. J.C. Dillon, Institute National Agronomique, 78850, Grignon, France. Fax: 33–1–30549454.

Rapid Assessment Procedures

An International Conference on Rapid Assessment Methodologies for Planning and Evaluation of Health Related Programmes will take place from 12 to 15, November, 1990, in PAHO Headquarters, Washington, D.C. Please see notes under UNU, in the Programme News section of this issue for more details.

Course on Agricultural Policies and Structural Adjustments Analysis – Montpellier

The International Center for Higher Studies of the Mediterranean Agronomic Institute in Montpellier, France, has arranged the above course to take place from 14 January to 8 March 1991. The main objectives of the course are to provide information and training on structural adjustment modalities and their differential impacts on the national food and agricultural complex, to enable participants to understand the elements of the economic and political debate on the subject, and to identify methods for information analysis and decision making. The tuition fee is 8000 French Francs.

For more information please contact: Directeur, Institute Agronomique Mediterranean, 3191, route de Mende, BP 5056, 34044 Montpellier Cedex 1, France. Telex: 480783 F.

Symposium on Refugees' Nutritional Crisis –Oxford

Starvation and nutrient deficiency diseases have often been associated with the quality and quantity of food provided to refugees. The extent and causes of such deficiencies in relief must be more widely recognized if they are not to recur. We were asked to publish the following announcement.

An international symposium on "Responding to the Nutritional Crisis of Refugees: The Need for New Approaches" will be held from 17 to 20 March 1991, at the University of Oxford. The objective of this symposium is to establish the dimensions of the nutrition-related problems of refugees in developing countries (with a focus on Africa where the problems have the most serious consequences). On the basis of the review of the existing system of food (and other service) provision, and of the current international system of responsibilities, the symposium will seek to recommend practical and solution-oriented proposals to alleviate the problems identified in refugee relief programmes.

The symposium is being organized by a Steering Committee comprising the Refugee Studies Programme, University of Oxford, with the Department of Human Nutrition, London School of Hygiene and Tropical Medicine; International Rescue Committee (USA); Medecins Sans Frontieres (Belgium, France, The Netherlands); Oxfam (UK); Save the Children Fund (UK); UNHCR and WFP.

More information from Refugee Studies Programme, University of Oxford. International Development Centre, Queen Elizabeth House, 21 St. Giles, Oxford, OX1 3LA. Telex: 83147 QEH/RSP.

European Nutrition Conference

The 6th European Nutrition Conference is being organized from 26 to 28 May 1991 in Athens by the Greek Society of Nutrition and Foods under the sponsorship of the Federation of European Nutrition Societies (FENS). The Conference will include plenary sessions, posters, workshops and short papers. The followings are the main topics to be covered: current perspectives on diet and disease; factors determining individual eating behaviour; biotechnology and the future of agriculture; novel foods; and a European nutrition policy.

More information from: Sixth FENS European Nutrition Conference, c/o Department of Nutrition and Biochemistry, Athens School of Public Health, 196, Alexandras Avenue, GR-115 21 Athens, Greece. Telefax (301) 6436536.

Also as noted in SCN News No. 3, the First European Conference on Food and Nutrition Policy will be held in Budapest from 1 to 5 October 1990. For information please contact Dr. Elizabeth Helsing, Nutrition Unit, WHO Regional Office for Europe, 8, Scherfigsvej, 2100 Copenhagen 0, Denmark.

Food Security in Sub-saharan Africa: Policy, Planning and Interventions – IDS, UK

Despite nearly two decades of food planning, increasing numbers of people in Africa face seasonal or permanent food insecurity. The situation has been further aggravated by an overall deterioration in living standards in many African countries throughout the 1980s and by unfavourable macro-economic and international conditions.

Poverty, vulnerability, drought and unemployment make food security a major concern of most African governments. Aid donors are also urgently seeking new and more effective ways of supporting national food plans, especially in the aftermath of emergency famine relief programmes in the mid-1980s.

The Institute of Development Studies (IDS) having a long experience of research and operational work on food security and related issues, will be offering a new 8 week course, from 28 May to 20 July 1991, on food security planning in Sub-Saharan Africa. The course is designed for food security planners, policy makers and practitioners from the region as well as NGOs and donor agency personnel working in the area of food security, and combines analysis of policy issues with practical training in planning skills. All participants are expected to bring material with them pertaining to their own country and areas of interest which will feed into this case study work. Course fees, accommodation (including breakfast) and all field study visits will be 4126 English pounds. Applicants are advised to seek funding as early as possible.

Further information on IDS courses from: The Chairman, Teaching Area, Institute of Development Studies at the University of Sussex, Falmer, Brighton BN1 9RE England. Telex 877997 IDSBTN G.

Congress of Nutrition in Puerto Rico

The Latin American Society of Nutrition (SLAN) is planning to hold a scientific meeting, as part of the commemoration for its 25th Anniversary, with the purpose of strengthening scientific exchanges among the participants as well as distributing information on the work during its 25 years of existence. This IX Latin American Nutrition Congress and the First Iberian-Pan American Nutrition Congress will be taken place from 22-26 September 1991, in San Juan, Puerto Rico. The SCN will be among the sponsors.

More information from Professor Jaime Ariza, Nutrition Programme, Graduate School of Public Health, Medical Sciences Building, University of Puerto Rico, G.P.O. Box 2156. San Juan, Puerto Rico, 00936. Tel: 809-758 2525, Ext. 1433 and 1460. Fax: 809 759 6719.

Asian Congress of Nutrition

The sixth Asian Congress of Nutrition will be held in Kuala Lumpur, Malaysia, between September 16 to 19, 1991. Information on this congress can be requested from Dr. Aree Valyasevi, The United Nations University, Institute of Nutrition, Mahidol University, Nakornchaisri, Nakornpathom, 73170, Thailand. Telex: 84770, UNIMAH TH.

International Nutrition Course in UC, Davis

The University of California, Davis has established a new interdepartmental Programme in International Nutrition (PIN). The Programme coordinates educational, research and service activities of faculty members from several departments in the College of Agriculture and Environmental Sciences (Departments of Nutrition, Applied Behavioural Sciences, Agricultural Economics) and the School of Medicine.

The educational curriculum will offer graduate level courses and seminars in international nutrition, including training in basic biological, behavioural and social sciences as well as instruction in the planning, implementation and evaluation of nutrition programmes at the community and national levels. The programme will emphasize an interdisciplinary approach to the solution of nutrition problems.

The PIN is establishing linkages with research and training institutions in less developed countries to foster collaborative research and to provide opportunities for exchange of faculty and students.

Prospective students interested in participating in the PIN must be accepted into one of the existing graduate programmes at UC, Davis, such as the Graduate Group in Nutrition or the graduate programmes in economics, human development, international agricultural development or epidemiology.

Information regarding admission to these programmes can be obtained by writing to the Office of Graduate Admissions, University of California, Davis, California 95616.

A limited number of fellowships are available through the PIN for students with excellent academic credential and a demonstrated commitment to contribute to the solution of nutrition problems of developing countries – seeking a doctoral degree. Application forms can be obtained from the Director, Programme in International Nutrition, Department of Nutrition, University of California, Davis, California 95616, USA.

The United Nations Calendar of Special Days

While 1990 is designated as International Literacy Year, and September 8 as International Literacy Day in the United Nations calendar of events, the followings are some other special dates to remember for this year.

- 18 September** – International Day of Peace
- 1 October** – International Day for Natural Disaster Reduction
- 6 October** – Universal Children's Day
- 16 October** – World Food Day
- 24 October** – United Nations Day
- 1 December** – World AIDS Day
- 5 December** – International Volunteers Day for Economic and Social Development
- 10 December** – Human Rights Day

Moreover, two other events taking place this year on 29–30 September (World Summit for Children, in New York) and on 12–21 November (World Climate Conference, in Geneva), are of particular importance.

(Source: The United Nations Social Agenda, 3)

SCN and AGN Chairmen

Dr Abraham Horwitz, Director Emeritus of the Pan American Health Organization (PAHO), was unanimously re-elected as the Chairman of the Sub-Committee on Nutrition (SCN), at the Executive Session on 21 February 1990, for a further period of two years from February this year.

Professor Reynaldo Martorell (Honduras), of Stanford University, USA, was appointed Chairman of the Advisory Group on Nutrition (AGN). He takes over from Prof. J. Kevany (Ireland), AGN Chairman for the last two years, who remains an AGN member.

Studies on Iron and Zinc Bioavailability by Isotopes

A new Co-ordinated Research Programme (CRP) will be started by the International Atomic Energy Agency, Nutritional and Health-Related Environmental Studies section, later this year. 12 to 15 institutes, mainly in developing countries will participate in a core programme in which mainly iron but also zinc nutrition will be studied according to an agreed protocol. Isotope-aided studies will be carried out to assess the bioavailability of iron and zinc from human diets. While in some developing countries research on these areas has already been carried out, more needs to be known about the factors affecting bioavailability and the means to improve it. The first Research Coordinating Meeting tentatively scheduled for late 1990 or early 1991, will work out the details concerning the work to be done. Studies in developing countries relating to the planning and/or support of appropriate local intervention programmes for the alleviation of iron deficiency will be given high priority. Please see notes under IAEA in the Programme News section of this issue of SCN NEWS for more details.

(Source: Dr. Parr, Section of Nutritional and Health-Related Environmental Studies, IAEA, Austria)

International Assessment of Chernobyl's Radiological Consequences

The IAEA, with the participation of the Commission of the European Communities (CEC), the Food and Agriculture Organization (FAO), the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), and the World Health Organization (WHO), is organizing a major project in which a team of independent international experts will assess the radiological consequences in the USSR of the Chernobyl accident. The survey will include the health and environmental effects, and will evaluate the protective measures taken by the Soviet authorities. The IAEA will publish these findings and arrange for open meetings in which the results of the study can be examined.

The project follows a request made in October 1989 by the Government of the USSR to the IAEA to organize an assessment by international experts of "the concept which the USSR has evolved to enable the population to live safely in areas affected by radioactive contamination following the Chernobyl accident, and an evaluation of the effectiveness of the steps taken in these areas to safeguard the health of the population."

A preliminary meeting between officials of the USSR, the Ukrainian SSR and the Byelorussian SSR and of the IAEA was held in Moscow on 7–9 February 1990 to outline a plan of action to carry out an assessment.

An International Experts' Preparatory Mission was subsequently organized by the IAEA to identify the major assessment to be made. The experts visited the affected areas of the Byelorussian SSR, the Ukrainian SSR and the Russian FSSR from 25 to 30 March 1990 and drafted a proposed work plan for the project based on the information collected. The mission included experts from Austria, Japan, the United Kingdom, the United States of America and from the CEC, the FAO, and WHO as well as the IAEA Secretariat.

They were accompanied by two members of the USSR Parliament and visited villages of Poleskoje and Ovrue in the Ukrainian SSR, Bragin, Veprin and Korma in the Byelorussian SSR, and Novozybkov and Ziyinka in the Russian Federation, all of them located in contaminated areas. The experts reviewed information provided by scientific organizations, hospitals, clinics and agricultural centres, both in the affected areas and in the Republics' capitals. They also held meetings with the local population in the villages, its political representatives, and nongovernmental organizations.

The results of this preparatory mission were presented to an International Advisory Committee, chaired by Dr. Itsuzo Shigematsu, Director of the Radiation Effects Research Foundation, Hiroshima, Japan. The Committee met in Kiev and Minsk from 23–27 April 1990. The Committee included experts from Austria, the Byelorussian SSR, Canada, Finland, France, Japan, the Ukrainian SSR, the United Kingdom, the USA and the USSR, and from the CEC, the FAO, UNSCEAR, the WHO and the IAEA Secretariat. The Committee's expertise encompasses various specialities, including medical, radiopathology, psychology, epidemiology, radioecology, nutrition, dosimetry and radiation protection. The Ukrainian and Byelorussian members are the vice presidents of the Republics' respective Academies of Sciences.

The Committee approved the work plan to be implemented, which includes the corroboration of data to be provided by the USSR as well as an evaluation of the protective measures that were taken. It further envisages making recommendations as to future actions in the affected regions. It is expected that approximately one hundred international experts will be involved in the implementation phase of the project that was scheduled to begin in May 1990.

After the completion of the project, scheduled for late 1990, an authoritative report is to be prepared by the International Advisory Committee and published by the IAEA. This will form the basis for subsequent follow up studies.

Finally, meetings are envisaged in Kiev and Minsk in which the findings of the studies will be open to broad discussion.

(Source: IAEA Press Release, 7 May 1990)

"MotherCare" Project

A five-year project was recently launched by USAID to help solve problems of maternal and neonatal health and nutrition. The project is called "MotherCare". The following was extracted from their announcement.

Each year half a million women die from complications of pregnancy and childbirth. Ninety-nine percent of these deaths are in developing countries. Of the 14 million infant and child deaths that occur in developing countries each year, *nearly half take place during the first month of life. These deaths are due primarily to the poor health and nutritional status of the mother and the conditions of the birth itself.* Many births are not assisted by a trained attendant.

In most developing countries, pregnancy and childbirth are seen as familiar, natural and safe events. Yet the statistics show that this is often not the case. Pregnancy and childbirth frequently end in tragedy, particularly for the poor, uneducated woman and her baby. This woman faces a lifetime risk of dying from pregnancy-related causes of about 1 in 33 compared to 1 in approximately 6,000 in the United States.

The reasons for such inequities are clear. Women in developing countries do not have access to the information and services they need to ensure a healthy pregnancy and a safe delivery. This is particularly disturbing in light of estimates that up to 80% of maternal deaths could be avoided. Assuring that women receive quality health care, an adequate diet and appropriate information is long overdue. "MotherCare" was created to assist countries, communities and individuals to identify and implement solutions to the widespread problems affecting maternal and neonatal health and nutrition.

Improving health and nutritional status of women is a high priority. First, women need information that enables them to recognize problems and seek care. At the same time, the quality of the health care services available

to women must be improved to provide an effective response. MotherCare activities for women are: prevention and treatment of maternal anaemia; improved maternal nutrition, particularly weight gain during pregnancy; prevention and treatment of infections, especially sexually transmitted diseases; integration of maternity care with family planning; improved life-saving services, specifically for the delivery.

Survival of the newborn is inextricably linked to the health of the mother and to birth practices. An undernourished woman has a much greater chance of delivering a low birth weight infant, one who is more likely to die young. Unhygienic birth practices result in the death of three quarters of a million neonates from tetanus. MotherCare activities for the newborn are: prevention of neonatal tetanus; promotion of clean and safe deliveries; prevention of hypothermia; early initiation of exclusive breastfeeding; early recognition and appropriate care of sick neonates.

From policy makers to traditional birth attendants to family members, MotherCare aims to target the attitudes and behaviours of key individuals who have an impact of the health of women and newborns. Project activities are designed to influence: national maternal and neonatal health and nutrition policies; quality of health care providers' interactions with women; case management, screening, referral, and lifesaving skills of health workers; family and community awareness of the problems and solutions.

MotherCare will conduct country assessment visits and provide support for maternal and neonatal health and nutrition activities through: long-term projects; short-term technical assistance and training; applied research; planning; enhancing maternal and neonatal services; reaching women with information and policy.

How to request MotherCare assistance: MotherCare is funded by the U.S. Agency for International Development, Office of Health, Bureau for Science and Technology. As a centrally-funded project, MotherCare may work in any country at the request of the local USAID Mission. For additional information, please contact: MotherCare Project Officer, S&T/Health, U.S. Agency for International Development, Washington, D.C. 20523-1817, Tel: (703) 875-4663, Fax: (703) 875-5490, or MotherCare Project Director, John Snow, Inc. 1100 Wilson Blvd. 9th Floor, Arlington, Virginia 22209, Tel: (703) 528-7474, Fax: (703) 528-7480.

PROGRAMME NEWS

AUSTRALIA

Update on AIDAB Nutrition Activities

The Australian International Development Assistance Bureau (AIDAB) supports the Primary Health Care approach to health (including nutrition), and is currently contributing through a number of different funding mechanisms in the countries in its region (mainly South East Asia and the Pacific). It is particularly focussing on the theme of WATCH (Women And Their Children's Health) Activities have covered the countries in the following regions.

Africa. In addition to other African countries supported, AIDAB has funded projects in two countries: In Mozambique an agricultural project to improve food security (worth US\$457,000 over 3 years) and in Tanzania a child survival project with nutritional impact (worth US\$1.1 million over 5 years).

Indochina. As special NGO programmes, three projects in Cambodia and one in Vietnam have got financial support. In Cambodia: Rehydration, Immunization, Nutrition and Education Centre, (worth US\$80,000); food production project (worth US\$98,000); Health education, irrigation and village garden project have been provided. In Vietnam: a horticultural mixed food project (worth US\$152,000) has been supported.

Southeast Asia. The ASEAN Australia Economic Cooperation Programme includes a Food Technology Research and Development Project (worth US\$1 million). In Indonesia, a large flood mitigation and irrigation project in Northern Sumatra (worth US\$54 million over a 9 year period), includes health and nutrition components.

South Pacific. Funding continues for the South Pacific Commission for the regional programme of technical assistance. A UNICEF implemented Family Food and Nutrition Project (in five countries) is partially funded by AIDAB (US\$543,000).

Seminar Support and Research Grants

Attendance at conferences on Oceanic

Foods, Medical Research, Food Safety, Tropical Health and Nutrition and on Baby Foods Action have been funded. Funds are available to enable people to participate in conferences through the International Seminar Support Scheme.

(Source, and for further information contact: Ms Ruth English, Principal Nutritionist, Commonwealth Department of Health, P.O. Box 100, Woden, A.C.J. 2606. Australia)

CANADA

IDRC Establishes Nutrition Unit

In January 1989, the International Development Research Centre (IDRC) established a Nutrition Unit in the Agriculture, Food and Nutrition Sciences Division. It is a Centre-wide Programme Unit, which integrates the nutrition-related work of all Divisions by means of an interdivisional committee, and develops the nutrition programme on a multidisciplinary basis.

The overall mission of the nutrition programme unit is to contribute to the improvement of community nutrition, and the nutritional status of the poor. In pursuit of this mission, the programme unit supports research which seeks to promote:

- a) the development and implementation of methodologies for assessing the broad causes of community nutrition problems and promoting their use in nutrition intervention and rural nutritional programmes;
- b) the formulation of national policies and action programmes for nutritional improvement;
- c) integrated projects in nutrition, innovative research methodologies, and the dissemination of new and relevant information from various disciplines.

In pursuing these programme objectives, the Centre increasingly supports research, training and information dissemination in the following areas: causes of community nutrition problems, integration of economic issues into nutrition thinking and programming, infant and child nutrition, women in development, nutrition education, nutrition management and training.

Generally, the Nutrition Unit's responsibility is to bring coherence and increased visibility to the Centre's nutrition programme. In particular, the Unit fosters coordination among the nutrition activities of the various Centre Divisions and promotes the incorporation of nutrition objectives into agriculture, health, social sciences, communications and information programmes. Through this coordinating mechanism, IDRC will direct increasing support to nutrition mainly in the form of multidisciplinary projects. The Nutrition Unit also has a divisional activity project budgets, which are used to expand and strengthen certain initiatives and to support the development of innovative approaches to nutrition research.

(Source, and for more information contact: Dr. Richard Young, IDRC, P.O. Box 8500, Ottawa. Canada K1G 3H9. Telex: 053-3753.)

Health and Welfare Activities

The Ministry of National Health and Welfare, has now released three nutrition reports entitled "Nutrition Recommendations"; "Action Towards Healthy Eating"; and "Nutrition Recommendations... A Call for Action", which is a combined summary of both reports.

"Nutrition Recommendations" reviews the scientific evidence on human nutrition from a public health perspective and provides recommendations to promote and maintain health and reduce the risk of nutrition-related diseases such as heart disease and certain types of cancer. In preparing these recommendations, a combined review of nutrient requirements and nutrient/disease relationships was undertaken by a Scientific Review Committee. This process has resulted in a book which provides nutrition recommendations and a full revision to the Recommended Nutrient Intakes for Canadians, last issued in 1983. The 208-page report provides the scientific basis for healthy eating. Its format allows the reader to refer

quickly to particular nutrients. It is available for \$18.95 Cdn. through Canadian bookstores or from the Canadian Government publishing Centre, Ottawa, Ontario, Canada, K1A OS9; the cost outside Canada is \$22.75 US.

The publication "Action Towards Healthy Eating" was prepared by a Communications/Implementation Committee and contains an expression of the Nutrition Recommendations in a format more easily understood by the general public. These recommendations – Canada's Guidelines for Healthy Eating – advise consumers to enjoy a variety of foods; it emphasizes cereals, breads, other grain products, vegetables and fruits, low-fat dairy products, lean meats and foods prepared with little or no fat; to achieve and maintain a healthy body weight by regular physical activity and healthy eating; and to limit salt, alcohol and caffeine.

The publication also contains recommendations to implement Canada's Guidelines for Healthy Eating. The publication "Action Towards Healthy Eating and Nutrition Recommendations... A Call for Action" is available free of charge from the Canadian Government Publishing Centre, Ottawa, Ontario, Canada, K1A OS9.

(Source, and for more information please contact: Dr. S.W. Gunner, Food Directorate, Health Protection Branch, Health and Welfare Canada, Ottawa, Ontario, K1A OL2, Canada)

CARIBBEAN

Caribbean Food and Nutrition Institute (CFNI)

Unequal access to goods and services including food and nutrition, with low domestic food production thus great dependence on imported foods have resulted in the co-existence of both under- and over-nutrition in the countries of the Commonwealth Caribbean. While large number of children suffer from energy-protein malnutrition and iron deficiency anaemia, many adults succumb to the ravages of the chronic diseases, which have gradually replaced the communicable ones among the leading causes of death.

CFNI was founded in 1967 as a means of adopting a regional approach to the solution of the nutrition problems of the English-speaking Caribbean countries, and as one of the mechanisms devised to improve the nutritional situation in a multisectoral manner. CFNI is a specialized centre providing technical support services in the area of food and nutrition directly in the delivery of technical cooperation to member countries. The budget of CFNI comprises a regular core component provided by PAHO and by the member governments.

Since its inception CFNI has adopted a holistic approach to the solution of food and nutrition problems, concentrating its attention on the community. During the first decade after its establishment, the size, nature, distribution and relative urgency of these problems were defined.

Technical cooperation activities are divided into two areas: "Food Availability and Consumption" and "Health-/Nutrition Promotion and Protection". In recent years, the first programme focused on increasing food and nutrition security at the household level and improving food and nutrition planning and coordination at local and national levels. The second programme is targeted to reducing the prevalence and incidence of obesity, diabetes and hypertension, iron deficiency anaemia, energy-protein malnutrition and dental caries, and to supporting institutional food service operations. CFNI has adopted six basic approaches to collaborating with its member countries: mobilization of resources; dissemination of information; training; development of standards; plans and policies; and direct advisory services.

During the last two decades, the Institute has built up an impressive record of assistance to its members to strengthen their capacity to respond effectively to national requirements in the area of food and nutrition policies and programmes.

Looking to the future, CFNI notes the demographic shifts now occurring; the growing awareness of the populations raising new expectations; and the economic crunch increasing hardship. In this last decade before the year 2000, the governments and the Institute have to maintain the gains and capture new ones, in spite of the odds. The recently launched Caribbean Cooperation in Health Initiative reaffirms the traditional principle of cooperation and provides a vehicle for action. Given the unique position which CFNI has achieved in the Caribbean, and the expectations of member governments, it plans to strengthen its leadership role in the Commonwealth Caribbean in food and nutrition.

(Source: Caribbean Food and Nutrition Institute, The Way Forward 1990–2000. November 1989. Kingston, Jamaica)

The Vitamin A Programme

FAO Assistance to the UN Ten Year Action Programme to Prevent and Control Vitamin A Deficiency, Xerophthalmia and Nutritional Blindness continued with advanced pace in 1988/89. As foreseen, the programme covered all four regions – Africa; Asia and the Pacific; Latin America and the Caribbean; and Near East. The objective is to increase the production of vitamin A and carotene-rich foods and ensure their increased consumption, primarily by agricultural-based interventions.

From the start of the UN Vitamin A Programme in October 1985 up to December 1989, FAO has spent some US\$1.5 million for the programme. To date, 17 countries have been assisted in one way or the other, three more than foreseen in the FAO plan for the first five years of the programme. There have been 16 project proposals developed, ten of which are now in official channels.

During 1988, project formulation and implementation were carried out in 13 countries –Bangladesh, Burkina Faso, Brazil, China, India, Indonesia, Malawi, Mauritania, Nepal, Niger, Philippines, Tanzania and Vietnam. In 1989, activities were followed up adding new countries from the African region: Benin, Chad, Mali and Zambia.

Implementation of field projects, however, is lagging behind the plan made for the first five years, primarily due to budgetary constraints. This will change somewhat with the expected funding of six projects by the mid-1990. Meanwhile, more effective programme coordination within countries and between the UN agencies for better use of available resources, as well as more explicit commitments by donors for support of projects, should partially compensate this reduced pace of programme implementation and improve the efforts towards reaching the programme objectives.

Collaboration with the International Vitamin A Consultative Group (IVACG) continued in 1988/9; two task forces met on guidelines for simple dietary assessment of groups at risk of inadequate vitamin A intake, and on nutrition education/communication programmes with emphasis on vitamin A. The report of a joint FAO/WHO expert consultation on the requirements of vitamin A, iron, folic acid and vitamin B12 was published in English as well as French in 1989 (see publications section of this issue).

(Source: Second Summary Progress Report on the FAO Vitamin A Programme, January 1988 – December 1989)

IAEA

New Co-ordinating Research Programme

The International Atomic Energy Agency (IAEA) is planning to start on a new Co-ordinating Research Programme (CRP) to study the bioavailability of iron and zinc from human diets, using isotope techniques.

IAEA is interested in supporting these studies because in many population groups affected by the essential micro-nutrient deficiencies it is not an absolute lack of the element in the diet rather its poor availability in the body. Better identification of factors affecting bioavailability is required as well as the means to improve it by simple dietary modification and fortification using food products of the kind that may locally be available in developing countries.

The main focus of the proposed CRP will be on *iron* nutrition. High priority will be given to studies in developing countries relating to the planning and/or support of appropriate local intervention programmes for the alleviation of iron deficiency. These include (i) food fortification (selection of suitable vehicle for fortification; type and level of fortification required; monitoring of effectiveness) and (ii) dietary modification (selection of appropriate local foodstuffs containing bioavailable iron; reduction in the amount of substances inhibiting the absorption of iron etc.). Studies of iron supplementation (e.g. with pills) however, are considered to be less suitable for inclusion in the CRP. Among such projects, priority will be given to research proposals which also include the concurrent study of *zinc* nutrition in the same target populations. Topics of particular interest with respect to zinc bioavailability, include (i) interactions with calcium and phytate, (ii) enhancement of bioavailability by fermentation, and (iii) effects of lectins. The primary target population groups of interest in each country are those that are considered to be primarily at risk of being iron deficient. This is to be decided locally by each participating institute.

IAEA is interested in supporting the use of isotopes techniques in studies of the kinds outlined above and is able to provide modest funding (around US\$ 20,000 for each developing country institute, spread over 4–5 years).

Applicants in developing countries should provide, in the first instance, an *informal pre-proposal* in the form of a letter including description of the work to be performed (in no more than one page typed single-spaced). The information provided should include: (1) name and address of the applicant (if possible including telephone, telex or fax numbers), (2) the names of any other institutes in the country that will collaborate in the project, (3) some background information on relevant national programmes (existing and/or planned) to alleviate iron deficiency in the country, (4) a summary of the proposed work to be done within the framework of the CRP, with emphasis on what it is hoped to achieve during the first year and on how the target population group(s) for study will be selected.

After a preliminary selection from the pre-proposals, the identified institutes will be invited to submit more detailed proposals on forms that will be provided by IAEA. The final selection will be made on the basis of these formal proposals.

Further information on the purpose and scope of the CRP, and on the use of isotopes techniques may be found in the report of a Consultants' Meeting, which is available from IAEA on request.

Enquiries and pre-proposals may be addressed to Dr Robert M. Parr, Head, Section of Nutritional and Health-Related Environmental Studies. IAEA, P O Box 100, A-1400, Vienna, Austria. Telex: 43 1 2360 1657; Fax: 43 1 234564.

(Source: IAEA, May 1990)

ICCIDD

Report of Further Activities

The International Council for the Control of Iodine Deficiency Disorders (ICCIDD) reports on recent activities undertaken at global, regional and national levels in order to control various disorders related to iodine deficiency.

Following the establishment of an International Working Group for control of IDD in China, the first meeting of the group was held in Beijing on 26–27 November 1989, with WHO and UNICEF representatives. The major technical issues and funding support were discussed. Also the possibilities of using iodine supplies from Japan were considered.

The Third Meeting of IDD Task Force for Africa (Francophone) was held from 11 to 14 November, 1989, at UNICEF, Abidjan. The meeting was attended by representatives of 17 countries.

ICCIDD has provided consultants for National IDD Control Programmes in Africa (Botswana, Ethiopia, Malawi, Mali, Lesotho, Zimbabwe), and Latin America (Bolivia, Guatemala, Mexico). Consultancies (rapid assessment) were carried out in Central America with JNSP (Joint Nutrition Support Programme) support.

In the Middle East, a Regional WHO/UNICEF IDD Working Group was established and met (May, 1989) with representative of 9 countries, at WHO, Alexandria.

"Report on IDD in Europe", published in the Bulletin of the World Health Organization, has revealed major IDD problems in a number of European countries.

A *"WHO/ICCIDD Consultation on IDD Assessment Methodology"* was held at WHO, Geneva (23–26 October, 1989). A handbook is being prepared.

Following the ICCIDD Executive Board meeting at UNICEF in October 1989 in New York, a meeting was held with USSR representatives at which a preliminary plan for a gathering in Tashkent was drawn up.

The proceedings of the IDD Symposium held at the 14th International Congress of Nutrition in Seoul, Korea during August, 1989, has been published. Other recent ICCIDD publications are introduced in the Publications section of this issue of SCN News.

The Executive Board of UNICEF (April 1990) and the World Health Assembly (May 1990) have accepted the objective of elimination of IDD as a major public health problem by the year 2000. The ICCIDD was given much credit for this major step within the UN system as a result of its work since its inauguration in 1986 in Kathmandu. The ICCIDD believes that, with increased funding, escalation of the effort along already established lines will enable this great objective to be accomplished.

(Source: Dr. B.S. Hetzel, Executive Director, ICCIDD, CSIRO Division of Human Nutrition, Kintore Avenue, Adelaide 5000, Australia)

IFPRI

Africa: A Priority for IFPRI

The International Food Policy Research Institute (IFPRI) was established to identify and analyze alternative national and international strategies and policies for meeting food needs in the world, with particular emphasis on low-income countries and the poorer groups within those countries. IFPRI's research is conducted on the complex issues associated with food production, distribution, consumption and trade. The urgent and long-term nature of problems in Africa, their complexity, the relative lack of knowledge about them and the critical role of food policy in alleviating these problems make Africa a priority for IFPRI. IFPRI's research in Africa greatly contributes to its overall research objectives concerning the identification of improved technology policies, poverty alleviation, and sustainable development strategies. In 1977, IFPRI released "Food Needs of Developing Countries: Projections of Production and Consumption to 1990". This report was one of the first publications to draw attention to developing food gaps on a country-by-country basis for Africa. Subsequent research by IFPRI in collaboration with African policy makers, researchers and other development analysts has culminated in a recent book, "Accelerating Food Production in Sub-Saharan Africa" (published for IFPRI by the Johns Hopkins University Press), which sets out approaches and research priorities for improving the African food situation.

To conform with these priorities, IFPRI has increased its commitment to research on Africa. In 1986-88, 18 projects were completed and in 1989 there are 25 ongoing projects. The projects involve 18 countries and fall into 5 research areas that concern labor productivity, commodity priorities, technology adoption, macroeconomic policies and agriculture, and the effects of policies on the poor. IFPRI is collaborating on virtually all of these projects with staff from African universities and research institutes, government senior analysts and policy makers, and centres in the Consultative Group on International Agricultural Research (CGIAR). The Institute has also been involved with the organization of food policy conferences and seminars in Cote d'Ivoire, The Gambia, Kenya, Nigeria, Senegal, Zambia and Zimbabwe. IFPRI is currently involved in collaborative research agreements with national research institutions and universities in 14 countries in Sub-Saharan Africa. These are Burkina Faso, Cote d'Ivoire, Ethiopia, The Gambia, Kenya, Malawi, Niger, Rwanda, Senegal, Sierra Leone, Sudan, Zaire, Zambia, and Zimbabwe. During the course of the research effort, national researchers frequently spend time at IFPRI. Some IFPRI staff are posted to the African countries, and staff at headquarters spend substantial time in African countries.

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Income, Nutrition and Health

The IFPRI Projects on Sub-Saharan Africa in the areas of income, nutrition and health, during 1989/90, covered the following topics.

- * The impact of technological changes in agriculture on rural welfare: policies to enhance the short- and long-term effects on growth and equity.
- * Seasonality in agriculture – its significance for nutrition and productivity in the context of technological change.
- * Effects of selected policies and programs on consumption patterns and child survival.
- * Nutrition, health and agriculture linkages – implications for policy
- * Food consumption and nutrition – implications of changes in maize price and marketing policies in Zambia.

- * Food consumption and nutritional effects of technological change in Zambia.
- * Trade-offs between various food and agricultural policy options and their effects on poverty alleviation and nutritional improvement in a West African setting.
- * Famine in Africa: the consequences for rural people and policies to assist in the transition to sustained development.

(Source: IFPRI and Sub-Saharan Africa; January 1990. IFPRI, 1776 Massachusetts Avenue, N.W. Washington, D.C., 20036, USA).

INCAP

Strategies For 1990s

In the next decade the Institute of Nutrition of Central America and Panama (INCAP) will aggressively develop and implement strategies and cooperative activities which result in the practical application of science and technology in solving the food, nutrition, and related health problems affecting the Member Countries.

The Institute will focus on studies and cooperation related to food and nutrition security, which represents one of the basic contents of social security for the region. The accomplishment of food and nutrition security is fundamental for the improvement of the conditions of severe poverty affecting the region, and for the realization of the human potential of the population.

Beyond INCAP's commitment to these important areas, the aim of the Institute is to be identified as a Central American Organization, genuinely interested in the efforts of integration and of peace. Without peace, it will be impossible to obtain food supply and availability in particular, or social security in general. Without peace, it is also impossible to imagine an adequate quality of life for the population as a whole. Without integration, it will be difficult to develop adequate resources and capabilities to confront the common and complementary food, nutrition and health needs, and to support socioeconomic development of the region.

The decade that is now beginning finds the Institute optimistic towards the future, with the firm conviction that what has been learned in the past 40 years, and what will be learned in the future, will be applied for the benefit of the Central American region.

(Source: Dr. Hernan Delgado, Director, INCAP, Carretera Roosevelt, Zona 11, Apartado Postal 1188, Guatemala, Guatemala, C.A.).

INTA

The Institute of Nutrition and Food technology (INTA) of the University of Chile, in collaboration with Pan American Health Organization (PAHO), UNICEF, USAID, and FAO is organizing an International Training Programme in Food and Nutrition Surveillance (PIEVAN) with activities programmed for the period 1985-91. PIEVAN is cosponsored by the Ministry of Health of Chile, the United Nations University (UNU) and the Latin American Society of Nutrition (SLAN).

The Third International Course, within this programme, on Food and Nutrition Surveillance (SISVAN 90), called "Dr. Martin Forman", in memory of the long time Director of the Office of Nutrition of AID who supported PIE-VAN from the beginning) was carried out from 16 to 19 May, 1990, in Santiago, Chile.

Future courses are planned. More information from: Dr. Sergio Valiente, Coordinator, Institute of Nutrition and Food Technology, University of Chile, Casilla, 15138, Santiago, Chile,

(Source: Dr. C.H. Daza, Coordinator HPN, PAHO, 525 Twenty-third Street, N.W. Washington, D.C. 20037, USA)

UNESCO

International Project on Child Health and Nutrition and School Participation

The second expert meeting on the UNESCO International Project on Child Health, Nutrition and School Participation, took place at the Wenner-Gren Centre Foundation in Stockholm, Sweden from 9-11 May 1990.

An inter-disciplinary group of experts was convened by UNESCO to review progress and accomplishments of the project since its inception in September, 1988. Particular consideration was given to responding to the expanded vision of meeting "basic learning needs" for all children. These are set out in the *World Declaration on Education For All and The Framework for Action for Meeting Basic Learning Needs, the World Conference on Education for All, Thailand* (5–9 March, 1990). The Convention on the Rights of the Child has similar reference.

The three main components of the UNESCO project are:

- a) planning, implementing, monitoring and evaluating in each of four countries (Zimbabwe, Kenya, Thailand and Jamaica) projects addressing the health and nutrition conditions of school age children and children's access to and participation in basic education;
- b) furthering at the global level analytical work on the "education crisis" in developing countries and the extent to which child nutrition, health and welfare are contributing to present inequities in learning opportunities;
- c) disseminating information on scholarly studies and analysis of children and their "right to optimal health" and "basic learning" and findings from country level experiences from different regions of the world.

(Source: Dr S. Van der Vynckt, UNESCO, Paris)

UNICEF

Strategy for Improved Nutrition of Children and Women in Developing Countries

UNICEF believes that freedom from hunger and malnutrition is a basic human right. Continued malnutrition is unacceptable. At its 1990 Session the Executive Board of UNICEF endorsed the following nutritional goals for the year 2000:

- a) the control of protein–energy malnutrition, including the reduction of both moderate and severe forms in children under five years of age by one half of the 1990 levels and the reduction of the rate of low birth weight (less than 2.5 kgs) to less than 10 percent;
- b) the control of micronutrient deficiency disorders, including the reduction of iron–deficiency anaemia among women of child–bearing age by one third of 1990 levels, the virtual elimination of iodine deficiency disorders and of vitamin A deficiency and its consequences, including blindness.

The Board further endorsed a strategy to achieve those goals, which proposes a methodology instead of a predetermined set of interventions. The methodology which can be used at any level of society, from household to national, helps in the identification of appropriate action in a given context through situation assessment and analysis and continued monitoring and advocacy (the "triple A approach"). A conceptual framework which reflects the multisectoral nature of the nutrition problem and identifies causes at immediate, underlying and basic levels, helps to discern what information is needed. In a particular context, the most efficient actions at various levels can be identified and implemented, taking into consideration: 1) the causes of the problem, 2) the resources available, and 3) the nature of the control of resources. The important role of nutrition information systems at all levels of society, including growth monitoring and food and nutrition surveillance, is fully recognized.

The strategy aims at empowering families, communities and governments to improve the nutrition of women and children on the basis of adequate information and sound analysis. The involvement of communities, particularly women, in planning, implementation and monitoring is crucial. Resources must be mobilized at all levels of society. The strategy is multisectoral and interactive to cope with changing environments and it encourages and facilitates participation through social mobilization. As nutrition is not seen as a sector but as an outcome of processes in other sectors, many of which receive UNICEF support, emphasis is given to the reorientation and focussing of existing and planned UNICEF–country programmes, rather than to launching new "nutrition programmes".

The conceptual framework emphasizes the potentially important roles of 1) household food security, 2) health services and disease control, and 3) maternal and child care, thus providing an improved opportunity for

UN–agency collaboration. These three conditions, all necessary for good nutrition, are directly related to economic and social development policies. The strategy therefore facilitates the assessment, analysis and monitoring of the impact of economic and structural adjustments.

In a given context elements of the strategy will be identified through assessment and analysis and will include:

- 1) actions that address the manifestations and immediate causes of malnutrition, such as the promotion of breast–feeding, nutrition rehabilitation, the provision of certain essential drugs, the promotion of oral rehydration therapy, direct feeding programmes and distribution of micronutrients;
- 2) actions that address the underlying causes of malnutrition, such as immunization, the expansion and improvement of the primary health care delivery system, health and nutrition education and communication, family planning, household food security, improved feeding practices, maternal and child care, environmental sanitation and water supply, and literacy and education;
- 3) actions that address the basic causes of malnutrition, such as improved situation analysis, policy dialogue, technology assessment and development and advocacy.

(Source: UNICEF, New York; May 1990).

UNU

Rapid Assessment Methodologies

Relatively rapid assessment procedures, in this context for planning and evaluating programmes for the improvement of nutrition and health in developing countries, are increasingly used mainly by social scientists. There is a similar interest for judging the effectiveness of programmes for rural development and agricultural improvement. Qualitative approaches based on social science methodologies have been found particularly well adapted for such efforts. In particular anthropological methodologies can provide qualitative information on reasons for behaviour that is not obtained from conventional quantitative surveys and questionnaires. Used either alone or in combination with quantitative approaches the information obtained has proved useful both for programme planning and programme improvement.

UNU/UNICEF has published "Rapid Assessment Procedures for Nutrition and Primary Health Care" by Susan C.M. Scrimshaw and Elena Hurtado. These guidelines have been published in English and Spanish with French and Portuguese versions to be published by shortly. A training manual has been developed to accompany the guidelines and a 16 minute descriptive video is available. This is available at a cost of US\$10 in either European (PAL) or U.S. format. Only one copy is needed since it can be reproduced freely.

The United Nations University (UNU), jointly with the UNICEF, WHO and PAHO is organizing an International Conference on Rapid Assessment Methodologies for Planning and Evaluation of Health Related Programmes, to be held at the PAHO Headquarters, Washington, D.C. from 12 to 15 November, 1990.

The conference is intended for persons in international, bilateral, voluntary and national organizations as well as academic institutions who are interested in the application of rapid assessment methodologies for either evaluating the effect of intervention programmes on household and community behaviour or for obtaining information for programme planning. Major emphasis will be on anthropological procedures.

The conference will report on the actual application of these guidelines and other similar methodologies that have been developed for programme assessment and improvement. Session topics will include:

Applications to programmes of nutrition and primary health care; Applications to programmes for the control of specific diseases; Use of rapid assessment procedures by UNICEF; WHO use of rapid assessment methodology for AIDS; Use of rapid assessment methodologies by other international and bilateral agencies; Use of combined methodologies in IUNS/WHO/UNU studies of the elderly; Use of rapid assessment procedures for the nutrition and health programmes of private voluntary and other agencies;

Use of rapid rural appraisal methodologies; Use of rapid assessment procedures for other development programmes; Training of professionals and paraprofessionals in the use of rapid assessment methodologies; Benefits and limitations of rapid assessment procedures and free communications.

Source, and for more information please contact: Dr. N.S. Scrimshaw, Food, Nutrition and Human Development Programme, Harvard Centre for Population Studies. Nine Bow Street, Cambridge, MA 02138, USA. Fax: 617-495 5418.

USAID

Nutrition At USAID

The United States' Agency for International Development (USAID) has established five development objectives for its *overall* programme. Four of these have direct or indirect programme implications for human nutrition. These are: 1) alleviating hunger; 2) improving primary health care/reducing health deficiencies; 3) increasing incomes; and 4) improving access to education.

The Agency's nutrition programme for the 1990's stresses the interactive relationship between nutrition and development; seeks ways to integrate nutrition into the agriculture, health, and education sectors; and emphasizes the role of the private sector in alleviating hunger and malnutrition.

Specific objectives of the Agency's *nutrition* programme are: a) reduction of protein-energy malnutrition in children under five years of age; b) reduction of micronutrient deficiency diseases and particularly iron deficiency anaemia in women of child bearing age and in under five year old children, and nutritional blindness and morbidity and mortality due to vitamin A deficiency; c) improving women's nutritional status, particularly that of women of child bearing age to improve their productivity, health and well-being and also to reduce the number of low birth weight babies and to provide reserves for breastfeeding; and d) expanding access to high quality nutritious foods at household level.

These objectives are to be reached through a number of field projects, defined as:

- 1) Functional Implications of Malnutrition;
- 2) Food and Nutrition Monitoring;
- 3) Nutrition education;
- 4) Combatting Iron Deficiency Anaemia;
- 5) Vitamin A for Health;
- 6) Women and Infants; and,
- 7) Food Technology and Enterprise.

(Source: From "AID's" Nutrition Programme, A Briefing Document." January 1990, The Office of Nutrition, Bureau for Science and Technology, Agency for International Development, Washington, D.C.)

AID MotherCare Project

This update on progress during the first year of the Maternal and Neonatal

Health and Nutrition Project, now known as "MotherCare", was provided by the project management.

Long-term projects Assessment visits were made to nine countries. Five countries under active consideration are: Bolivia, Guatemala, Indonesia, Jordan and Uganda.

Short-term technical assistance has been provided to Haiti for a national assessment of maternal mortality and perinatal outcomes. In Jamaica MotherCare designed a study of factors influencing women's choices of where to deliver in order to help find solutions for hospital overcrowding.

Applied Research Four studies are underway as follows: Peru – quality and content of prenatal care; Indonesia – a) improved delivery systems for tetanus toxoid immunizations and iron-/folate supplements, and b) low birth weight and perinatal mortality determinants; Grenada – elements and costs of maternity care. A study of the efficacy of the Kangaroo Mother Method of caring for low birth weight babies (breastfeeding and skin to skin contact with mother) is about to begin in Ecuador.

Worldwide activities Expert meetings were held on: a) neonatal tetanus elimination, b) reaching women, and c) maternal anthropometry. A report on "Assessment of Technology Needs at the First Referral Level" was written.

(Source: MotherCare Flyer, April 1990)

WFP

Food Aid For Women

In 1989, the World Food Programme allocated US\$323 million to projects that directly involve and benefit women. This makes WFP the largest source of funds in the United Nations system for projects reaching poor, low-income, needy, unskilled and destitute women. Distributed through health centres, food rations help women to overcome nutritional deficiencies during pregnancy and lactation. Here are some examples.

In *Burkina Faso, Niger and Mauritania*, WFP family food rations are given to women when they come to rural health clinics for checkups.

At the Berta Caleron Hospital in Managua, the largest medical facility for women in *Nicaragua*, the meals for every patient are provided by WFP. The programme also provides food aid in some 50 provincial hospitals and clinics. In addition, pregnant women, nursing mothers and malnourished children coming for checkups at health centres in poor rural regions also receive food rations.

In Peshawar, *Pakistan*, public health officials noted that attendance at local health centres rose noticeably in response to the monthly food distribution. At the centres, women are weighed and tested for anaemia while their babies and children are weighed and measured. In most centres women are given advice on baby feeding, weaning practices, water purification, proper cooking methods and sanitation.

In *Honduras*, food aid helps groups of rural women setting up kitchen gardens and fish ponds. In *Guatemala*, food aid encourages groups of women in indigenous communities to grow vegetable.

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Refugees Assistance Programme

WFP's support for refugees and displaced persons has increased sevenfold over the last ten years. Working closely with UNHCR, the programme currently feeds more than half of the world's estimated 12 million refugees.

In 1990 WFP will assist 2.6 million refugees plus another 830,000 displaced persons via special assistance channeled through ten projects. The projects' total cost is US\$123.6 million, representing 346,000 tonnes of food plus transportation.

The projects seek to address the special needs of long-term refugees and displaced persons and provide follow-up to emergency operations carried out by WFP for at least one year. Many of these operations have, in fact, extended over several years. Given the continuing nature of such aid, WFP has tried to include, in addition to basic feeding, assistance for revenue-generating activities which will develop community infrastructure for both the beneficiaries and the host population. Here are some examples of activities planned or under way for 1990.

In *Ethiopia* WFP will provide assistance worth \$12.5 million for some 350,000 Somali refugees in the southeastern region, and an additional \$16.4 million for the 345,000 Sudanese in four refugee camps in southwest Ethiopia. In *Malawi*, 780,000 Mozambicans will benefit from a \$45 million project. As part of the project, the programme intends to use food aid as an incentive for self-help activities such as bilharzia control and building community infrastructure. In *Mozambique*, as war has spread to practically all provinces, so have food shortages; WFP will continue its assistance to some 752,000 persons affected, providing US\$18.7 million to pay for 45,000 tonnes of food and transportation. In line with the new approach, the project includes food-for-work schemes for local seed production, road and bridge repair, and rehabilitation of social services in rural areas. In *Sudan*, nearly 200,000 Ethiopian and Chadian refugees in reception centres will receive food aid worth US\$ 5.9 million over a one year period. Among the beneficiaries are 27,000 expectant and nursing mothers, malnourished children and hospital patients who will receive supplementary feeding including dried skimmed milk. In previous settlement schemes, WFP aid helped to integrate refugees in the villages and towns of the region.

In *Algeria* WFP will provide food commodities valued at nearly US\$3 million for 80,000 expectant and nursing mothers, disabled, elderly people and children, among refugees living in camps in the south. In *Iran*, WFP will

assist 95,000 Iraqi Kurdish refugees through a one year, US\$4.8 million operation that will provide 15,200 tonnes of food.

Finally, in a one year US\$2 million project in the *Philippines*, WFP will provide 4,400 tonnes of food for 28,000 Indochinese refugees sheltered in three temporary centres while waiting permanent settlement.

(Source: Public Affairs and Information Branch, World Food Programme, 426 Via Cristoforo Colombo, 00145 Rome, Italy).

WORLD BANK

Update on Bank's Support For Nutrition Programmes

The World Bank operations continue supporting and financing nutrition projects in a number of countries. Here are some new initiatives.

Asia – In the second nutrition project in *India*, the successful Tamil Nadu Project will be expanded from the current 9,000 villages to a statewide programme covering about 20,000 villages. Moreover, children with moderate as well as severe malnutrition will be admitted into the programme.

The project will strengthen the referral system for children not responding to nutrition supplementation. Low birth weights will be addressed through improving maternal nutrition. Particular attention in this regard will be directed to the nutrition needs of adolescent girls in preparation for motherhood.

The third *India* nutrition project concentrates on the nutrition aspects of the Integrated Child Development Service (ICDS) in the states of Orissa and Andhra Pradesh. The project will be designed to help ICDS, a multi-faceted nationwide programme for 0–6 year olds, focus more efficiently on the nutrition of children less than three years old, without diminishing the programme's broader child development character. An important aspect of this project will be the efforts to mobilize women in poor communities. The second and third nutrition projects will cost US\$260 million in the Bank financing.

A fourth *India* nutrition project, concentrating on the states of Bihar and Madhya Pradesh, but also taking into account national institutional issues, is currently under preparation.

A nutrition project is prepared for *Bangladesh* in which particular attention is being focused on prepregnancy monitoring and, relatedly, improving maternal nutrition. Also, a Poverty Alleviation and Rural Employment Project is designed to complement efforts by the World Food Programme to feed vulnerable groups. Further, a recently approved General Education Project includes school nutrition activities.

Latin America – The Social Emergency and Adjustment Project for *Argentina* is likely to be the largest single nutrition operation by the Bank to date in which US\$200 million is the Bank share of the overall planned cost of US\$510 million. It is estimated that 85% of this project will be for nutrition purposes. Components specifically included are nutrition rehabilitation of the malnourished, food supplementation for those at risk, improved targeting of school feeding programmes, and development of nutrition information systems.

Nutrition projects are also planned for *Brazil, Colombia, Mexico and Venezuela*.

Africa – The Social Dimensions of Adjustment Division Unit is now making a special effort to integrate nutrition policies and actions in the design of its programme. The newest nutrition project in the lending programme is for *Kenya*. The recently completed Kenya Food and Nutrition Policy Sector work provides an analysis of the food security situation, taking account of both individual-level issues of malnutrition and household-level food insecurity. The report proposes targeting food price subsidies to replace recently reduced general subsidies, continued support to the effective use of food aid to improve nutrition, and explores several options for direct nutrition interventions including targeted fortification directed at specific regions at high risk of micronutrient deficiencies.

Food security reports and assessments are completed or under review for *Benin, Burkina Faso, Ethiopia, Ghana, Madagascar, Malawi, Nigeria, Rwanda, Sudan and Tanzania*. Moreover, the earlier completed food security report for *Mozambique* is now complemented by the Population, Health and Nutrition Sector Report.

Egypt – A proposed Structural Adjustment Loan addresses issues related to food consumption and provides safeguards (for example protecting the subsidy on bread) to be accompanied by a Social Fund Project that

addresses nutrition in several important ways – nutrition education, iron fortification, selective feeding, and targeted consumer food subsidies.

(Source: The World Bank)

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Micronutrient Initiatives

The World Bank is to consider an expanded role in combatting micronutrient deficiencies. The decision involves analysis of current and past efforts, and presentation of a policy paper that will be ready in July this year. Themes in this paper will include emphasizing that:

– Micronutrient deficiencies are a common problem with costly effects on human resource development, and technical solutions are available to address the problem.

– Sustainability should be a major consideration in choosing interventions. Cost effectiveness data will be reviewed and the advantages and disadvantages of alternative approaches considered.

– Long-term strategies will be stressed; fortification, increasing nutrient supply and demand; and consumer education – as potentially more suitable than short-term measures such as dosing.

The workshop on iron deficiency control programme organized by the SCN in June (see News and Views) is aimed at contributing to this effort.

(Source: The World Bank, May 1990)

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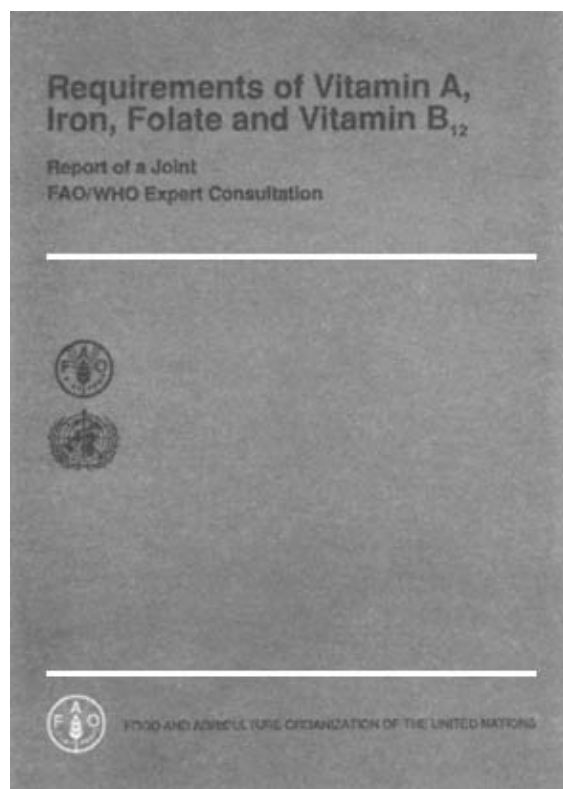
Material for Programme News was assembled and edited by M. Lotfi.

PUBLICATIONS

includes reviews of:

FAO/WHO – Requirements of Vitamin A, Iron, Folate and Vitamin B12
Hunger and Public Action New Seeds and Poor People Engendering Adjustment for the 1990s
Human Energy Requirements Nutrition in the Elderly
Other recent publications

1988 FAO/WHO Report on "Requirement of Vitamin A, Iron, Folate and Vitamin B₁₂"



Reviewed by C.J. Bates¹

The need for revised estimates of human requirement for these four micronutrients is justified in the introductory paragraph of the book: vitamin A requirements were previously considered as long ago as 1965; vitamin B₁, folate and iron in 1970 and folate again in 1972. However a good deal of new information has become available since then, and the interpretation and applications of the recommended intakes have evolved significantly.

The committee met initially in Geneva, in March 1985, under the chairmanship of Professor George Beaton, of the University of Toronto.

One of the new departures that was made was the subdivision of "requirement" into "basal requirement" (the amount "needed to prevent clinically demonstrable impairment of function" without providing any reserves), and "normative storage requirement" (which is the amount needed to maintain a reserve in the tissues – the actual magnitude of the desirable reserve for each nutrient being a matter for judgment). The term "recommended intake", used in previous reports, was replaced by the term "safe level of intake", which was: "that intake which both presents a very low risk of depletion in a randomly selected individual, and meets the normative storage requirement". It is important to realize that the figures can never represent absolute yardsticks for the "deficiency or sufficiency" of individual intakes, but should be seen in the context of probabilities of increasing risk, as intakes fall progressively further below the basal requirements. Deficiency *per se* can only be estimated by objective (i.e. clinical, physiological or biochemical) indices; not simply by dietary estimates.

For *Vitamin A* (retinol equivalents) the principal criterion used was the maintenance of liver retinol stores: above 10 micrograms (mcg) per day for the basal requirement, and above 20 mcg/day for the normative storage requirement. The safe level of intake of retinol equivalents for adults was set at 500 mcg/day for women and 600 mcg/day for men, which is somewhat lower than in previous recommendations. One difficulty that has been encountered in the interpretation of previous estimates of vitamin A requirements, by controlled depletion/repletion studies, has been that the very slow rate of status change at near-physiological intakes tends to result in an over-estimation of requirements.

For infants, and for pregnant and lactating women, respectively, the safe levels of intake were set at 350, 600 and 850 mcg retinol equivalents/day. Beta-carotene conversion factors and vitamin A toxicity were also discussed, and suggestions were made for future research effort.

For *folic acid*, the safe level of intake was set considerably below the recommended amounts of previous

(1970 and 1972) reports: namely at 3.1 mcg total of folate/kg body-weight for adults, i.e. ca. 170 mcg/d for women, and 200 mcg/d for men. The 1970 report had used a "free" folate scale, but this is now generally considered unsatisfactory. The main argument against the older, much higher recommendations for folate was that careful studies of population intakes, coupled with investigations of the associated status indices, especially in Canada (and now confirmed in a number of other western countries), have indicated that the "usual" intakes observed in the region of 150–200 mcg total folate/d are not associated with any major or serious evidence of deficiency. Also, the biological availability of food folate polyglutamates now seems much greater than once believed. A "high risk" group for folate deficiency, however, is that of pregnant women, since megaloblastic anaemia in later pregnancy was relatively common, even in western countries, before prenatal supplementation was introduced. The safe level of intake for this group was therefore set at 7 mcg/kg body weight, or 370–470 mcg/d. For lactating women, and for young infants, the safe levels of intake were set at 5.0 and 3.6 mcg/kg body weight, respectively.

For *vitamin B₁₂*, studies on vegetarian groups with very low intakes have revealed a remarkably low incidence of functional deficiency. This, and other evidence derived from studies on the controlled repletion of deficient individuals, led to a safe intake recommendation of 1 mcg vitamin B₁₂ per day for all adults, with 30–40% increase during pregnancy or lactation. 0.1 mcg/d was recommended for infants. These values are lower than those of the previous reports, and they imply that the intakes that are obtained from mixed diets, especially in Western countries, are considerably in excess of requirements. The safe range of intakes is clearly very wide for vitamin B₁₂, in subjects with a normal absorptive capacity.

Iron proved the most difficult of the four nutrients to find consensus opinion on, and a second committee meeting had to be convened, with Dr. Cook (from the University of Kansas) as chairman. Three of the more serious problems with iron are that different types of food contain iron with greatly differing biological availability; that requirements are heavily skewed by women with heavy menstrual losses; and that haem and non-haem iron pools are affected to different extents by other constituents of the diet. Comparison between basal iron requirement estimates in the 1970 and 1988 reports reveals a number of minor changes; however the safe level of storage requirement (though not tabulated in the new report) would be about *double* that of the previous report. The problems encountered in producing a concise and foolproof formula for iron clearly illustrate the difficulties (which apply to a considerable extent to all 53 micro-nutrients) that arise in producing a "single" figure for a nutrient recommendation – because of variations in the overall compositions of the diet, and in the purposes of the estimate.

The final chapter of the report deals with some practical considerations of usage and interpretation. Clearly the 1988 report has come up with a number of new approaches and also some quite major changes in the numbers and their interpretation, and it has also highlighted several important areas of new research, needed to put future reports onto an even sounder footing than the present one. The Committee joined the Secretariat of W.H.O. in saluting Dr Edouard De Maeyer, who died in December 1988, and who contributed considerably to this, as to similar endeavours in the past.

MRC Dunn Nutrition Unit, Milton Road, Cambridge, UK

(Dr. Bates was a member of the Expert Committee that drew up the FAO/WHO Report)

"Hunger and Public Action"

by Jean Dreze and Amartya Sen. *Wider Studies in Development Economics* Clarendon Press, Oxford (1989), 373p.

The primary concern of this book is action. Action both *for* and *by* the public to reduce chronic hunger and deprivation in their societies and prevent famines in the future. The initial chapters of diagnosis are there to serve as a basis for analysing strategies needed for such action. Public action is not exclusively state action, and its forms will vary with the types of sociopolitical systems of different countries. The public moreover are not a homogeneous group and there will be winners and losers, hence the need for weighing costs and benefits and making trade-offs in the design of actions.

The book is divided into four parts. The first attempts to disentangle the causative web of hunger and deprivation in the modern world. Sen's concept of household entitlements is re-iterated, before turning to consider factors affecting the nutritional status of individuals. How does a person's nutritional status affect his/her capability? Evidence relating to theories of adaptation is outlined, before concluding that a failure of basic capabilities of individuals related to nourishment alone demands actions over a much wider domain than simply food policies. Hence the need to keep the entitlement analysis broad. The final chapter in this section

describes how society, class and gender all condition the genesis of hunger. Social relations are governed by "cooperative conflicts" both at the level of society and the household. Such a co-existence of cooperation and conflict is endemic in social relations – there have always been winners and losers, both sub-groups within populations and individuals within households. For example, in 1943, many rural landless labourers in Bengal starved as their wages became insufficient to buy food at prices related to the increased purchasing power of the urban population in the war economy. At the level of the household, an anti-female bias has been recorded in food provisioning and health care, while nonetheless individuals simultaneously cooperate to ensure their household is food-secure.

A major premise of the book is that famines and chronic hunger are preventable. If people die of starvation in the 1990s, it will be because of a massive social failure, whether or not the causal process was initiated by natural phenomena. The second part of the book is devoted to an analysis of the causation and prevention of famines, with much material being drawn from Africa and India, including case studies from Maharashtra (India), Cape Verde, Kenya, Zimbabwe and Botswana. Public action by the state may protect the entitlements of potential famine victims through the provision of employment in public works programmes. This was a notable success in the early 1980s in Botswana. Employment provision is a natural means of protecting entitlements and one that, while shown to be successful in India, has also considerable potential in Africa. It responds to the first requirement of people in a developing crisis –work, it self-selects, and may also be designed to generate community assets on public land. While the spade may be more powerful than the spoon however, it is not the only answer. The entitlements of different groups of people are too broad and varied to be protected through single interventions.

Other state actions for preventing famines include the provision of accessible health and social services. The efficient functioning of markets is a further important strategic goal as is the need to understand the linkages between the market and the state. The success of public works programmes for example will depend on whether the market can meet the extra demands generated by the wages it provides. The focus should not be *either* direct delivery by the state *or* free markets, but a flexible combination of both, as the situation warrants. As the authors remind us "the penalty of purism can be high".

Chronic undernutrition and deprivation are dealt with in the third part of the book which starts by considering agricultural policies, including cash cropping, diversification, industrialisation and the question of whether food self-sufficiency is invariably an appropriate overriding goal for such policies. The short and long-term trade-offs between economic growth and public support are then outlined with illustrative examples from South Korea (growth-mediated security) and Chile, Costa Rica and China (support-led security). An interesting chapter compares and contrasts the situation in China and India with regard to their histories with famines and famine prevention.

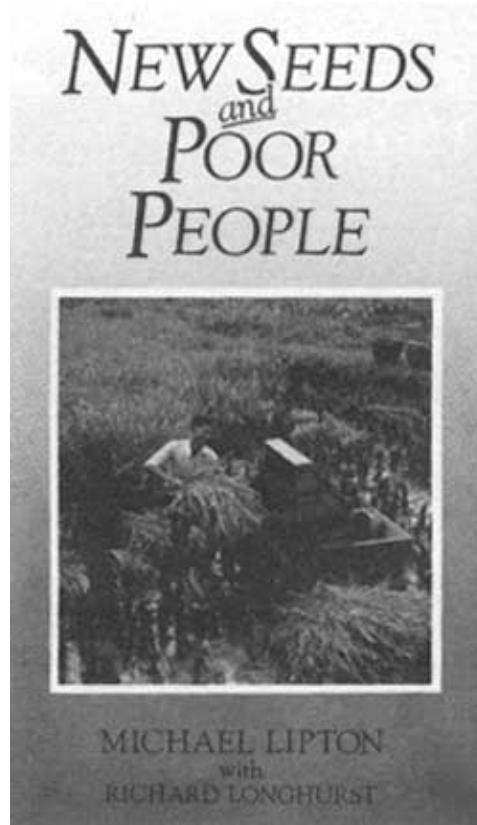
The final part of the book pulls together the themes and arguments of preceding chapters, and from this basis proposes an integrated view of the role of public action in preventing and eliminating hunger and deprivation. The types of appropriate actions by the state for the public have been described throughout the book. A primary role of the public itself will be to force the state to act in such ways – public action *by* the public. This will emerge with the democratic process, its effectiveness governed by the vigour of democratic practice. In true functioning democracies with a free press and public access to information, governments can generally not hope to survive long without responding as famine develops. Chronic hunger is more silent, but nevertheless can become more of a political issue through informed media exposure of state action or inaction as long as politicians remain accountable.

While there is nothing particularly new in the authors' analysis of hunger and deprivation, their skill lies in their systematic exploration of the many facets of the problem, all extensively referenced. Regarding solutions, they readily admit there are no easy ones and never succumb to the urge to over-generalise; both theses and proposals are exhaustively backed by detailed country case studies of successful approaches. The association made between the spread of democracies and the food and health security of populations, again while hardly new is made in an invigorating way. Unlike past abstract generalisations about the political will of governments, here it follows a detailed history of more technical approaches to the problem and arrives at a particularly opportune moment after a decade ending with the process of democratisation accelerating in several countries.

This book should be invaluable in stimulating thought on the hunger problem as well as providing an excellent resource of past experience with various approaches of dealing with it. It will be essential reading for policy makers, economists, social scientists and all those seriously concerned with actions to reduce future hunger and deprivation.

Footnote: Worth looking out for in the near future will be a series of three volumes under the overall title "The Political Economy of Hunger", edited by Dreze and Sen, to be published by Clarendon Press. Successive volumes will cover "Entitlement and Well-being", "Famine Prevention" and "Endemic Hunger".

"New Seeds and Poor People"



by Michael Lipton with Richard Longhurst (Unwin Hyman: London) 1989, 464p.

If "modern varieties" of cereals are to alleviate poverty, research design needs to take more account of poor people's power – both *political power* and *purchasing power*. Modern varieties have caused very large increases in food output, they have increased employment and reduced risk, but who has accrued the benefits of these changes?

The chapters of this enlightening book are organized chronologically, focusing in turn on the physical characteristics of plants, the impact of modern varieties on the poor, mediated by effects on labour, wages, employment, consumption, food prices and nutrition, and the implications for future research strategies. The conventional analysis generally assumes that "poor people" can be affected as small-farm households, whereas evidence increasingly suggests that poor people at nutritional risk are more likely to be agricultural labourers. What happens to the latter group when aggregate food output rises? Food prices may be restrained, but this in turn allows employers to restrain wages thus lowering labourers' real incomes – a "second round" effect further catalyzed by population growth. The financial and socio-political system in many areas where modern varieties have taken off is also conducive to the substitution of wage labour by innovations such as weedicides and threshers, etc. Thus, unemployment may also rise after a time. These are just two possible effects, and this book's major contribution is that it systematically explores the complex web of interactions and the knock-on effects of the spread of different modern varieties in different areas. In Chapter 6, it reassembles the evidence to explain the "Modern variety-poverty mystery", and considers whether certain institutional structures or changes are needed, *before* scientific findings can be adapted, developed or communicated. Or can technical change itself steam-roller through such obstacles and itself transform society?

Returning to the effects of modern varieties on the poor, consider *purchasing power*. In India, modern variety-fuelled increases in output caused first a reduction in imports, then a small net increase in exports, and finally, a build up of 25–30 million tons of foodgrains in government stocks (in order to avoid catastrophic collapse of producer incentives). During this period, the incidence and severity of hunger hardly changed. The poor could not afford this extra food. Where the poor's purchasing power does not rise sufficiently quickly to absorb production increases, thus preventing domestic price decreases, the government may decide to artificially maintain production incentives by setting a higher price to larger farmers for staples. These staples may be used to supply the urban population, restrain imports or they may even be exported. The labouring rural poor will not benefit unless built-up stocks are used in emergencies and nutritional support schemes e.g. food-for-work, infant feeding.

Consider political power. Modern varieties *per se* have not caused mechanization, although their introduction without consideration of social realities probably has. New technology should be designed with respect to prevailing socio-political systems. Research design for poverty-reducing modern varieties should differ as between the type of land (humid, semi-arid) and the type of poor people (small farmers, landless labourers). Asking whether small farmers lag behind large farmers in adopting modern varieties, acquiring inputs, and increasing their per-acre yields – the starting point of much research – is asking the wrong question. Crucially, mention of land quality, non-farm income sources and the number of family members does not appear in such a simplistic analysis: a family's livelihood is more than its land, and its land (if any) is more than simply acres.

In addition to vulnerable households, there are vulnerable individuals within households. Modern varieties should be planned so as to generate extra income for mothers. This will improve the survival prospects for female children in the poorest households where food allocation decisions are geared to ensuring the overall survival of the family i.e. biased to wage-earners. Surprisingly little is known about how the types and timings of modern varieties contribute to small children's special nutritional needs.

The authors show how inappropriate the crop research menu of the past has been, with its excessive concentration on protein content, quality and consumer acceptability. This has produced costlier grain and diverted research resources away from goals of dietary energy and robustness. Protein research is unlikely to benefit human nutrition, except in the few areas where unsupplemented root crops or bananas are exclusively used. The focus should be on raising yields in ways that necessitate increases in labour demand.

The "green revolution" was not, in fact, a revolution at all. Unlike the Neolithic or medieval agricultural revolutions, it did not transform society. Rural power structures not only remained but facilitated the increased flow of benefits to rural elites further strengthening their economic positions. Urban elites have also benefitted through their increased access to a price-restrained staple foods.

Most research on modern varieties has been carried out in Asia, particularly India. African experiences and opportunities are different and four proposals for changes in research strategy for poverty alleviation in Sub-Saharan Africa are presented in Chapter 7. More commitment and sustained funding for modern variety research systems by governments is needed. Research should consider poor people's crops e.g. cassava, yams, sweet potatoes, bananas, as well as employing "farming systems" analyses. Finally, macro-level links between agricultural research and public policy on crop mix, population change and the role of irrigation need to be forged.

Only technology directly available to the poor – either because unavoidably labour-intensive (yet profitable), or because concentrated on crops (or areas or assets) that remain in the control of the poor – is, in the authors' judgement, likely to lastingly overcome the "population threats" to poor people's food entitlements. To quote the late Bernard Schaffer: "in assessing agricultural research on the poor, appropriate technology matters, but the power to appropriate technology matters most".

–S.G.

"Engendering Adjustment for the 1990s"

Report of a Commonwealth Expert Group on Women and Structural Adjustment, (by M. Chinery-Hesse *et al.*, 1989) Published by Commonwealth Secretariat, Marlborough House, London SW1Y 5HX.

Economic recession and structural adjustment programmes have in fact *magnified* the more severe constraints and hardships women have to face in many poor communities. This report of a Commonwealth

Expert Group on Women and Structural Adjustment, however, makes it clear that "the problem of existing adjustment is not its omission of a few projects for women –but its failure to take adequate account of the time, roles, potential contribution and needs of half of each country's population". Thus the main concern of the report is "to propose a broader approach to adjustment, fully incorporating women's concerns, and to identify measures to bring this about".

The Group's special concern for women is expressed in the first paragraph of chapter one: "...in most eras, in most places, women have borne a disproportionately larger share of the work, and have received a disproportionately small share of benefits from work – of income, of food, and of services". And that "the essence of women's distinctiveness lies in the multiplicity of their roles". The Group refers to four of these distinct and relevant roles as producers, home managers, mothers and community organizers (chapter two).

The Report documents the fact that although women benefitted from economic progress (and maybe more so from social progress), in most regions of the world from 1950 to 1980 (measured by e.g. significant increases in life expectancy, literacy and employment rates), their position remained unequal to that of men. It is against this background that the economic crises of 1980s and the structural adjustment policies had their foremost impact on women, particularly in the poorer communities, partly through deteriorating prices and incomes relationships.

The information provided through nine case studies specifically carried out for this Report in a selection of Commonwealth developing countries (Bangladesh, Jamaica, Malaysia, Nigeria, Sri Lanka, Tanzania, Trinidad and Tobago, Zambia and Zimbabwe), as well as the relevant available literature, were carefully examined by the Group. The impact of crisis and adjustment programmes on women is discussed in chapter three of the Report. Yet to draw more attention to the seriousness of the situation in which women are placed, extracts from the findings of the case–studies or from elsewhere are shown in boxes throughout the book.

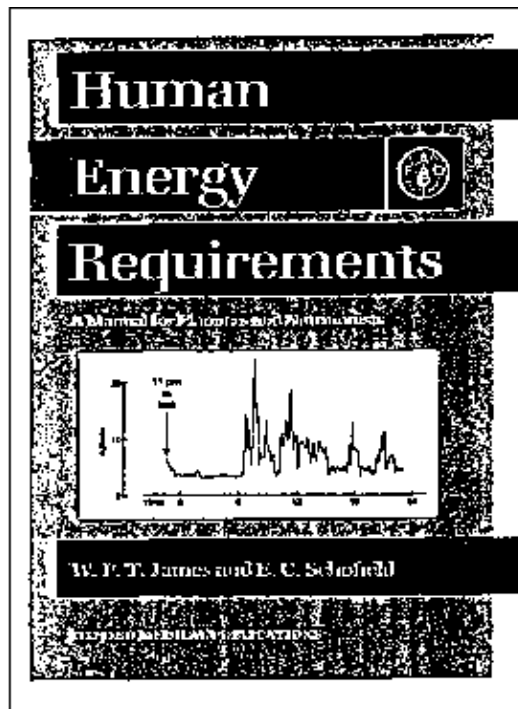
In reviewing measures taken to protect women's position during the course of adjustment programmes (chapter four), the report notes that while the awareness is growing, women have benefitted only incidentally from such small actions.

The Group's recommendations and strategies for change are included in the final chapter of the book (chapter five). On the basis of the evidence gathered, and realizing the fact that short–term stabilization measures have too often been in conflict with longer–term development goals, causing hardships severe enough to invalidate the process, it is suggested that adjustment policies should employ a much broader approach incorporating three general principles: *an emphasis on social equity and economic growth as well as efficiency; full integration of women into the decision–making processes; and a supportive international environment.*

Listing areas to be given priority consideration for action, the Group recommends policy goals for a *new* adjustment policy in which neglected areas are incorporated, shifting the main focus of the adjustment programmes from short–term stabilization to longer–term developmental goals. The Report stresses that "*adjustment with a human face is not enough, what is required in the last decade of the century is development with a human face*"

–M.L.

"Human Energy Requirements A Manual for Planners and Nutritionists"



By W.P.T. James and E.C. Schofield FAO. Published by Oxford Medical Publications

Estimating human energy requirements has remained an active research topic throughout the history of nutrition science, reflecting the centrality of energy and food to human life. To have the closest estimate of energy needs and to clarify the factors that affect energy requirements of individuals and groups of people has important policy implications for managing and planning purposes. The subject has involved FAO for over forty years, recently with WHO and UNU, resulting in the production of numerous reports from special Committees and Expert Consultations. The most recent was published under the WHO Technical Report Series (WHO/FAO/UNU) in 1985. As better techniques and more scientific data become available, estimates of energy needs are refined and based more on actual measurements than on assumptions. Nevertheless, the application of the methodology remains complex. This application aspect has been addressed in the manual published this year by FAO as "Human Energy Requirements, A Manual for Planners and Nutritionists".

The manual is based on the work of W.P.T. James and E.C. Schofield with the cooperation of the Food Policy and Nutrition Division of FAO, and other individuals. Definitions and calculations of human energy needs, and the factors that can alter their magnitude, are covered. The Manual includes some methodological refinements made using computer modelling techniques. Based on these a microcomputer spreadsheet programme has been created. This demonstrates calculations step by step using illustrative data given in the programme. The Manual is accompanied by this micro computer software package which provides a means of calculating energy needs of populations or populations sub-groups.

The Manual is organized into eight chapters and contains 6 appendices. The first chapter gives some overview of energy requirements and allowances. Other chapters deal with the principles of energy balance and energy needs; different levels of analysis in estimating requirements; impact of urbanization and population structure; energy allowances in different physiological patterns and under various conditions; effect of different assumptions on estimated allowances; adaptation and survival on low intakes and special applications of energy requirements calculations.

As the main objective of this much needed manual has been to overcome the complexity of calculating energy requirements, it is written in a readily understandable manner. Good use of numerous diagrams and figures is made to enhance the clarity of the points made. It also contains a glossary in which the scientific terms – as meant and used in the manual – are defined.

The Manual is published by Oxford Medical Publications. For more information and how to obtain a copy write to: Food and Agriculture Organization, Food Policy and Nutrition Division, Via delle Terme di Caracalla, 00100 Rome, Italy.

M.L.

"Nutrition in Development: Concepts in Brief"

A Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) publication, 1990.

In designing development strategies and activities, GTZ (the German Development Agency) now aim to incorporate nutritional concerns. This recent short publication, in large print and landscape format, is geared to facilitating this. It starts by outlining the high-priority goal of German development policy – the provision of basic needs, including food and health – before describing the global scope of the problem of undernutrition, the inter-relationships of causal factors, and the consequences. It then poses the essential question: "Why has the nutritional situation in the world not fundamentally improved, when the causes and effects of undernutrition are known, and improving nutritional status is a high-priority development goal?" Reasons cited relate to social and political conditions, the population-production dynamic, the often mistaken belief that economic growth and increased food production will of itself reduce undernutrition, and the adoption of short-term measures to alleviate the problem, such as food aid and food subsidies, which might be counter-productive.

The second half of the booklet promotes a "nutrition-orientation" of all sectoral development activities. This should include a systematic analysis of the causation of undernutrition, the incorporation of nutritional objectives and the use of indicators of nutritional status in evaluation. Such an orientation means different things in agricultural, health, food safety, urban development and women's development projects, and the final section provides guidelines for operationalising this approach.

The clear presentation of key theses and conclusions on nutrition in development in this short booklet should provide a valuable touchstone for the staff of both GTZ and other agencies involved in designing development-policy strategies and activities.

GTZ address:

Deutsche Gesellschaft Für Technische Zusasmnenarbeit GTZ GMBH, Dag Hammarskjold
Weg 1-2, Postfach 5180, D 6236 ESCHBORN 1 bei Frankfurt Main, Federal Republic of
Germany. –S.G.

"Nutrition in the Elderly"

Edited by Horwitz, A., Macfadyen, D.M., Munro, H., Scrimshaw, N.S., Steen, B. and Williams,
T.F. Published by Oxford University Press, on behalf of WHO (1989); 294p.

As the number and proportion of the elderly in both developed and developing countries increases, so does the need to more fully understand and respond to their nutritional requirements. This book is a timely and definitive contribution to this hitherto neglected area.

Its scope encompasses the dimensions and nature of the problem, the biological and social aspects particular to this growing sub-group before moving towards appropriate strategies and interventions. The seven sections of the book cover, in turn, the epidemiological and social aspects of nutrition in the elderly, nutritional status assessment, nutritional requirements, main diseases of the elderly, nutritional factors influencing organ function, preventive medicine and public health aspects and, finally, research needs. An appendix provides a comprehensive listing of WHO publications on the subject.

By far the most important determinants of the nutritional status of the elderly are the environmental factors that influence nutritional requirements and nutrient intakes. As with younger adults, economic and political factors governing the social status of the elderly are fundamental as underlying determinants of nutritional risk; significant differences in the latter have been observed between socio-economic groups. Genetic and environmental influences also provide for a wide variation between individuals in physiological status, of which chronological age is not a particularly good predictor.

Several anthropometric methods for assessing nutritional status are described here, although a breakthrough is needed in relating such measurements to function. For the elderly, the ability to perform muscular exercise – to move around independently – is a priority and tests of this will need to be devised in order to come up with useful anthropometric indicators of risk. Dietary studies of the elderly are rarely carried out. Suggested methods are food-frequency lists to indicate groups at risk, and the diet history to identify such individuals, although future research will need to consider the validity and reliability of such methods.

In assessing the energy needs of the elderly, there is a need for an assessment of the amount and intensity of physical activity rather than energy intakes. Without activity, muscle tone decreases and physical, then psychological and social problems develop. The most important preventative measures ensuring the health and well-being of old people are likely to be the maintenance of moderate activity in later life, fostered by a change in attitudes in middle-age.

Recommendations on intakes of protein, fats, carbohydrates, vitamins and minerals are described in separate chapters. These may differ from those commonly employed in the past for under-50 year olds, and it is not known to what degree extrapolation from the latter group's requirements is permissible. The elderly are more heterogeneous moreover with respect to socio-economic group, physical activity levels and food practice. Chronic disease, the effects of medication and/or institutionalization are other significant factors commonly conditioning individual need amongst the elderly.

The risk factors for four types of malnutrition – long-standing, sudden, specific and recurrent – along with recommendations for action against them are clearly presented. The elderly experience a higher frequency of illness than young adults, while studies have shown that improved nutrition improves immune response, and thus affects the burden of illness within this group.

Thirty-three priority areas for research are listed in the final chapter. These include the relationship between dietary practices and chronic disease, the extent to which lifestyle factors mitigate the erosion of tissue and organ function with ageing, and nutrient needs among the elderly. As well as biological research needs, there are important contributions to be made by anthropology to the understanding of the sociology of eating by the elderly. Research is also needed on strategies for nutrition intervention, based on risk estimates of nutritional deficiencies.

This publication will make an authoritative addition to the WHO series of guides on different aspects of ageing, for use in medical schools and schools of other health sciences around the world.

–S.G.

"A Field Guide for Adding Vitamin A Interventions to PVO Child Survival Projects: Recommendations for Child Survival Project Managers"

(Doris Storms and John Quinley, Editors, Published by the Johns Hopkins University, Baltimore, Maryland, December, 1989, pp. 39)

Private Voluntary Organizations (PVOs) working in high-risk areas for vitamin A deficiency have become increasingly interested in adding vitamin A interventions to their other Child Survival program activities. To address this interest, a special task force on vitamin A was convened in Baltimore, Maryland in September 1988, the purpose of which was to develop guidelines for Child Survival project managers in the assessment of need, design, operation, management, and evaluation of vitamin A intervention activities.

The guide book which resulted from the task force meeting is geared for PVO staff working in the field and includes recommendations in six areas:

1. *Assessing the need for vitamin A interventions in the project area* – Alternative methods of determining the extent of vitamin A deficiency are suggested including the use of secondary data sources, sample surveys, and physical examinations. Also included in the appendix are guidelines for selecting sample size to determine the prevalence of vitamin A deficiency from a survey.
2. *Setting measurable objectives* – The key message for project managers in setting objectives is to avoid objectives aimed at reducing morbidity and mortality since these are difficult to measure. Instead, objectives and indicators which are linked to program operations, such as vitamin A capsule distribution, are recommended.
3. *Selecting the target population* – The choice of a target population is discussed in terms of three important factors: technical, program, and safety. The technical and safety issues considered include vitamin A dosage and the interaction of vitamin A deficiency and other infections. Program factors considered are the existence of national policies on vitamin A deficiency and the target population for other Child Survival activities.

4. *Choosing appropriate performance indicators by type of vitamin A intervention* – Five basic intervention activities are discussed along with the essential indicators which can be used to monitor the progress of the activities. Emphasis is placed on the selection of vitamin A intervention activities which are compatible with the other Child Survival project interventions.

5. *Incorporating vitamin A information into the Child Survival reporting documents* – Specific guidelines are presented here for PVOs to document the justification for including vitamin A interventions in their projects and for reporting on the activities as part of their routine monitoring and evaluation.

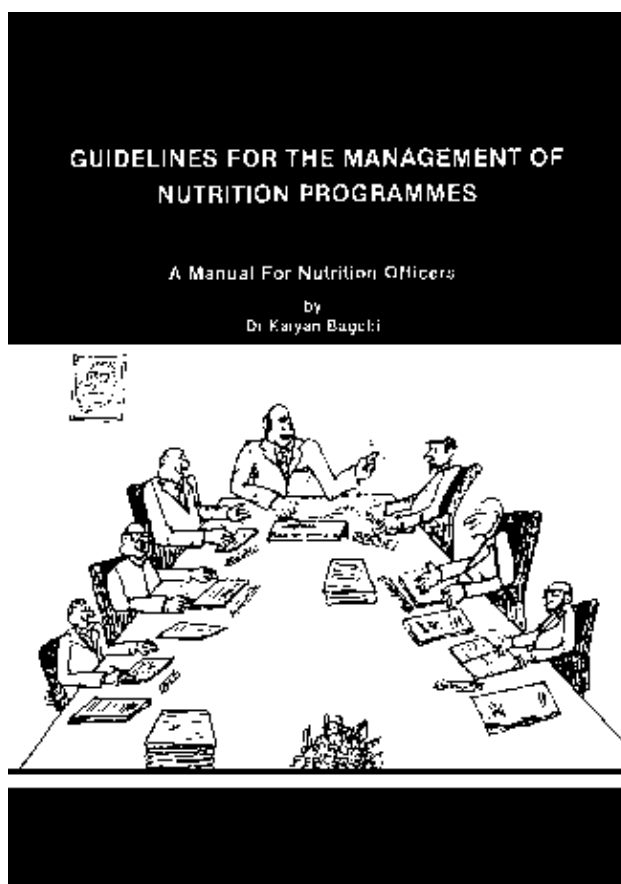
6. *Making current and up–dated information available to PVO staff*– The task force assembled a list of essential information for PVOs intending to add a vitamin A component to their projects. Information is also provided on sources of technical assistance for the projects and the use of field–based workshops to improve networking and communication among projects.

Although the field guide was designed specifically for PVO Child Survival projects, it provides an excellent summary of the major issues which should be considered in establishing a vitamin A intervention project. The guide includes a number of informative tables from the International Vitamin A Consultative Group (IVACG) as well as a list of useful references on vitamin A.

(Further information: PVO Child Survival Support Office, The Johns Hopkins University, Institute for International Programs, 103 East Mt. Royal Ave., Baltimore, MD 21202).

Paula Yoon

"Guidelines for the Management of Nutrition Programmes: A Manual for Nutrition Officers"



WHO Regional Office for Eastern Mediterranean, Alexandria, Egypt, 1990.

Successfully planned and conducted nutrition programmes – as indeed any other programmes that work – have pointed to effective programme management as one very important element in their success. Such programmes nearly always enjoy the leadership of competent managers, capable of mobilizing communities

and individuals, attracting resources (both human and financial), giving motivation as well as supporting other necessary elements for a successful outcome. A high percentage of the failures of many nutrition programmes can be directly related to improper or faulty management. Yet often even nutritionists very competent in all nutritional technical matters have had no exposure to management issues in their professional training.

To assist nutrition officers in proper management of nutrition programmes, the WHO Regional Office for the Eastern Mediterranean has recently brought out a manual as its Technical Publication No. 15. The manual, probably one of the first in its kind, is written by Dr. Kalyan Bagchi who believes that the manual would be useful for those who are responsible for managing nutrition and nutrition-related programmes at all operational levels, whether central, intermediate or peripheral. This easily readable book covers the most important issues related to proper management in 17 chapters. Each individual chapter is written and organized in a manner that can be used independently and without the need to recall previously presented information.

One chapter is devoted to the importance of management training for nutrition officers. Topics covered under other chapters are: self reliance in combating malnutrition; nutrition units in the government sectors; nutrition officers and their responsibilities; planning a nutrition programme; general principles of planning; systematic steps in nutrition programme planning; problem definition – a prerequisite for programme planning; coordination for nutrition promotion – a national nutrition coordination committee; national nutrition policy; nutrition advocacy for programme support; intersectoral and intrasectoral integration for nutrition promotion; evaluation and monitoring of nutrition interventions; the role of nutrition officers in programmes for food safety; role of nutrition officers in disaster relief; nutrition training of health workers; role of international agencies in strengthening national nutrition capability. The book also contains 4 annexes with quick reference information. This book brings together most of what needs to be known for proper management of nutrition programmes.

To obtain a copy (at US\$16) contact: WHO Regional Office for the Eastern Mediterranean. P.O. Box 1517 Alexandria, Egypt. Special prices are available for orders from member states of the region, from developing countries and for bulk purchases.

–M.L.

"Highlights on Breastfeeding"

Egyptian Society of Breast Milk Friends (ESBMF), December 1989, vol. 1 (3)

In an attempt to promote breastfeeding in the region and as part of the activities related to the Breastfeeding Encouragement Project, the third number of the first volume of "Highlights on Breast-feeding" has been published (in both Arabic and English) by the Egyptian Society of Breast Milk Friends (ESBMF) in December 1989. Among topics included in this issue are: "The present status of breastfeeding in Egypt and other countries"; "Breastfeeding practices during diarrhoea"; "Human milk banking"; "Factors affecting the efficiency of human breastfeeding" and "Antibacterial effect of mothers' milk".

The annual conference of Association of Arab Paediatrics Societies (AAPS) had its latest meeting on 7 and 8 of December 1989 in Cairo, Egypt. Breastfeeding promotion and its effects on diarrhoea prevention and control and child survival were among topics discussed. Further information on the activities of ESBMF from: Prof. A.M. Eissa, Al-Husseini University Hospital, Al-Azhar, Cairo, Egypt. Tel: 915761.

–M.L.

"Food Aid in Emergencies"

A World Food Programme handbook, WFP. December 1989.

This handbook has been compiled to aid staff of the World Food Programme (WFP) – in the field and at Headquarters – to respond effectively in emergency situations and help the governments of affected countries to assess needs and, where required, to help define appropriate food assistance interventions, mobilize resources and implement emergency food aid operations. It replaces all previous WFP instructions in this connection.

The handbook consists of two volumes. *Book A* provides general information and guidelines concerning the policies and principles for food assistance in emergencies, the role of WFP (in relation to emergencies) and

the specific procedures by which a Government may request and, subject to approval, receive emergency assistance from WFP. This is equally relevant for WFP staff, Government officials and other agencies which might collaborate in the provision of food assistance in an emergency.

Book A should therefore be available to and be used by government officials and the personnel of other collaborating agencies as well as by WFP staff when assessing needs and planning responses to any emergency situation in which a request for WFP assistance might be considered.

Book B provides guidelines for WFP staff on the specific responsibilities of and actions to be taken by country officials and Headquarters in respect to assessments, preparing recommendations, mobilizing resources, submitting reports and various essential aspects of internal administration. It is essentially an internal WFP document.

Requests for a copy may be addressed to: Chief, Disaster Relief Service (ODR), World Food Programme, Via Cristoforo Colombo, 426, 00145 Rome, Italy.

New Practical Guide on Nutrition in Emergencies

Oxfam – forthcoming.

A new field manual called "Nutrition in Emergencies – A Practical Guide to Assessment and Response" is being produced by Oxfam with the aim of providing practical guidance for feeding in food scarcity and famine situations. The manual is written by Dr. Helen Young and has drawn on the experience of Oxfam and other agencies with relief programmes in Africa. It is organized in three main parts.

Part one describes assessment stages and response options. The role of nutrition in assessment is explained, stressing the importance of looking at the wider picture, for example taking account of the livelihoods of people. This is an important element for understanding how situations of food scarcity and famine develop, particularly where people are still home-based, rather than displaced and destitute. In addition to measuring rates of malnutrition, a variety of new assessment methods, such as wealth ranking, are introduced, which are not always associated with nutrition surveys. The reader is guided towards the appropriate choice of methods to be used in various situations.

Different types of food distribution are described in Part two, dealing with the subject of targeting – about which there is little information in previous emergency field manuals – at some length. While a detailed section is devoted to general rations, selective feeding is described briefly since the latter is well covered in Oxfam's Practical Guide to Selective Feeding Procedures.

Part three contains a useful glossary and several technical appendices.

This field manual is due for publication in the summer of 1990. Please contact: The Oxfam Health Unit, 274, Banbury Road, Oxford, OX2 7DZ, England.

"Utilization of Tropical Foods"

FAO Food and Nutrition paper No. 47/1–8, 1989.

Better preservation and utilization of foodstuffs is important in preventing malnutrition. The need is most urgently felt in the developing countries of the tropics. In these countries there already exists a wealth of knowledge and experience on local traditional methods of preserving and processing tropical foods. These are often labour-intensive and time consuming. Many techniques such as fermentation, have developed with little understanding of the scientific basis for their success. Meanwhile, urbanization in developing countries has implied a moving away from the traditional culture. This has brought about changes in food habits and increased dependence on imported foods. Better utilization of locally produced tropical foods can, however, alleviate the food dependency and import requirement in many such countries. It is necessary to protect and upgrade the knowledge and experience accumulated on the utilization and preservation of tropical foods with a view to developing, with modern scientific technological assistance, some of those traditional food products which have survived the centuries.

It is for these reasons that FAO – within its programme to promote underexploited traditional food plants from tropical areas – has published a compendium on technological and nutritional aspects of processing and utilization of tropical foods, both animal and plant. The document consists of eight separate volumes and

covers the following subjects: cereals; roots and tubers; trees; tropical beans; tropical oil–seeds; sugars, spices and stimulants; fruits, leaves and flowers; and animal products. An index of scientific names at the end of each volume completes and facilitates the consultation of the series. The publication is meant to be a source of information basically on traditional products, their preparation and nutritional value, household processing, handling stages in processing and utilization of food plants growing in given ecological conditions for people of all levels with an interest in better utilization of these products.

Utilization of Tropical Foods – FAO Food and Nutrition Paper No. 47/1–8, 1989 – is a valuable addition to the FAO publications programme as a very useful and informative resource book which will certainly be in high demand for many individuals and institutions. These volumes are now available in English. French and Spanish editions are in preparation.

Copies (at US\$6 each volume) may be obtained from Distribution and Sales Section, Food and Agriculture Organization, Via delle Terme di Caracalla, 00100 Rome, Italy.

–M.L.

"Famine Research and Food Production Systems"

University of Freiburg, Dept. of Geography.

The proceedings of the first workshop of the study group – Famine Research and Food Production Systems – of the International Geographical Union, will soon be published in "Bayreuther Geowissenschaftliche Arbeiten". The meeting was mainly concerned with the issues related to combating famine in a changing world and with famine between subsistence and market economy. This workshop was held in Freiburg University, Federal Republic of Germany from 10 to 14 November 1989. For more details please contact Dr. H.G. Bohle, Chairman, University of Freiburg, Department of Geography, Werderring 4, 7800 Freiburg i. B., FR Germany.

–M.L.

"A Practical Guide to the Correction of Iodine Deficiency"

By: J.T. Dunn and F. Van der Haar, 1990
From the International Council for Control of Iodine Deficiency Disorders (ICCIDD)
Reviewed by B. Hetzel, ICCIDD Executive Director.

This is an excellent concise review of the practical aspects of the correction of iodine deficiency. It reflects the recent expansion of the ICCIDD – a network of 300 scientists and other professionals from some 60 countries.

Successive chapters cover the importance of iodine deficiency, the detection of iodine deficiency, planning an iodine deficiency disorders (IDD) control programme, methods of iodine supplementation and programme operation. The book is enhanced by diagrams and colour photographs. The treatment given is concise, the operation of an IDD control programme is spelled out very clearly including intersectoral aspects, and the need explained for a national council for the control of IDD (NCCIDD) and the IDD control unit responding to it.

The book can be strongly recommended to all those undertaking in IDD control programmes. Publication was supported by the Dutch International Cooperation Programme.

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Two other recent publications from ICCIDD, in addition to IDD Newsletter are:

*"The Story of Iodine Deficiency – An International Challenge in Nutrition", by B.S. Hetzel, Oxford University Press, 1989 (Oxford and Delhi). Available in paperback and hardback. The Delhi paperback costs 50 rupees (US\$3.25). The publication is subsidized by ICCIDD.

* *Introducing the ICCIDD, 1989*. An ICCIDD Membership Directory with details of office bearers, senior advisors and constitution. The publication assisted by ADIAB.

These publications can be obtained by writing to the ICCIDD, CSIRO Division of Human Nutrition, Kintore Avenue, Adelaide 5000, Australia.

Basil S. Hetzel,
ICIDD Executive Director

"People, Food and Resources"

Sir Kenneth Blaxter, Cambridge University Press (1986, reprinted 1988); 118 pages.

This short book, based on a series of public lectures by the author in Queen's University, Belfast, starts by considering the final proclamation of the 1974 World Food Conference: "Within one decade no child will go to bed hungry, no family will fear for its next day's bread and no human being's future and capabilities will be stunted by malnutrition" Why, six years after the deadline has passed, has this proven to be so manifestly unattainable? While there are many shining cases of improving nutritional levels in many countries, there also many examples of deterioration. The major part of the book focuses on an assessment of the magnitude of the global food problem and the potential for overcoming it, while actual strategies for change are cursorily dealt with in the final few pages. While the book, recently reprinted, comes from lectures in 1984, the topic is as relevant now and worth another look.

Malthus is tackled early on. Contrary to his theory, the rates of natural increase of populations are not constants but variables, which doesn't help us much with long-term predictions of population growth. Demography is not an exact science and margins of error in forecasts are wide, but models do predict that the population of developing countries in fifty years will be at least 1.6 times that of today. The immediate future requirement of food expressed in terms of energy for the world's population is derived from the growth in population and the need to provide an equitable supply of food for each person. According to Blaxter, the product of these implies that the problem up to the year 2000 is to increase the supply of food by about 75% of its 1986 level. Beyond 2000, any predictions become highly tenuous.

In the past, there have generally been two means for increasing production: cultivating more land, and increasing the crop yield of a given land area. Both options have been environmentally expensive. Firstly, forests are being cleared at a terrifying rate – estimated by FAO in 1982 as 11.3 million hectares per annum (or the size of the U.K. every two years). While this cleared land is unlikely to be very productive, agricultural land that is fertile is being lost to the spread of urban areas in many countries. Secondly, land yields have been increased in a largely unsustainable way, through exploiting finite fossil fuel reserves in so-called "green revolutions". Malthus' pessimism was, to a large extent, dispelled in the nineteenth and early twentieth century by the first option, through the opening up of new lands in the Americas and Australasia. In the last fifty years, time has been bought by exploiting the second. As we near the end of the century, there are few signs of any additional means of postponing Malthus' vista.

While the book is logically set out and the problem systematically investigated, the author may have been overly preoccupied with the numbers game of people, food and resources at the expense of a deeper analysis of the social dynamics involved. Inequitable systems of food production and distribution keep more people hungry as a result of their inability to purchase food than as a result of their inability to grow enough of it.

The book ends by suggesting several steps to a brighter future, although these are formidable steps: population control and relocation of groups who have overrun their environmental carrying capacity; elimination of illiteracy; continued selective use of modern technologies, the development of appropriate food technologies, and a move to industrialization in rural areas. Two pages are set aside for the implementation of these actions. One hopes that, as we move toward the end of the millennium, the urge to make global hunger declarations (such as the 1974 one above) is curbed and energy rechannelled into regional analyses of food problems and the development of specific courses of action to overcome them.

–S.G.



CA) "PLEASE ENTER YOUR RESPONSE"
When you can't bear it any longer....

UNITED NATIONS

ADMINISTRATIVE COMMITTEE ON COORDINATION – SUBCOMMITTEE ON NUTRITION (ACC/SCN)

The ACC/SCN is the focal point for harmonizing the policies and activities in nutrition of the United Nations system. The Administrative Committee on Coordination (ACC), which is comprised of the heads of the UN Agencies, recommended the establishment of the Subcommittee 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, World Bank, IFAD, ILO, UN, UNDP, UNEP, UNESCO, UNFPA, UNHCR, UNICEF, UNRISD, UNU, WFC, WFP and WHO. 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 topics 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. Ten-year programmes to address two major deficiencies, vitamin A and iodine, have been launched.

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. State-of-the-Art papers are produced to summarize current knowledge on selected topics. As decided by the Subcommittee, initiatives are taken to promote coordinated activities – inter-agency programmes, meetings, publications – aimed at reducing malnutrition, primarily in developing countries.

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