

Out of the Box

The formula for obesity

All over the world the health of babies and young children is gauged by regularly checking their increase in weight against standard growth charts. The further away mothers are from hospitals, and the more impoverished the communities, the more these charts are used as a talisman, not just for good health but as a warning against the risk of death.

The charts are based on agreements of expert committees convened by UN agencies, then issued with UN authority, and by governments and health professional and civil society organisations. They are displayed on the walls of hospitals, clinics and crèches, and given to mothers to show how their child is doing. I know this as a parent, and from working with health professionals and volunteers nurturing babies in the backlands of Brazil.

If a child's weight increase is relatively slow, showing as a line drawn on the charts moving towards the 'minimum weight' printed line, the mother is told that the growth of her child is 'faltering' and that 'failure to thrive' is dangerous. What then? If the mother is exclusively breastfeeding, she is advised (well, told) to supplement with formula feeds. If the child is on formula or being weaned, the advice (well, instruction) is to increase the energy density of its food: more feeds, and/or more concentrated fatty and sugary food.

The UN has news for the world's mothers. The current growth charts should be tossed in the trash. They are based on measurements of children in the USA, many of whom were fed formula feeds^{1,2}. They imply that accelerated rates of growth induced by cow's milk-based formulas are healthy, and that natural exclusively breastfed rates of growth are unhealthy.

The new UN standards for energy requirements³ show that babies and young children thrive on much less energy than previously thought; and compared with all other mammals, healthy human rates of growth are uniquely slow⁴. So how much less energy do babies and young children need from food? We are not talking a couple of points. The new requirements are 12% less energy up to 3 months and 17% less between 3 and 9 months. Differences when breastfed are greater – 17% less up to 3 months, 20% less between 3 and 9 months³.

Does this mean that 'bonny bouncing babies' all over the world fed according to the still current standards are overweight and liable to become obese and diabetic adults and more likely to suffer and die prematurely from heart

disease and common cancers? Yes, it does. Does it mean that estimates of underweight, 'wasting' and malnutrition in younger children in the South are wrong because exaggerated? Yes, it does. Could it mean that energy-dense feeding programmes, designed when the dominant paradigm was – as it still is – to prevent deficiency, are making children fat? Yes it could. Is this the most horrible débâcle in nutrition science and food policy since the great protein fiasco? I should say so. You can access the report on the UN Food and Agriculture Organization website³.

The new findings and their implications were presented in February at the London School of Hygiene and Tropical Medicine⁵. My colleague in Brazil, César Victora, a leader of the teams advising the UN agencies, tells me that the new growth charts should be published at the end of this year. I hope that some of the brightest and the best young public health nutritionists will now dedicate their careers to getting the message across; whether in Washington or in national programmes, or within industry, or in the local centres staffed by low-paid workers and volunteers dedicated to the welfare of future generations to which I, now based in a provincial city in the South, feel a special attachment.

The price and the cost of shrimps

Coral reefs and mangrove wetlands protect against the force of the ocean. This is now big news⁶, after the great waves created by the underwater earthquake in Asia that smashed into the coasts of Indonesia, Thailand, Sri Lanka, India and other countries at the end of last year, killing over 200 000 people, probably including more from rich countries than died in the 11 September 2001 attacks on the USA.

Reports from the Andaman and Nicobar Islands north of Indonesia, and the more distant Maldives, tell a pointed story. The reefs and the mangroves that circle these mostly 'undeveloped' islands buffered the impact of the waves, and relatively few communities were destroyed^{7,8}.

Mangroves, anchored in mud in estuarine ecosystems, once made up almost a quarter of the littoral of South East Asia. Fishing communities in Brazil call mangroves *berçários do mar*: 'sea cradles' that protect hatchlings from predators and provide safe mooring for boats. Husbanded mangrove ecosystems provide stocks of fish for local consumption and for a wider market – part of traditional food systems and a source of communal livelihoods.

Even Jared Diamond describes the effects of the tsunami as 'an unavoidable natural disaster'. But this is not altogether

true. Throughout Asia reefs and mangroves continue to be dynamited and bulldozed, to create more ports and tourist resorts, and for capitalised industries. It is estimated that already more than half these natural commons are now gone. For example, Thailand once had 380 000 hectares of mangroves; by 2000, a total of 253 000 hectares had been destroyed⁸. Some people gain; most lose. Fishing communities are pushed out. Many of the people who died in December were unnaturally close to the ocean.

This is a story about the cost, including to human lives, of the destruction of ecosystems in order to make money. It is also about shrimps. Nutritionists who think about the environment know that the biggest single destroyer of Asia's coastal wetlands is shrimp farming. In 2000 Thailand exported 300 000 tonnes of shrimps and prawns, Indonesia plus India another 150 000 tonnes. Close to half the annual Asian total of over half a million tonnes is imported by the USA, with a market valued in 2000 at around US\$10 billion⁸.

Your local supermarket may well stock jumbo bags of frozen prawns and shrimps: easy to cook, tasty and nutritious (unless you worry about dietary cholesterol) – and at a remarkably cheap cash price. Many of the holiday-makers at Indian Ocean resorts whose bodies will never be identified enjoyed their last meals at seafood restaurants.

Like estuarine fish, shrimps mature in a mixture of fresh and salt water. Shrimp farming is an environmental horror. Intensive breeding of shrimps creates a polluted 'footprint' estimated at 100 times the size of any 'farm'⁷. Oxfam estimates that every kilogram of shrimp produced kills 20 kilograms of fish⁹. One reason is that fish are used as feed (let's hope this does not lead to mad shrimp disease). Another reason is that 'factory' conditions involve constant use of antimicrobial and other chemical inputs; and the farmers abandon the poisoned earth every few years, move on and destroy more mangroves. Much of the coastline of the Aceh province of Indonesia was already devastated by shrimp 'ponds' looking like bomb craters before the tsunami struck, with greater destructive force than if the mangroves had been preserved.

That's a price to pay for the modern global economy, you may think. Indeed; but this trade is neither free nor fair¹⁰, and Asian governments need cash crops for dollars to help pay interest on external debts mostly incurred by previous governments. Just before he died John Maynard Keynes, whose philosophy is currently swept away by a great ideological wave, wrote: 'Prices should be fixed not at the lowest possible level, but at the level sufficient to provide producers with proper nutritional and other standards... It is in the interests of all producers alike that the price of a commodity should not be depressed below this level, and consumers are not entitled to expect that it should'¹¹.

Unrestricted global capital flow is a better name for this aspect of 'globalisation'. And Lord Keynes was only partly

right. Half a century ago world population was around two-fifths what it is now, and he did not foresee the effect of the finance and trade policies of the world's most powerful nations on global living and natural resources as well as on the welfare, health – and the lives – of producers and consumers. The devastation caused by last December's tsunami was geophysical and also geopolitical.

The vision of Dr Swaminathan

In April 2003 I attended the UN Standing Committee on Nutrition meeting in Chennai (former Madras)¹². Our host MS Swaminathan has founded a resource centre anticipating a general rise of the world's oceans, whose programmes include protection and replacement of mangrove wetlands as part of his vision to conserve global biodiversity¹³. Until last 26 December I might have said that the tide is against him. The metaphor now has a bitter taste, for Chennai is the biggest Asian city damaged by the tsunami.

Dr Swaminathan is appealing for support. The details are MSSRF Tsunami Rehabilitation Programme; bank, State Bank of India; branch, Adyar, Chennai; branch code, 600 020; account, 011000-75 511-02; swift code, SB1 NINBB291. Cheques or drafts can be sent to the Foundation at 3rd Cross Street, Institutional Area, Taramani, Chennai 600113, India.

The right price for food includes the cost of preservation and development of human, living and natural resources. The tsunami reminds us that the right price protects life as well as livelihoods; and not only the lives of Asian farmers and fishers, but also of rich people whose experience of catastrophe is usually only what they see on television.

The long-term vision of Dr Swaminathan will have more chance of fulfilment if some of the people from the North who lost relatives in Asia become conscious of the deeper meaning of the tsunami, and devote some wealth and influence to support his work. This would be a meaningful memorial.

Catch 21: fish the big shrinking dish

Reports on food, nutrition and public health sometimes touch on the environmental and ecological implications of their recommendations. Take fish and seafood in general.

Tim Lang, Professor of Food Policy at London's City University, has been linking food and nutrition with the environment for many years¹⁴. Staying with fish, he tells me that in the UK the Marine Conservation Society gives advice to consumers on what types of fish to eat, or not to eat because the species is depleted or endangered¹⁵.

And anybody about to recommend eating more fish to protect human health needs to know that the UK Royal Commission on Environmental Pollution has just issued a report on marine fisheries with some radical con-

clusions¹⁶. It warns that the sea is being mined at an unsustainable rate, which is no surprise. But it also states that intensive aquaculture is not a solution because farmed fish feed is itself made from fish, and that omega-3 fatty acids had better be found from sources other than fish (nuts and seeds, for instance).

It is not only deficiencies and infectious and chronic diseases that are public health nutrition issues. Many of the thousands of communities and 200 000 plus individuals swept away by the tsunami last December were wiped out because of the degradation of the South East Asian littoral to farm shrimps. It is time for a sea change in thinking about food and nutrition. For a while the biochemistry of farmed shrimps may be much the same as that of shrimps cultivated naturally. But there is more to nutrition than nutrients. This is not where our responsibilities as professionals, citizens or consumers end; this is where they begin.

Violins, cellos and double-basses

Now for a new topic. Humorous stories recently appeared in newspapers around the world on the development of Brazil's national girth. A typical headline was 'The girl from Ipanema is fleshing out'¹⁷. This arose from a new issue of Brazil's authoritative national IBGE survey, estimating that 40.6% of Brazilian adults are now overweight and 10% are obese, whereas 4% are underweight¹⁸. Heloisa Pinheiro, the real-life Girl from Ipanema, was interviewed. She said she had never been skinny and that the Brazilian idea of female beauty is violin-shape, with a big *bum-bum*. Yes; but recent photographs taken on Rio's beaches also showed cellos and double-basses.

The story became big news in Brazil because the survey was savaged by the President of the Federated States of Brazil, Luiz Inácio Lula da Silva. The national scandal is not obesity, Lula dictated. I don't want to hear about obesity. Think hunger. 'You can't measure hunger', he said. 'People are ashamed to admit that they are going hungry'.

Lula may have been riled because the story in the *New York Times*¹⁹ was written by Larry Rohter, who was expelled from Brazil last year for writing a story on the president's conspicuous consumption of *cerveja* (beer) and *cachaça* (the Brazilian version of rum). The expulsion itself became a story, with opposition politicians having fun saying that Lula and his ministers were acting like a tinpot dictator and his claqué.

So Larry Rohter was let back in, and now points out that Lula is overweight and is said to go on yo-yo Dr Atkins-style diet regimes. He also entertains colleagues and visitors on the presidential Planalto Palace lawns in Brasília with the feasts enjoyed by common people in his native Pernambuco on very special occasions, and throughout Brazil with a frequency depending on income: slabs of spit-barbecued meats (*churrasco*); or else stews made with pigs' heads, tails and trotters, blood pudding, other processed meats, tripes and other guts with black

beans and lots of salt, served with white rice and toasted cassava flour (*feijoada*), washed down with iced beer chased with *caipirinhas* (*cachaça*, lime and sugar).

Whether or not he was annoyed personally, Lula has a political reason to be in denial about the relativities of under/overweight in Brazil. The Workers Party (PT) now in power in Brazil, of which he is the leader, has one great social programme: the brand image of the PT²⁰. This is *Fome Zero*, proclaimed with the vision of eliminating hunger (*fome*) in Brazil.

Fome Zero, buzzed as proof that the PT government – while fiscally *responsible* – has a social (sssh, mustn't say socialist) heart and soul, is in trouble. For a start, its snappy name is misleading. True, about a quarter of Brazilians survive on less than US\$1 a day, and millions of children and adults, mostly in the arid interior, suffer regular food insecurity and various deficiencies. But chronic hunger, in the common sense of deficiency of energy leading to emaciation, semi-starvation and even sometimes starvation, is uncommon. This is the key finding of the IBGE survey that Lula wants to bury.

Presidential rumbles

Lula trusts his gut feelings. His commitment to *Fome Zero* is personal as well as political. He knows about being hungry. His own epic story began in the drought of 1945 when he was born in a shack near Garunhuns in the interior of Pernambuco, the seventh child of a mother whose husband left her just before he was born, and he was weaned onto manioc meal mashed into cold coffee. The family moved to São Paulo when he was 11 and at first he earned the *centavos* for food working as an itinerant shoeshine boy²¹. The story of his young life could be told of many millions of Brazilian children half a century ago, but now, unless 'hunger' is taken figuratively, *Fome Zero* is fighting a battle already mostly won.

The big issue in Brazil now is not hunger in the usual sense, but poverty, in the context of outrageous contrasts between the conditions of the rich and professional classes and of impoverished communities. Fifty years ago *os miseráveis* mostly lived in rural areas, but now are concentrated in *favelas*, the shanty settlements around and inside Brazil's cities. Their horrible living conditions are breeding grounds for the gang warfare that now makes Rio out of police control. What the impoverished communities of Brazil need is land, drains, clean water, birth control, education and social services: in a word, rights. These fundamental needs are not addressed by *Fome Zero*, generally now indicted as window-dressing, an opportunistic transfer now mostly of money as internal famine relief.

So what about obesity? My colleague Carlos Monteiro of the University of São Paulo is the leading national authority on food, nutrition and disease patterns. Consultant to the IBGE survey, he has published

extensively on the shift from underweight to overweight in Brazil in the last 30 years, including in this journal^{22,23}. He showed me that since the 1970s consumption of the traditional staples of rice and beans, and of fish, has decreased; whereas consumption of meat has increased by 50%. And cheap food? In the same period consumption of *embutidos* (sausages and other processed meats) has increased by 300%, and biscuits and sugared cola and other soft drinks by 400%¹⁸.

There is another aspect to this story of nutritional deficiency and obesity in Brazil, and in countries throughout the South. It depends what on is meant by hunger. Deficiency of energy is not the only cause of a sense of hunger. People who are born in food-insecure communities tend to eat too much when they can get food. This gorging phenomenon is well-known to Brazilian health professionals who work with babies and children of impoverished families in *crèches* as *fome histórica* (ancestral hunger).

The sense of hunger that has evolved to protect humans and animals vulnerable to famine becomes pathological when there is enough and more to eat, especially when infants born small are 'caught up' in growth by being fed superfluous formula feeds and weaned onto energy-dense 'white foods' – cheap fatty, starchy, sugary, salty products depleted of nutrients – and so, see the first item in this column. That's how it is now here in Brazil.

Historically, when most impoverished Brazilian communities were physically active, and subsisted on rice, beans and manioc flour, with small amounts of meat, greens, fruits and some fats and sugar, they were often really hungry and usually stayed thin. But now the ways of life of most Brazilians are sedentary. Now it is the impoverished people of Brazil, adapted to have a chronic sense of hunger, who are most likely to subsist on energy-dense, nutrient-depleted refined pastas, breads, biscuits and baked goods, *embutidos*, and other fatty, sugary and/or salty foods and drinks, and so become overweight and obese^{24,25}.

In Brazilian cities, boys still shine shoes, but many more now hawk soft drinks to people stuck in traffic jams. Anybody with open eyes and mind can readily see why the people of Brazil are getting fat. Will politicians respond? In Brazil with Lula at the helm it's unlikely, unless his guts start to rumble for a different reason.

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