1.1 Introduction

In May 2002, the World Health Organization (WHO) adopted the *Global Strategy for Infant and Young Child Feeding* (WHO 2003a). This marked the culmination of a complex process, which included WHO’s methodical consultation of the governments of its then entire membership of 191 governments, solicitation of inputs from an array of other interested parties (including health professional bodies, individual experts, non-governmental organisations, and commercial enterprises and their associations), extensive review of the scientific literature, and technical consultations on crucial topics such as the optimal duration of exclusive breastfeeding (WHO 2001a) and prevention of mother-to-child transmission of human immunodeficiency virus (HIV) (WHO 2001b).

As with any global WHO policy instrument, far from being a one-size-fits-all approach, governments were urged to adapt the *Global Strategy* to the specific circumstances of their nutrition and child health policies and programmes (WHO 2002a). Indeed, for a volume that seeks to shed light on the exceedingly complex challenge of appropriately translating international public health recommendations in multiple culturally diverse settings, the *Global Strategy* eloquently illustrates the adage ‘Think globally, act locally’. This dimension is all the more evident given the idiosyncratic nature of nurturing and nourishing children based on the rules imposed by the group into which each of us is born. Perhaps the ultimate paradox in this connection is that there can be no universal approach to ensuring unhindered access to our species’ only example of a universal food and feeding system – breast milk and breastfeeding – which are forever mediated by culture and clan.

Starting in early 2000, WHO and the United Nations Children’s Fund (UNICEF) began jointly developing the *Global Strategy*, whose aim is to improve – through optimal feeding – the nutritional status, growth and development, and health, and thus the very survival of infants and young children. Its specific objectives are (WHO 2003a):

- To raise awareness of the main problems affecting feeding, identify approaches to their solution, and provide a framework of essential interventions
- To increase the commitment of governments, international organisations and other concerned parties for optimal feeding practices
To create an environment that will enable mothers, families and other caregivers in all circumstances to make – and implement – informed choices about optimal feeding practices.

At the same time, the Global Strategy reaffirms the relevance and urgency of the four operational targets of the Innocenti Declaration on the Protection, Promotion and Support of Breastfeeding (UNICEF/WHO 1990):

- Appointing a national breastfeeding coordinator and establishing a multi-sectoral national breastfeeding committee
- Ensuring that every facility providing maternity services fully practises the Ten steps to successful breastfeeding (WHO 1989)
- Giving effect to the International Code of Marketing of Breast-milk Substitutes (WHO 1981a) and subsequent relevant World Health Assembly resolutions in their entirety
- Enacting legislation protecting the breastfeeding rights of working women and establishing means for its enforcement.

This chapter proposes a framework, in three interrelated parts, for visualising worldwide implementation of the Global Strategy.

- The first part describes the historical context and how the Global Strategy came to be formulated over time within a discrete and dynamic international organisation culture.
- The second part identifies important common features of the challenge of going to scale with the Global Strategy that are often ignored or seriously underplayed.
- The third part makes specific proposals for broadening the international public health nutrition policy agenda where:
  - Each proposal corresponds to a major challenge due to inadequate information or awareness, which can easily obstruct implementation of the Global Strategy today;
  - Each proposal corresponds to a key priority for driving a crucial cultural shift that, ideally, will facilitate implementation of the Global Strategy tomorrow.

The proposals are deceptively straightforward and brief. If taken seriously, however, all imply significant investment in changing awareness, attitudes and behaviour. Education, in the widest sense of the term, is obviously a key ingredient here, but it is only a means to achieving the desired end – a fully normalised society-wide transformation in how we ensure that all our children are appropriately nurtured and nourished.

The implications of extreme diversity will be explored less from the standpoint of the variations routinely encountered in sociocultural influences, which are the primary focus of the chapters that follow. Rather, they will be viewed mainly in terms of how fundamental economic and political assumptions – including attitudes
towards breast milk and its routine replacement, and adherence to supposed free market principles governing the sale of breast-milk substitutes – mould governments’ approach to determining and implementing their public health policies.

In this connection it is useful to recall WHO’s status as an international intergovernmental organisation and the dual role of its individual members, first in terms of achieving consensus on global health policy, and then in actually giving effect to it within their own territory ‘taking into account national circumstances’ (WHO 2002a). From a narrow conflict of interest perspective, some might question the suitability of the same agents deciding on a strategy’s content and then how, or even whether, to apply it. But such is the reality of national sovereignty, the undisputed first principle of today’s multilateral organisations.

In the present context, ‘going to scale’ denotes the process of increasing the number of countries embracing the Global Strategy, the size of the populations targeted, and the proportion of people actually sharing the benefits of its adaptation and implementation. However, we should not lose sight of a key intrinsic element of interdependence in this regard. The highly complex – some might say plodding – international intergovernmental organisation model of producing consensus-based recommendations is anything but a top-down exercise. WHO’s deliberate step-by-step participatory process more closely resembles a constant feedback loop whereby sovereign governments especially, and also numerous other non-state actors, exercise control over the inputs that finally coalesce into a more or less coherent set of international recommendations, which in turn serve as a basis for formulating national policies dealing with vital public health themes. As will become clear here and in subsequent chapters, the gradual evolution in international public health nutrition thinking and related policy formulation is thus as much a driver for change as it is the result of this change.

Beyond single references to the scientific literature to illustrate specific points, there will be no systematic effort to catalogue the benefits of appropriate infant and young child feeding. Readers wishing to update their knowledge of both science and recommended practice in this regard are invited to consult relevant resources, including those that WHO has prepared concerning breastfeeding healthy term (Pan American Health Organization (PAHO)/WHO 2004) and low birth weight infants (WHO 2006a), HIV and infant feeding (WHO 2007a), evidence of the long-term effects of breastfeeding (WHO 2007b), complementary feeding for breastfed (PAHO/WHO 2004) and non-breastfed (WHO 2005a) children, and feeding infants and young children during emergencies (WHO 2005b).

Where the risks of artificial feeding are concerned, the mass of evidence in the scientific literature continues to swell. Nevertheless, with only rare exceptions (for example Walker 1992, 1998, 2004) comprehensive accounts are lacking of the adverse health outcomes that result when infant formula routinely replaces breast milk. Indeed, it is not uncommon that even individual studies reporting poorer health among formula-fed children avoid naming formula feeding in their titles and abstracts (Smith et al. 2008). Such a candid accounting would, at a minimum, include:
For children, increased risk of impaired postpartum cognitive and visual development (Michaelsen et al. 2003; Vohr et al. 2007; Kramer et al. 2008; Sussmann et al. 2009); child mortality (Chen & Rogan 2004; Department of International Development (DFID) 2006; Edmond et al. 2006); numerous serious diseases, including celiac disease (Chertok 2007), Crohn’s disease (Klement et al. 2004), diabetes (Mayer-Davis 2008), diarrhoeal disease and respiratory ailments (Howie et al. 1990; Wilson et al. 1998; Quigley et al. 2007; Mortea et al. 2008; Newburg 2008; Wilson et al. 2008); asthma, ear infection, leukaemia and necrotising enterocolitis (Ip et al. 2007); pathogens in the gastrointestinal tract (Wilson et al. 2008); obesity (Von Kries et al. 2000; Plagemann & Harder 2005; American Institute for Cancer Research (AICR) 2008; American Psychological Association (APA) 2008; Apfelbacher 2008; August et al. 2008; Griffiths et al. 2008; Karaolis-Danckert et al. 2008; Kim & Peterson 2008; Maurage 2008; Hawkins et al. 2009; O’Tierney et al. 2009; Palou & Picó 2009; Simon et al. 2009); sepsis in very low birth weight infants (Hylander et al. 1998); SIDS (McVea et al. 2000; Ip et al. 2007; McKenna et al. 2007; Vennemann et al. 2009) and urinary tract disease (Pisacane et al. 1992; Levy et al. 2008); childhood behavioural or mental health problems (American Public Health Association (APHA) 2008); impaired arsenic metabolism in relevant environments (Fängström et al. 2008); and, in later life, increased risk of cardiovascular disease (Lawlor et al. 2005; Singhal 2006), higher blood pressure (Martin et al. 2004), higher blood cholesterol concentrations (Owen et al. 2008) and reduced lung function (Tennant et al. 2008; Ogbuanu et al. 2009)

For mothers, increased risk of haemorrhaging (Sobhy & Mohame 2004) and inadequately spaced pregnancies (Bellagio Consensus 1988; Lawrence 2007); breast cancer (Collaborative Group on Hormonal Factors in Breastfeeding 2002; Martin et al. 2005; AICR 2008; Lord et al. 2008; Phipps et al. 2008; Sotgia et al. 2009; World Cancer Research Fund (WCRF) 2009), uterine cancer (Okamura et al. 2006) and ovarian cancer (Riman et al. 2004); diabetes (Stuebe et al. 2005; Ip et al. 2007); hip fractures and osteoporosis (Turck 2005); gallbladder disease (Liu et al. 2008); higher blood pressure (Jonas et al. 2008); myocardial infarction in middle to late adulthood (Stuebe et al. 2009); postpartum weight retention (Baker et al. 2008); rheumatoid arthritis (Karlsen et al. 2004; Pikwer et al. 2009); postpartum relapses in women with multiple sclerosis (Langer-Gould et al. 2009); and maternally perpetrated child maltreatment, particularly child neglect (Strathearn et al. 2009).

Feeding infants and young children appropriately clearly depends on more than breast milk. Nevertheless, given breastfeeding’s centrality to human health and development, and the short- and longer-term significance, in every environment, of getting things right in this regard, the current discussion bias leans consciously in this direction. In essence the premise is that if we can succeed here, so much else affecting the health and welfare of children and mothers will be that much more likely to fall into place. However, before going further with discussing the Global Strategy itself, a bit of history is in order to help us understand not only how we
arrived at this particular public health policy crossroads, but also how we might move beyond it efficiently and effectively.

1.2 How it all began

In strict chronological terms, the Global Strategy was just over two years in the making. Viewed from a broader historical perspective, however, it was in fact the product of a gradual, and usually non-linear, progression in international public health nutrition thinking over more than three decades. This evolution was in large measure forcefully jumpstarted by the perfect storm in the mid-to-late 1970s (Akre 2006) of a unique set of socio-political forces – governmental, non-governmental and commercial – which resulted in the formulation and adoption of the International Code of Marketing of Breast-milk Substitutes (WHO 1981a).

Ensuring appropriate marketing and distribution of breast-milk substitutes is surely important; yet considerably more is required to secure the nutritional status of infants and young children while protecting the health of mothers. Awareness of human milk’s unique species-specific properties and thus the inescapable implications for the health of all people throughout the life course, and the indispensable supportive policies and practices in the healthcare system and throughout the community, are but two examples of other necessary conditions. However, it is equally evident that this trade-related piece of the evolving international public health nutrition policy mosaic, which some observers narrowly cast in terms of the rich exploiting the poor, quickly captured worldwide media and political attention. One unfortunate – and doubtless unintended – result was to draw lopsided attention to the dangers associated with artificial feeding by populations in low-income countries rather than to the risks incurred in varying degrees by mothers and children anywhere if they do not breastfeed as they should.

Regrettably, the resulting skewed perception of marketing’s relative significance and the absence of clarity in accompanying culture-based feeding beliefs and behaviours persist to this day. Part of the problem resides in emphasis on controlling the supply of breast-milk substitutes to the detriment of reducing demand for them, which can be achieved only by increasing demand for breast milk. This outcome in turn relies on mounting awareness of the significance of and society-wide support for the biological norm for feeding the young of our species (Akre 2006). As the World Health Assembly stressed in 1981, ‘adoption of and adherence to the International Code of Marketing of Breast-milk Substitutes is a minimum requirement and only one of several important actions required in order to protect healthy practices in respect of infant and young child feeding’ (WHO 1981b).

In addition, more than a quarter of a century after the adoption of the International Code, many people living in conditions of relative prosperity still naively conclude that, as far as their children are concerned, artificial feeding is adequate and safe because they have the means to make it so. Not surprisingly, this culturally conditioned response is both mirrored in and reinforced by public health policies mainly, but not exclusively, in high-income countries that have yet to embrace the notion that feeding a breast-milk substitute represents a deviation from the
biological norm for the young of our species (WHO 1994) that carries with it serious consequences throughout the life course. This flawed perspective also shows how international public health nutrition policy needs to evolve to take breastfeeding to the next plateau of significantly changed awareness and behaviour (Akre 2006).

The ebb and flow of the focus of international child feeding policy recommendations can be compared to an indeterminate series of reclining hourglasses. Moving linearly over time, there continues to be a broader-to-narrower focus, and back again, on numerous interrelated and isolated variables. Article 2 of WHO’s Constitution, which came into force in 1948, identifies promoting ‘the improvement of nutrition’ and ‘maternal and child health and welfare’ among its functions (WHO 2006b). However, nowhere is breastfeeding explicitly mentioned.

The first occasion for WHO’s senior policy-making organ, the World Health Assembly, to speak of breastfeeding occurred only in 1974 when it ‘noted the general decline in breastfeeding in many parts of the world, related to sociocultural and other factors, including the promotion of manufactured breast-milk substitutes’; the Health Assembly urged ‘Member countries to review sales promotion activities on baby foods and to introduce appropriate remedial measures, including advertisement codes and legislation where necessary’ (WHO 1974). The issue was taken up again in 1978 when the Health Assembly recommended that governments give priority to preventing malnutrition in infants and young children by supporting and promoting breastfeeding, taking legislative and social action to facilitate breastfeeding by working mothers, and ‘regulating inappropriate sales promotion of infant foods that can be used to replace breast milk’ (WHO 1978).

Meanwhile, with formula promotion in resource-poor settings picking up in the 1960s, so, too, did criticism of artificial feeding and marketing. This included: the evocative coinage ‘commerciogenic malnutrition’ advanced by the renowned expert in tropical paediatrics and nutrition Derrick Jelliffe in 1968 to describe what he saw as the result of unregulated marketing of infant formula among the poor (Jelliffe 1971); a feature article in the *New Internationalist* in 1973 calling for a campaign to stop formula promotion (Hendrikse & Morley 1973); and publication by the British non-governmental organisation War on Want in 1974 of a report on infant malnutrition and the promotion of artificial feeding in the ‘third world’ called *The Baby Killer* (Muller 1974). Then, in Washington DC, also in 1978, Senator Edward Kennedy presided over a hearing in the US Senate on ‘marketing and promotion of infant formula in developing nations’. Acknowledging that ‘it is always the children who suffer most’ from poverty, malnutrition and disease, Senator Kennedy described (US Senate 1978) the hearing’s purpose as focusing:

‘on one small element of their problems . . . the use of a product intended to nourish life, to enable infants to thrive and grow, and see how it can have the unintended effects of fostering malnutrition and spreading disease. We will focus on the advertising, marketing, promotion and use of infant formula in developing nations . . .’

This hearing, which included prepared statements by two WHO representatives, contributed to the decision by WHO and UNICEF late the same year to organise
their landmark joint meeting on infant and young child feeding to ‘make the most effective use of [a] groundswell of opinion’ (WHO 1981a) among governments, non-governmental organisations, professional associations, scientists, and manufacturers of infant foods. The meeting, which was convened in Geneva in October 1979, was attended by some 150 representatives of these same groups; discussions were organised on five themes (WHO 1979):

- Encouragement and support of breastfeeding
- Promotion and support of appropriate and timely complementary feeding
- Strengthening of education, training and information on infant and young child feeding
- Promotion of the health and social status of women in this connection
- Appropriate marketing and distribution of breast-milk substitutes.

While endorsing in its entirety the statement and recommendations that had been agreed by consensus at this joint WHO/UNICEF meeting on the five interrelated discussion themes, the World Health Assembly in May 1980 once more narrowed its policy focus. Making particular mention of the meeting’s recommendation that ‘there should be an international code of marketing of infant formula and other products used as breast-milk substitutes’, the assembly requested WHO’s Director-General to prepare such a code ‘in close consultation with Member States and all other parties concerned’ (WHO 1980).

Thus began a process of numerous and lengthy consultations both with governments, and groups and individuals represented at the October 1979 meeting. The debate on the form and content of four successive code drafts, accompanied by a flood of media coverage, culminated in May 1981 with the adoption of the International Code of Marketing of Breast-milk Substitutes, in the form of a recommendation, with only one country – the USA – voting against. Governments were called on to take action to give effect to the code ‘as appropriate to their social and legislative framework, including the adoption of national legislation, regulations or other suitable measures’, and to report annually on this basis to WHO (WHO 1981a). The Health Assembly, in turn, was to be informed of government action in biennial reports presented in even years (WHO 1981a). Responding to a request from a number of governments for an operational definition of a pivotal phrase in the International Code – ‘infants who have to be fed on breast-milk substitutes’ – in 1986 detailed guidelines were presented at the Health Assembly on the main health and socioeconomic circumstances where this is the case (WHO 1986a).

In 1989 WHO and UNICEF once again cast their policy net wider by issuing a joint statement, whose purpose was to increase awareness of the critical role that health services play in promoting breastfeeding, and to describe what should be done to provide mothers with appropriate information and support (WHO 1989). This statement served as the foundation for the Baby-friendly Hospital Initiative (WHO 1991a), which WHO and UNICEF formally launched in 1991 (this is discussed further in Chapter 2).
Between 1982 and 2000 the World Health Assembly adopted more than a dozen resolutions on infant and young child nutrition, appropriate feeding practices and related questions, and still others that drew attention to key policy instruments and initiatives. These included:

- Requesting WHO’s Director-General to direct the attention of governments and other parties to two key observations regarding complementary feeding: that ‘any food or drink given before complementary feeding is nutritionally required may interfere with the initiation or maintenance of breastfeeding and therefore should neither be promoted nor encouraged for use by infants during this period’, and that ‘the practice being introduced in some countries of providing infants with specially formulated milks (so called “follow-up milks”) is not necessary’ (WHO 1986b)
- Encouraging ratification and implementation of the Convention on the Rights of the Child (UN 1989) as a vehicle for family health development (WHO 1992a)
- Welcoming the Innocenti Declaration on the Protection, Promotion and Support of Breastfeeding (WHO 1991b)
- Endorsing the World Declaration and Plan of Action for Nutrition adopted by the International Conference on Nutrition (WHO 1993), which had been organised jointly by the Food and Agriculture Organization of the United Nations (FAO) and WHO.

Finally, we come full circle to adoption of the Global Strategy in 2002 as described above.

Although concluded a year after adoption of the Global Strategy, a brief word is nevertheless in order about the groundbreaking WHO coordinated research conducted between 1997 and 2003 among nearly 8500 breastfed children in Brazil, Ghana, India, Norway, Oman, and the USA. A serious flaw in the child growth reference which WHO had been recommending for universal use since the 1970s was that it was based on a single community sample of predominantly formula-fed infants, whose growth pattern was significantly different from that of their breastfed counterparts. The results of the WHO coordinated research have transformed understanding of child growth and development; they demonstrate for the first time that children born in different regions of the world and given the optimum start in life have the potential to grow and develop within the same range of height and weight for age (WHO 2006c). Moreover, the new growth curves prepared on this basis not only provide a single international standard that represents the best description of physiological growth for all children from birth to age 5; they also establish the breastfed baby as the normative model for growth and development (WHO 2006d).

1.3 Grasping the global challenge

In this section common features of the importance of going to scale with the Global Strategy are identified and discussed from the perspective of social determinants of
health (Wilensky & Satcher 2009), including political, economic, geographical and nutritional aspects.

1.3.1 Starting with numbers

The Global Strategy’s freeze frame sketch of the challenge facing governments and the international community in 2002 began by recalling the role that malnutrition plays, directly or indirectly, in 60% of the 10.9 million deaths annually among children under 5. Well over two-thirds of these deaths, which are often associated with inappropriate feeding practices – lack of exclusive breastfeeding, complementary feeding that begins too early or too late, micronutrient deficiencies and consumption of nutritionally inadequate and unsafe foods – occur during the first year of life (WHO 2003a).

Research results presented in a series of interlocking papers at forums organised by the medical journal The Lancet in early 2008 (Global Health Network 2008) reconfirmed this grim picture. Indeed, the maternal and child undernutrition so highly prevalent in low- and middle-income countries was cited as responsible for fully 11% of the world’s disease burden. Authors stressed that the high prevalence of malnutrition seriously undermines achievement of the Millennium Development Goals (UN 2008a). Noting that 80% of the world’s undernourished children live in just 20 countries, authors stressed getting nutrition on the list of national priorities and keeping it there, and using resources to support actions that have been proven to have a direct effect on undernutrition in the most critical populations – mothers, and children under 24 months.

The final paper in the series is doubtless the most politically provocative insofar as the authors describe an international nutrition system – composed of international and donor organisations, academia, civil society and the private sector – which they consider fragmented, dysfunctional and desperately in need of reform. They argue that such a system should deliver in four functional areas: stewardship, mobilisation of financial resources, direct provision of nutrition services at times of natural disaster or conflict, and human and institutional resource strengthening. The authors conclude (Global Health Network 2008) that:

‘The moment is ripe for these reforms. Their implementation would transform the political salience of undernutrition, and offer the chance of a better, more productive life to the 67 million children born each year [of an estimated 136 million births annually (WHO 2005c)] in the countries most severely afflicted by undernutrition.’

In the struggle to eradicate poverty, because breastfeeding is good for both mother and child, it can make a significant contribution to the family economy. If there is illness or infection it may be a life-saving gift. If there is poverty it may be the only gift (Lawrence 2007).
1.3.2 The escalating food crisis

Later in 2008 the dramatic convergence of a range of potent forces – including the impact of climate change, urbanisation, population growth, biofuel production, increased energy and transportation overhead, troubled financial markets combined with an international credit squeeze, and sharply higher commodity costs due, at least in part, to speculative purchases of agricultural commodities – all contributed in varying degrees to mounting world food prices and food shortages. The results not only served to confirm the stark conclusions of The Lancet series, they also appeared to compromise still further the ability of governments and the international community to respond to the nutritional needs of the most vulnerable population groups, including the mothers and children just described.

By the first quarter of 2008, as the price of basic foodstuffs soared, civil unrest had broken out in many countries including Cameroon, Côte d’Ivoire, Egypt, Ethiopia, Haiti, Indonesia, Italy, Mauritania, Philippines, Thailand, Uzbekistan and Yemen. At a moment when the spectre of food shortages, even famine, looms large for huge numbers of people, governments are finding themselves forced into artificially controlling the cost of, among other basic commodities, bread, maize, rice and dairy products (surely steep price increases for already expensive infant formula cannot be far behind). United Nations Secretary General Ban Ki-moon candidly qualified the situation this way (UN 2008b): ‘The rapidly escalating crisis of food availability around the world has reached emergency proportions.’ Indeed, at the close of 2008, another 40 million people – rising to a total of 963 million – had been pushed into hunger primarily due to higher food prices (FAO 2008).

The point here is not to detail the decidedly catastrophic consequences of the world food crisis for so many people (which are not the focus of this chapter) or to speculate on the relative merits of steps to avert or alleviate the crisis. It is rather to observe, in this light, how much more important still are the everyday means potentially at our collective disposal to prevent or at least to minimise the impact of a global food crisis on the most vulnerable populations in a resource-strapped world. In the present context, our immediate response is as familiar as it is elementary: doing everything we can to make sure that mothers and children everywhere breastfeed, exclusively for the first six months to optimally protect their health, including by promoting child spacing; and for as long as possible thereafter together with nutritionally adequate and safe complementary foods.

1.3.3 Health and climate change

Paradoxically, the escalating global food crisis offers governments and the international community compelling additional self-interest incentives at the crossroads of global food security and protecting health from climate change, which was the theme of World Health Day 2008. In their joint celebration of World Health Day, La Leche League International (LLLI) and the World Alliance for Breastfeeding Action (WABA) were inspired by WHO’s key messages (in italics) to illustrate breastfeeding’s vital contribution (Vickers 2008; WHO 2008a):
• The health impacts of climate change will hit the poor the hardest. Breastfeeding is the great equaliser; babies born to the poorest of the poor have the same starting point as those born to the richest of the rich.

• Traditional public health tools are important components of effective response to climate change. Breastfeeding is the ultimate ‘traditional public health tool’.

• Cross-sector, interdisciplinary partnerships are necessary to meet this global health threat. Every time a mother puts her newborn to her breast, she symbolically links arm-in-arm with every other mother on the planet.

• Action must begin now to protect health by applying both adaptation and mitigation... Because breastfeeding provides such a powerful life start, a by-product of the support it deserves may well be global environmental protection.

And as the LLLI and WABA also noted, breastfeeding is inherently environmentally friendly, for example, no manufacturing plants, no intensive use of farmland and no packaging are required. Breastfeeding also helps counteract greenhouse gas emissions generated by the livestock sector, which is a major source of land and water degradation (FAO 2006).

1.3.4 Making sound economic sense

Ensuring the nutritional status of mothers is an ethical good in its own right. Furthermore, compared with the complex challenge of feeding infants artificially, breastfeeding is easy and inexpensive to do, thereby underwriting mothers’ capacity to directly meet the nurturing and nutritional needs of their children. Also, because it is in their direct economic interest, all governments will want to invest in cost-effective actions to overcome the malnutrition in mothers and young children that was expected to claim 3.5 million lives in 2008 alone (Global Health Network 2008). For example, scaling up programmes dealing with deficiencies in iodine, vitamin A and iron, and adding folate and zinc supplements, to ensure provision for 80% of south Asians and sub-Saharan Africans is estimated to cost about US$347m per year; but it would yield a massive US$5bn from improved future earnings and reduced healthcare spending (Horton & Lomborg 2008).

1.3.4.1 The value of breast milk

Speaking of basic commodities, typically countries with large-scale commercial dairy production, for example among the 27 members of the European Union and in Canada, New Zealand, Switzerland and the USA, keep close tabs on virtually every drop of bovine milk produced. In contrast, tiny Norway (population 4.6 million) is the only country where human milk production – an estimated 10.3 million litres (nearly 10.9 million quarts) in 2004 alone (Norwegian Directorate for Health 2004) – is a routine feature of national food balance sheets (Oshaug & Botten 1994).

Some promising, if isolated, efforts have been made to place a monetary value on the actual and potential production of human milk elsewhere. For example, it was estimated that Australian women supplied 33 million kg of breast milk in 1992,
compared with 16 million kg in 1972. Valued at AU$67 (the price of expressed human milk) the 1992 production level was worth AU$2.2bn or 6% of private spending on food (Smith 1999). In sub-Saharan Africa, where the production of human milk is considered to be about 50% of that of cow’s milk, in 1997 the national annual median human milk production was estimated to be between 146 000 metric tonnes (Mali) and 1.3 million metric tonnes (Nigeria), and production per capita between 8 kg (Zimbabwe) and 15 kg (Mali) per year (Hatloy & Oshaug 1997).

It is difficult to place a precise economic value on breast milk. In addition to being so much more than a mere food, it is rarely traded in the marketplace. Hatloy and Oshaug included in their analysis of sub-Saharan African breast milk production a reference to the contemporaneous retail price of US$36–47 per litre in Norwegian hospitals. They then proceeded to assign a ridiculously low global price of US$1 per litre and, on this basis, to calculate the impact in just two countries had the value of human milk been included in calculating gross national product (GNP). For Mali, whose GNP per capita was US$270 in 1990, the estimated value of human milk would have added another US$15 per capita or an increase of more than 5%. For Senegal, with a GNP per capita of US$710, GNP would have increased by nearly 2% (Hatloy & Oshaug 1997). These excessively modest figures, which take no account whatsoever of the multiple costs of artificial feeding incurred by individuals and society as a whole over the life course, represent only a tiny fraction of human milk’s total value. Nevertheless, extrapolated worldwide they promptly give the lie to the all too common – and frankly absurd, even offensive – assertion that breast milk is somehow free.

1.3.4.2 The value of breastfeeding

Breastfeeding itself has at least three price tags attached (Akre 2006):

- A mother’s time, which far too many observers mistakenly, even disrespectfully, consider to be ‘on the house’
- The energy cost of producing milk (though an incomparable value in terms of the benefits derived for both mother and child, the approximate daily additional 500 kcal still need to come from somewhere)
- The opportunity cost – the cost of a decision based on what must be given up – for example in the case of mothers who must choose between staying at home with their families and returning to paid employment outside the home to meet their financial needs.

Taken together these three price tags provide additional compelling evidence that breast milk is anything but free.

1.3.4.3 Nourishing the brain

Except for the marsupials, the human infant is the most immature of mammalian offspring (Lawrence 2007). At birth the infant’s brain is the most undifferentiated
organ in the body (Siegel 1999), and it doubles in size in the first year of life (Lawrence 2007). If genes and early experience shape the way neurones connect to one another, thereby forming the specialized circuits that give rise to mental processes, it is reasonable to conclude that whether this process is initially fired in a manner that is evolutionarily consistent with who we are as a species or relies on a food that is based on the milk of an alien species will make a significant difference in terms of developmental outcome. It is time for international public health nutrition policy to reflect this generic perspective as the only nutritional basis for ensuring the full genetic potential for every child’s cognitive development.

In multivariable analyses of the early life determinants of childhood intelligence in a population-based birth cohort of individuals born in Brisbane, Australia, Lawlor et al. (2006) reported that the strongest and most robust predictors of intelligence were family income, parental education and breastfeeding, with these three variables explaining 7.5% of the variation in intelligence at age 14. What do we suppose would be the cumulative worth, over a lifetime, of the 1.6 and 9.8 additional IQ points that Daniels & Adair (2005) observed among Filipino children for the many millions of, respectively, normal and low birth weight children born every year if they were breastfed for 12–18 months? As paediatrician Nils Bergman puts it (Health Promotion Agency for Northern Ireland 2005):

‘Breastfeeding is a behaviour which shapes and sculpts the brain and that brain shaping stays for life. Skin-to-skin contact is what the newborn requires in order for the brain to be shaped in the best possible way, and breastfeeding in the fullest sense is not about eating, but about brain growth, and the development of good relationships. Any other form of care is experienced by the newborn as separation, and prolonged separation causes permanent harm to babies’ brains.’

1.3.4.4 The true cost of routine artificial feeding

As summarised above, even the most casual search for information concerning the multiple risks of routine artificial feeding turns up a mass of startling and persuasive information. Thus, it is time for international public health nutrition policy to reflect this reality by ceasing to emphasise the benefits of breastfeeding, which is normal feeding behaviour. Instead, we need to focus, directly and consistently, on the short- and long-term risks to mothers and children alike of failing to breastfeed, which constitutes a deviation from the biological norm (WHO 1994), with significant negative consequences over the entire life course.

Routine non-emergency artificial feeding engenders numerous direct and indirect costs for children and mothers, and thus society as a whole (see also Chapter 10). Three especially fertile areas of inquiry should be vigorously pursued in this connection (Akre 2006):

- The multiple, complex and lifelong economic implications of observing or disregarding the biological ‘hominid blueprint’ (Dettwyler 1995) for nourishing the young of our species (acknowledging that humans are primates, the hominid
blueprint refers to what patterns in non-human primates suggest would be the natural age of weaning in modern humans if these behaviours were not modified by culture)

- The need for a unifying theory, integrating the short- and longer-term economic implications of the impact of more or less breastfeeding on the health and cognitive development of babies, on the health of children and adults, and on the health and wellbeing of mothers, families, and thus entire societies

- An analysis of the interdependence of early feeding patterns, and health maintenance and health expenditure throughout the life course for entire populations.

Among the most successful public health initiatives of the last 30–50 years, governments around the world have taken concerted action to curb tobacco use, and to improve passenger safety by promoting the use of seat belts, car seats for children and safety helmets. All these measures are based on the indisputable cost–benefit implications for both individuals and society as a whole in terms of, among other major variables, significantly reduced healthcare costs and premature mortality. Public health revolutions do not occur overnight. Yet, with everything that is already known about the health implications, across the entire life course, of failing to feed human babies human milk, the assumption is that relatively little additional work would be required to produce the convincing quantitative evidence needed as a further stimulus for increasing prevalence and duration of breastfeeding.

Running the numbers successfully and interpreting their significance accurately should serve as a tipping point – for achieving the critical mass required to reverse trends towards artificial feeding in some environments; for increasing breastfeeding prevalence and duration in others; and for restructuring the healthcare system, community and workplace in ways to ensure that, because these changes are understood to be in the best interest of society as a whole, they are welcomed by one and all. International public health nutrition policy needs to promote cost-effective decision making by ensuring that the science-based understanding of the health – and therefore the economic – implications of more or less breastfeeding are thoroughly assessed, convincingly presented and taken fully into account (Akre 2006).

1.3.4.5 Human milk banks

On this basis alone, it should be easy to imagine the day – and to begin taking serious steps to achieve it – when human milk banks for ill and preterm infants are as routine a component of the healthcare system as blood banks have become over the past 100 years (Bloodbook 2005). Human milk banking began early in the twentieth century, with the first such bank established in Vienna in 1909 followed by others in the USA and Germany (Jones 2003). The Human Milk Bureau opened in England in 1939, and by 1959 there were 100 milk banks in Germany alone (South African Breastmilk Reserve (SABR) 2006).

Over time, protocols were developed for sterilising, pasteurising, storing and freezing human milk. Thus, despite the marked initial decrease in their number in the 1980s with the advent of human immunodeficiency virus (HIV)/acquired
immune deficiency syndrome (AIDS), evidence of safety and continuing research into the importance of human milk translates into the number of donor milk banks being once again on the rise around the world, including in Australia, Brazil, Bulgaria, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, India, Japan, Norway, South Africa, Sweden, Switzerland, UK, Uruguay, USA and Venezuela.

Pasteurised donor milk is used for failure-to-thrive infants, infants with malabsorption and short-gut syndromes, renal failure, inborn errors of metabolism, paediatric burn patients, feeding intolerance, infectious diseases, necrotising enterocolitis and cardiac patients. At the King Edward Memorial Hospital in Perth (Australia), the recovery period of preterm infants who receive human milk has shortened by approximately two weeks. The estimated cost saving for one preterm infant who is given human milk versus an artificial substitute is AU$18 200 (US$17 000). In Queensland alone, 4300 preterm and 4000 term babies required donor milk during 2004 (Mothersmilkbank 2007).

1.3.5 When best is not good enough

In their 1989 foreword to the joint WHO/UNICEF statement on breastfeeding and maternity services (WHO 1989), the Director-General of WHO and the Executive Director of UNICEF observed that ‘few today would openly contest the maxim “breast is best”. Yet slogans, however accurate, are no substitute for action.’ Slogans indeed. Two decades later, some observers advocate abandoning ‘breast is best’ altogether in favour of describing human mothers and babies who are breastfeeding as normal, routine and commonplace (Wiessinger 1996; Akre 2006; Berry & Gribble 2008). In addition to being consistent with how all 5000 or so other species of mammals regularly behave, by adopting this approach we effectively avoid implying that, somehow, artificial feeding is the norm and that breastfeeding is something better than the norm. On the contrary, the implication is rather that anything else should be regarded as a deviation from the norm.

Furthermore, this approach is wholly consistent with how public health recommendations generally are conceived, formulated, transmitted and understood. Certainly, few observers focus on the benefits of not smoking, ensuring that children are protected against the major childhood diseases, using a seat belt and placing children in sturdy car seats while driving, making sure that medicines and cleaning products are kept out of reach of young children, or always using requisite safety gear, for example helmets, gloves and eye protection, when engaging in potentially dangerous activities. Rather we emphasise the risks involved, to ourselves and others, if we fail to heed elementary health and safety precautions. And surely the competent national authorities responsible for promoting public health and safety are unlikely to agonise about the possibility of inflicting guilt on the citizenry by calling attention, bluntly and repeatedly, to the risks incurred when people act contrary to the warnings given. Why should it be any different for our messages about breast milk and breastfeeding? Clearly, it is time to stop referring to the benefits of acting consistently with who we are as a species and to zero in on the dangers – for mothers
and children alike, and thus the entire population, throughout the life course – if we fail to do so.

### 1.3.6 Breastfeeding and breast cancer

After lung cancer, which is the most common cancer worldwide with 1.4 million deaths per year (WHO 2008b), there are just over one million cases of cancer of the breast annually (WHO 2003b) resulting in 548 000 deaths (WHO 2008b). The unequivocal results of a major study published in 2002 lend an important perspective to these mortality figures: the longer women breastfeed the more they are protected against breast cancer, and the short lifetime duration of breastfeeding typical of women in high-income countries makes a major contribution to the high incidence of breast cancer in these countries (Collaborative Group on Hormonal Factors in Breastfeeding 2002). The link being investigated between breastfeeding and a reduced risk of breast cancer is hardly new. What is newsworthy here, however, is how this study convincingly mines so large a quantity of robust data – concerning more than 50 000 women with invasive breast cancer and more than 95 000 controls from a total of 47 epidemiological studies in 30 countries – to reach its conclusions.

In 2008, an Expert Panel of the American Institute for Cancer Research went further in its comprehensive 517-page report, which was the result of a five-year process involving nine independent teams of scientists, hundreds of peer reviewers, and 21 international experts who reviewed and analysed over 7000 large scale studies on all aspects of cancer risk (AICR 2008). The Expert Panel reviewed data from 98 studies on lactation and breast cancer risk and concluded that the evidence linking lactation to lower risk for both pre- and postmenopausal breast cancer was convincing, meaning that the evidence met the panel’s strictest criteria (evidence that lactation reduces risk of ovarian cancer was judged ‘limited, but suggestive’). Moreover, according to the AICR report, breastfeeding a child probably reduces the chances of overweight for at least the early years of childhood. This is important, it noted, because excess body fat in childhood tends to carry over into adulthood, and excess body fat is a convincing cause of six common cancers: colon, kidney, pancreas, endometrium, adenocarcinoma of the oesophagus and postmenopausal breast cancer.

Although breast cancer continues to be most prominent in affluent countries, the risks of both breast cancer and death due to breast cancer are clearly increasing worldwide. Some 45% of the more than one million new cases of breast cancer diagnosed each year, and more than 55% of deaths related to breast cancer occur in low- and middle-income countries (Curado et al. 2008). As more countries modernise and more women adopt behavioural patterns such as delayed childbearing, lower parity and reduced breastfeeding, breast cancer rates will no doubt increase in lower- and middle-income countries as well (Porter 2008). And yet the link between artificial feeding and increased risk of breast cancer continues to rank as one of the best-kept secrets in terms of popular health knowledge as even a casual survey of the websites of cancer charities and associations makes clear (Akre 2006); related
information is often unavailable, or when it is, it can be difficult to locate and outdated. In any case, as illustrated by the results of a survey commissioned by the World Cancer Research Fund six months after publication of the AICR report, this key information is not yet anchored in popular consciousness (AICR 2008). In a nationally representative sample of 1998 adults in the UK, only 19–25% of women and 13% of men thought breastfeeding reduced the mother’s risk of cancer, while just 25–33% of women and 17% of men thought it reduced the child’s risk of being overweight (WCRF 2008).

Ironically, this regrettable picture was reinforced with the publication in 2006 of the results of a substantial survey whose aim was to assess knowledge of breast cancer risk in a large sample of young people – over 19 000 male and female university students – from 23 countries in Africa, North and South America, Asia and Europe (Peacey et al. 2006). Curiously, data collected were limited to respondents’ awareness of links with heredity, alcohol use, exercise, obesity, stress, smoking and diet. And yet, as the researchers themselves note, at least a fifth of breast cancer cases in Western countries are likely to be due to modifiable lifestyle factors, presumably including prevalence and duration of breastfeeding, which the survey ignored entirely.

1.3.7 Deconstructing infant formula

It is time to take infant formula down from its inappropriate nutritional pedestal and to transform its unjustified image among health professionals and the general public alike, as the ‘obvious’ substitute for breast milk. As WHO has made clear (WHO 1986a; WHO 2003a), in those few situations where infants cannot, or should not, be breastfed, the choice of the best alternative – expressed breast milk from an infant’s own mother, breast milk from a healthy wet nurse or a human milk bank, or a breast-milk substitute – depends on individual circumstances.

Fortunately, in an emergency, infant formula prepared in accordance with applicable Codex Alimentarius standards (FAO/WHO 2007) can sustain infants who, for whatever reason, are denied access to human milk. However, when infant formula is pitched as somehow suitable for routine non-emergency use, this formerly life-sustaining crisis commodity is instantly transformed, indeed denatured, into a paediatric fast food. Moreover, the generalised use of an inert manufactured product that is typically based on the milk of an alien species carries with it significant and irreversible negative consequences, across the entire life course, for the health and wellbeing of children, mothers, and thus society as a whole. We need to remove infant formula, once and for all, from the kitchen pantry and permanently relegate it to the medicine cupboard, where it got its start as an emergency nutrition intervention. In the first decade of the third millennium, deconstructing infant formula – by transforming both popular and health professional perceptions of formula from the best nutritional alternative to breast milk to the least-bad alternative – may well be our single most important priority in this context (Akre 2006).

Concerning follow-up formula (FAO/WHO 1987) which, as noted earlier, the World Health Assembly described as ‘not necessary’ (WHO 1986b), WHO has made
several relevant observations in the context of the *International Code* (WHO 1992b). While acknowledging that, strictly speaking, follow-up formula does not fall within the scope of the *International Code*, WHO nevertheless:

> ‘has also made clear that, taking into account the intent and spirit of the Code, there would appear to be grounds for the competent authorities in countries to conclude otherwise in the light of the way follow-up formula is perceived and used in individual circumstances . . . the competent authorities may wish to take the position that follow-up formula should be considered a de facto breast-milk substitute. WHO recommends that infants be breastfed exclusively for the first six months of life and that, once complementary feeding has begun, breastfeeding should continue up to the age of two years or beyond. Seen in this context, it could be argued that breast milk is the most appropriate liquid part of a progressively diversified diet once complementary feeding has begun.’

### 1.3.8 Infant formula as a crisis commodity

Meanwhile, for infants who have to be fed on a breast-milk substitute, nutritional science should continue to strive to render infant formula the least incomplete and the least inadequate breast-milk substitute possible. There are pressing unanswered – indeed, largely unasked – questions about infant formula that call for resolution multilaterally based on a thorough and disinterested reading of the latest scientific and epidemiological evidence or by undertaking new research. For example:

- The recommended period during which formula alone can be said to meet infants’ nutritional needs, which is another way of saying when complementary feeding should begin for infants who are not breastfed
- The safety and efficacy of supplementing formula with DHA (docosahexaenoic acid) and ARA (arachidonic acid), respectively the omega-3 and omega-6 essential fatty acids which are said to be added to over 99% of US infant formulas and consumed by millions of infants in over 70 countries (Martek 2009).

### 1.3.8.1 How long is long enough?

Concerning the first point, while WHO undertook a systematic review of the nutrient adequacy of breast milk in 2000–2001 (WHO 2001c; WHO 2002b), no comparable inquiry has ever been conducted into the nutrient adequacy of infant formula as the sole source of nourishment. The norm of four to six months was established in the late 1970s (WHO 1979). Today, the relevant Codex Alimentarius standard calls for information to be included on the label that ‘infants should receive complementary foods . . . from an age that is appropriate for their specific growth and development needs . . . and in any case from the age over six months’. However, the standard skirts age-specificity by defining formula somewhat circularly as a ‘breast-milk substitute specially manufactured to satisfy, by itself, the nutritional requirements of infants during the first months of life up to the introduction
of appropriate complementary feeding’ [italics added] (FAO/WHO 2007). WHO’s guiding principles for feeding non-breastfed children (WHO 2005a) provide some useful considerations in this connection, but they do not answer the question posed.

1.3.8.2 Essential fatty acids and food safety

DHA and ARA, which are naturally found in breast milk and other foods such as fish and eggs, are known to be important for infant eye and brain development. However, where including synthetic versions of these essential fatty acids in infant formula is concerned, recent reviews of research and expert recommendations are as varied as they are inconsistent, even contradictory. For example, infant food manufacturers in the USA have produced and sold such formulas since 2002. And yet the US Food and Drug Administration’s Center for Food Safety and Applied Nutrition advises consumers not only that ‘there are no currently available published reports from clinical studies that address whether any long term beneficial effects exist’ from including these fatty acids in infant formula, but also that ‘systematic monitoring efforts are not in place to collect and analyze information’ on any long-term benefits or adverse consequences of formulas containing them (US Food and Drug Administration (USFDA) 2006).

Meanwhile, participants in a one-day workshop in February 2008 sponsored by Martek Biosciences Corporation, which produces synthetic versions of DHA and ARA for use in infant formula, evaluated research exploring how these fatty acids affect infant brain and eye development. Participants concluded that both DHA and ARA should be added to infant formula in order to provide formula-fed infants these nutrients ‘at a comparable rate to their breastfed counterparts’ (Koletzko et al. 2008; NHS Tayside 2008).

In contrast, in January 2008 the Cornucopia Institute (2008a) described the DHA and ARA oils in question – extracted from laboratory-grown fermented algae and fungus and processed using a toxic chemical, hexane, a derivative of petroleum refining – as structurally different from those naturally found in human milk in addition to never before having been part of the human diet. Cornucopia also drew attention to the FDA’s response to Martek Biosciences indicating that the FDA had not made any determination regarding the safety of these oils (USFDA 2001). In April 2008 Cornucopia filed a legal complaint with the US Department of Agriculture ‘demanding that the agency enforce the organic regulations prohibiting toxic solvents [hexane] from being used in the production of organic food’ (Cornucopia Institute 2008b). Cornucopia reports that it learned through a Freedom of Information request filed with the Food and Drug Administration that ‘algal- and fungal-based DHA/ARA have been linked to serious side effects such as virulent diarrhoea and vomiting in infants consuming infant formula, many of whom required medical treatment and hospitalization’ (Freedom of Information Act (FOIA) 2007; Cornucopia Institute 2008b). The complaint has not yet been adjudicated.

In the late 1990s, the world’s best known source of rigorous systematic reviews of randomised controlled trials, the Cochrane Collaboration, began publishing reviews on the effect of feeding term and preterm infants with infant formula containing
low levels of long-chain polyunsaturated fatty acids (LCPUFA). The most recent substantive updates, which are consistent with previous Cochrane reviews, ‘found that feeding term infants with milk formula enriched with LCPUFA had no proven benefit regarding vision, cognition or physical growth’ (Simmer et al. 2007a). In addition, ‘the evidence does not support the claim that preterm infants have improved visual and intellectual development’ or that LCPUFA supplementation significantly influences their long-term growth (Simmer et al. 2007b).

Certainly, nutritional science should continue to strive to make the crisis commodity that is infant formula the least incomplete and the least inadequate breast-milk substitute possible. But we should not be fooled by a ‘bouillabaisse fallacy’. It is not just the number and types of ingredients found in formula based on our still primitive reading of their presence and significance in breast milk, it is also a matter of how they interact in an inert, indeed stagnant, replacement food, and how – or even if – a child’s body absorbs and uses them.

### 1.4 Summary recommendations

Acceptance of the above analysis and the following resultant recommendations presupposes a reorientation of international public health nutrition priorities. This outcome, in turn, is contingent on a shift in thinking, a kind of multilateral cultural transformation. It also implies abandoning accepted wisdom and traditional unilateral behaviours in favour of focusing internationally on both the biological and cultural components – the biocultural dimension – to child feeding behaviour (Stuart-Macadam 1995). Neither transformation can be taken for granted. However, both are entirely justified based on the information and evidence already at our disposal.

The following specific proposals are presented in the interest of accelerating implementation of the Global Strategy for Infant and Young Child Feeding in ways that routinely take account of the biocultural dimension. The proposals are deceptively straightforward and brief; if taken seriously, however, all imply a significant investment in changing awareness, attitudes and behaviour throughout society. As noted in the introduction, they seek to broaden the international public health policy agenda where:

- Each proposal corresponds to a major challenge due to inadequate information or awareness, which can easily obstruct implementation of the Global Strategy today.
- Each proposal corresponds to a key priority for driving a crucial cultural shift that, ideally, will facilitate implementation of the Global Strategy tomorrow.

Before proceeding, a word is in order about the intended sense of the recurrent phrase ‘the international public health nutrition community’. It very nearly means whatever readers want it to mean; as a generic collective term, the intention is to err on the side of completeness. Taking a lead from the Global Strategy itself, a pragmatic description of what is intended includes a variety of parties operating with or parallel to governments, for example international intergovernmental
organisations, professional bodies, commercial enterprises, and nongovernmental organisations and associations, including community-based support networks and consumer groups.

1.4.1 Reframing routine artificial feeding

It is time for governments and the international public health nutrition community to acknowledge that routine non-emergency substitution of breast milk:

- Constitutes a significant deviation from the biological norm for the young of our species
- Has serious consequences, throughout the life course, for children, mothers and thus society as a whole
- Should be countered, firstly, by improving collective understanding of breastfeeding’s significance for all humankind and, secondly, by restructuring the health services, community and workplace accordingly.

1.4.2 Replacing ‘the benefits of breastfeeding’ with ‘the risks of not breastfeeding’

It is time for governments and the international public health nutrition community to cease emphasising the benefits of breastfeeding, which is normal feeding behaviour, and to focus instead on the short- and long-term risks, to mothers and children and thus to society as a whole, of failing to breastfeed.

1.4.3 Tracking the adverse health outcomes of artificial feeding

It is time for governments and the international public health nutrition community to track systematically, over the short and longer term, the adverse health outcomes for children and mothers due to routine non-emergency artificial feeding.

1.4.4 Focusing on breast milk’s significance for cognitive and visual development

It is time for governments and the international public health nutrition community to adopt as their default perspective that human milk provides the only basis for human babies to achieve their full genetic potential in terms of cognitive and visual development.

1.4.5 Recognising artificial feeding’s significance for increased risk of cancer

It is time for governments and the international public health nutrition community to recognise and act on: the link between artificial feeding and a significantly higher
risk for mothers of both pre- and postmenopausal breast cancer, and uterine and ovarian cancer; and the impact of excess body fat due to artificial feeding in childhood, carried over into adulthood, as a risk factor for developing a variety of other cancers.

1.4.6 Calculating the amount and value of human milk produced and consumed worldwide

It is time for governments and the international public health nutrition community to routinely calculate the amount and value of human milk produced and consumed worldwide as a means of raising awareness of the global significance of this essential food resource.

1.4.7 Evaluating the global economic implications of child feeding mode

It is time for governments and the international public health nutrition community to evaluate the multiple, complex and lifelong economic implications, for individuals and society as a whole, of observing or disregarding the hominid blueprint for the natural age of weaning. Cost-effective decision making can be promoted by ensuring that the health – and therefore the economic – implications of more or less breastfeeding are thoroughly assessed, convincingly presented and taken fully into account.

1.4.8 Making human milk banks a routine component of healthcare infrastructure

It is time for governments and the international public health nutrition community to ensure that human milk banks are as routine a component of the healthcare system as blood banks have been for the past century.

1.4.9 Ensuring that the crisis commodity called ‘infant formula’ is the least nutritionally incomplete and inadequate possible

It is time for governments and the international public health nutrition community to ensure that the Codex Alimentarius infant formula standard consistently reflects the most up-to-date internationally agreed position on formula’s age-related nutrient adequacy as a sole source of nourishment, and the safety and efficacy of adding omega-3 and omega-6 essential fatty acids.

1.4.10 Giving effect to the International Code of Marketing of Breast-milk Substitutes and relevant resolutions

It is time for governments and the international public health nutrition community to give effect, in their entirety, to the International Code of Marketing of Breast-milk...
Substitutes and relevant World Health Assembly resolutions, as a key component of overall feeding policy and practice, a minimum requirement, and one of several important actions required in order to protect healthy practices in respect of infant and young child feeding.

1.5 Conclusion

Changing positively the perception and place of breastfeeding depends on how successful we are in transforming the way the community understands and relates to child feeding and development, and the implications for the health of children and mothers and thus society as a whole, throughout the life course. This starts with promoting an awareness of breastfeeding that is consistent with our common mammalian condition and, until recently in evolutionary terms, our common mammalian tradition. Replacing collective hubris with a dash of collective humility should also help as we struggle to unlock nature’s secrets in this regard.

As we go to scale with a global feeding strategy, by all means, let us continue to expand our scientific knowledge and augment our epidemiological evidence of what it means in the modern world, nutritionally and developmentally, to be a newborn child and a mother of a newborn child. But as we do let us proceed respectfully, on the understanding that ours is, at base, a universally common set of nurtur ing and nutritional needs, and that, despite outward sociocultural diversity, these needs are precisely what our self-sameness imposes.

Nature does not readily submit to scrutiny via double-blind randomised trials, which in any case are unethical where our mothers and babies are concerned. On the other hand, 200 million years or so of mammalian evolution should be worth something in terms of our default position being intuitively weighted in favour of breastfeeding – an essential part of the human experience, and an unavoidable and indispensable feature of who we are as a species. Consistent with nature’s plan, the ordinary miracle that is life itself, whether at the cellular level or in terms of begetting and giving birth to new life, is matched by our natural capacity to nurture, nourish and sustain life in our own unique species-specific way.

References


From Grand Design to Change on the Ground


