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Commentary

Greenfeeding- an urgent environmental and public health issue!

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Key messages

- Food has a measurable impact on climate change at every stage of production, packaging, transport, waste treatment. Greenfeeding (sometimes referred to as eco-feeding or ecofriendly feeding) means producing and eating local, healthy and sustainable foods.
- Ultra-processed foods (UPFs) top the list of planetary burdens in terms of manufacturing as well as in terms of health impacts (NDCs and infections). Formula and industrial baby foods are UPFs and therefore make an important contribution to negative impacts on climate and natural resources.
- Exclusive breastfeeding for the first 6 months and continued breastfeeding while giving family foods produced locally by sustainable agriculture are vital measures for the health of the child, the mother and the environment. They are of critical importance to reduce carbon and water footprints and mitigate the impact of climate change and pollution.
- Therefore, type of policy and legal measure to protect, promote and support breastfeeding is a direct and fundamental contribution to mother and child health, to public health and to the health of our planet.
- It is crucial to combine legislation (implementation of the International Code of Marketing of Breast-milk Substitutes and related WHA Resolutions) and traditional cultural contexts to assure success of greenfeeding campaigns.

Summary of evidence to date

Nutrition, the food system, and climate change are highly interconnected, with the causes of climate change – such as the burning of fossil fuels, emission of greenhouse gases (GHG), and deforestation – disrupting the world's climate and creating risks for our food system.[1] The food system alone accounts for one-third of all GHG emissions.[2]

At the June 2023 launch of the Green Feeding Tool (GFT) in Australia, a tool which measures the environmental impact of formula feeding [3], GIFA, the Geneva Infant Feeding Association, a member of IBFAN, presented our pioneering work on this topic. Starting in 1989, GIFA began disseminating information about the ecofriendly aspects of breastfeeding. [4] Subsequent publications revealed all the adverse effects of formula feeding on the environment as a whole (resources, biodiversity, pollution and health). Our recently updated greenfeeding document aims to raise awareness of the need to

[1] Global Nutrition Report. (2021). *2021 Global Nutrition Report: The state of global nutrition*. Bristol, UK: Development Initiatives. https://globalnutritionreport.org/reports/2021-global-nutrition-report/

[2] Crippa M et al. (2021). Food systems are responsible for a third of global anthropogenic GHG emissions. *Nature Food*, *2*, 198–209. https://doi.org/10.1038/s43016-021-00225-9

[3] https://nceph.anu.edu.au/research/projects/green-feeding-tool

[4] https://www.gifa.org/en/international-2/green-feeding/#htoc-read-more

take action from birth to safeguard the health of humans and our environment.[5]

Why do we need a tool such as the GFT to measure environmental impact of formula?

Carbon footprint

Breastmilk Substitutes (BMS) are expensive, industrial, indeed ultra-processed foods [6] that literally "cost the earth". Infant and toddler milks all have a negative impact on the environment caused by the manufacturing, processing, and transportation of its ingredients: powdered cow milk, soy or rice, vegetable oils, sugars and additives. As a result, the production and transport of these artificial foods contributes to the greenhouse gas emissions that cause global warming/climate change and increase environmental pollution.

Water footprint

Worldwide, water resources are diminishing and water use is increasing, while droughts caused by climate change exacerbate water scarcity and shortages. About 5000 litres of water are used for every kilogram of milk powder, including producing the milk, then processing the powdered milk, preparing the feeds, and sterilising feeding equipment. Industrial dairy farms threaten biodiversity, and the run-off of waste from dairy farming threatens our water supply with contamination by effluent and harmful chemicals, including pesticides.

Biodiversity loss, waste, pollution

It is not only cows' milk but the other ingredients of formulas (and baby foods) which threaten biodiversity: production of soy for feeding dairy cattle in Europe may play a role in clearance of tropical rainforests in Brazil; cultivation of the palm oil added to formula and other commercial baby foods may impact replacement of rainforests in Indonesia by oil palm plantations.

The manufacture of ultra-processed baby foods uses resources such as tin for cans and plastic for containers, bottles and teats, producing waste that ends up in landfills, further polluting our environment. Plastic pollution in particular is an environmental catastrophe made worse by the consumption of single-use articles, portion packaged foods, and overwrapping.

Global warming- higher ambient temperatures

Powdered infant and toddler formulas and baby cereals are not sterile products. Harmful bacteria such as Cronobacter sakazakii and Salmonella species may be introduced at factory level. [7] Extra heat and thus fuel and other precautions must be taken when preparing (as well as in handling and storing) these products to prevent rapid multiplication of any pathogens present even in unopened packages. They thrive in warm milk and because global warming causes higher ambient/room temperatures this increases the risks to infant and young child survival and health when formula is not used immediately.

Contamination and recalls of imported products

The list of countries to which the potentially contaminated Lactalis formula were exported [8] includes 13 European Union (EU) countries and 54 third countries."[9] A list of imports of formula and ingredients into the UK show that they come from many different countries of origin. These imports generate substantial CO2 emissions for

[5] https://www.gifa.org/en/international-2/green-feeding/

[6] Coined by Carlos Monteiro (Monteiro CA. Nutrition and health. The issue is not food, nor nutrients, so much as processing. *Public Health Nutrition*, 2009 May;12(5):729-31) and now shown to be a major cause of the obesity epidemic and non-communicable diseases.

[7] https://www.gifa.org/en/international-2/contaminants2/

[8] https://www.foodwatch.org/en/lactalis-the-scandals-within-the-scandal

[9] https://www.ecdc.europa.eu/sites/default/files/documents/RRA-Salmonella%20Agona-France-Greece-Spain-01-2018.pdf

transport and handling,[10] which is particularly wasteful when the products are recalled.

Importance of data

Estimates of the carbon and water footprints of breastfeeding will depend on whether breastfeeding is exclusive for the first six months, and whether it is interactive breastfeeding at the breast, or breastfeeding using expressed or pumped breastmilk followed by refrigeration or freezing and then by feeding with sterilised bottles and teats.

The data used to prepare estimates of the environmental impact of breastfeeding and feeding formula and baby foods are different depending on the national context. For this reason, the Green Feeding Tool (GFT) is of great interest to measure the impact and inform advocacy in each country.

Why is breastfeeding environment-friendly?

Breastfeeding contributes to the prevention of global warming, protects biodiversity and conserves natural resources. It is a sustainable and valuable global resource that has no negative impact on our environment: Breastmilk requires no transport, no use of scarce resources, no pollution caused by manufacture and transport, no waste produced by packaging. Interactive breastfeeding means feeding at the breast, and thus needs no plastic feeding equipment - no pumps, no feeding bottles, no teats nor sterilising kits. Breastfeeding is readily available on-site, needs no packaging and is a renewable food source and life-giving[11] as well as life-saving in all the emergencies[12] caused increasingly by climate change.

Breastfeeding leads also to a reduction in expenditures on health costs to treat disease. Extensive data confirm that many acute and chronic pediatric disorders occur less frequently if the baby is breastfed.[13] This means less medication and no - or shorter - hospital stays, which in turn is a significant contribution to save energy, reduce waste and avoid pollution generated by treatments especially in-hospital. The same accounts for women's health concerning obesity, diabetes, certain cancers, cardio-vascular diseases etc. Every pathology in the child or the mother which can be avoided thanks to breastfeeding is a direct environmental saving.

Breastfeeding needs protection

Breastfeeding is under serious threat from commercial practices and urgently needs to be protected, promoted and supported. Digital marketing is rapidly increasing and spreading false information and unsubstantiated claims about infant and toddler formulas and baby foods. Social influencers are often paid to promote baby formulas and foods by companies, the manufacturers and distributors.

The International Code of Marketing of Breast-milk Substitutes and its subsequent relevant WHA resolutions are taken together as 'The Code'. The Code requires implementation at country level in legislation that is monitored and enforced, with sanctions applied whenever manufacturers and distributors break the law. Implementation therefore depends on the national context and regulatory system.

[10] Sibson V et al. How secure is our infants' food supply? Why the government's food security assessment and emergency planning must include breastfeeding and the infant formula supply. A Food Research Collaboration Policy. https://foodresearch.org.uk/publications/how-secure-is-our-infants-food-supply-why-the-governments-food-security-assessment-and-emergency-planning-must-include-breastfeeding-and-the-infant-formula-supply-chain/ Table 2 shows suppliers of infant formula to the UK market, and lists countries of origin/manufacture.

[11] https://www.gifa.org/en/international-2/immunology/

[12] https://www.gifa.org/en/international-2/crisis-situations/ and https://www.ennonline.net/infantformulaguidelines

[13] Stoody EE et al. The pregnancy and birth to 24 months project: a series of systematic reviews on diet and health. *Am J Clin Nutr*, 2019;109(Suppl_7):685S–697S https://pubmed.ncbi.nlm.nih.gov/30982878/

The aim of the Code is to protect, promote and support optimal breastfeeding and ensure timely and culturally appropriate complementary feeding. The predatory and exploitative promotion of BMS/commercial milk formulas and complementary foods is addressed in subsequent relevant resolutions and in latest WHO reports as well as in The Lancet Breastfeeding series 2023.[14]

Greenfeeding and complementary foods

In contrast to ultra-processed foods (UPFs)[15] such as formula and artificial baby milks, breastmilk is unprocessed, healthy local food. Greenfeeding in the infant and young child setting includes the introduction, after six months of age, of complementary foods that are safe and nutritious, and are produced using local products and sustainable agriculture. Home-prepared family foods are minimally processed so offer value for money. Sustainable local agriculture provides foods that are biodiverse, reliable, and culturally appropriate.

Families should be allowed to make feeding decisions for their infants, toddlers and young children free from commercial pressures. Sustained breastfeeding needs support for as long as the family wants to continue. Breastmilk continues to provide precious sources of nutrition and immune support, especially when complemented by safe and nutritious family foods, locally produced using sustainable agriculture. Support provided by the community, health care systems and the policy framework can be undermined by marketing and promotion of ultra-processed foods. This is the reason the l Code is crucial.

Sustainability

Sustainability implies three dimensions: social, economic as well as environmental and needs commitment on all levels, as the Brundtland Report "Our common future" showed already in 1987.[16] But sustainability action – and in our case greenfeeding action – must also take into consideration cultural wellbeing, as is illustrated in the Māori concept of « kaitiakitanga ».[17] Traditional concepts of kaitiakitanga include a deep relationship between the spiritual realm, humans and the natural world and a sense of community and sharing life; perhaps the way we should view the protection and support of breastfeeding. It is never a task for the individual alone, but it is a shared responsibility to create an environment where breastfeeding is seen as the social norm, something natural. The legal and social framework must go hand in hand to allow women to make their breastfeeding decisions come true.

If we link the greenfeeding and environmental debate with breastfeeding, we have to be aware that the heavy responsibility to tackle the climate crisis lies not on the mothers' shoulders alone, but above all on governments to create and implement a supportive legislative regulatory framework.

The authors plan to publish a more comprehensive article to include new aspects, new data based on peer reviewed studies, and more extensive references.

[14] https://www.thelancet.com/series/Breastfeeding-2023
[15] https://www.gifa.org/en/dangers-of-upf-ultra-processed-foods/
[16] https://digitallibrary.un.org/record/139811
[17] https://www.sciencelearn.org.nz/resources/2544-understanding-kaitiakitanga