

The First-Food System: The Importance of Breastfeeding in Global Food Systems Discussions

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INTRODUCTION

The United Nations (UN) Food Systems Summit (FSS) in September 2021 is a unique and critical opportunity for stakeholders to discuss and evaluate how the world’s populations obtain and consume foods. However, the conceptual framework that will guide and influence the summit’s discussions is incomplete. Developed in 2017 by a high-level panel of experts (HLPE; see Figure 1), the framework articulates the relationship between food supply chains, the food environment, consumer behaviors, diets, and, ultimately, nutrition and health outcomes. The framework emphasizes that food systems comprise drivers, actors and elements that interact with one another, as well as with other systems (such as health, energy and transportation).

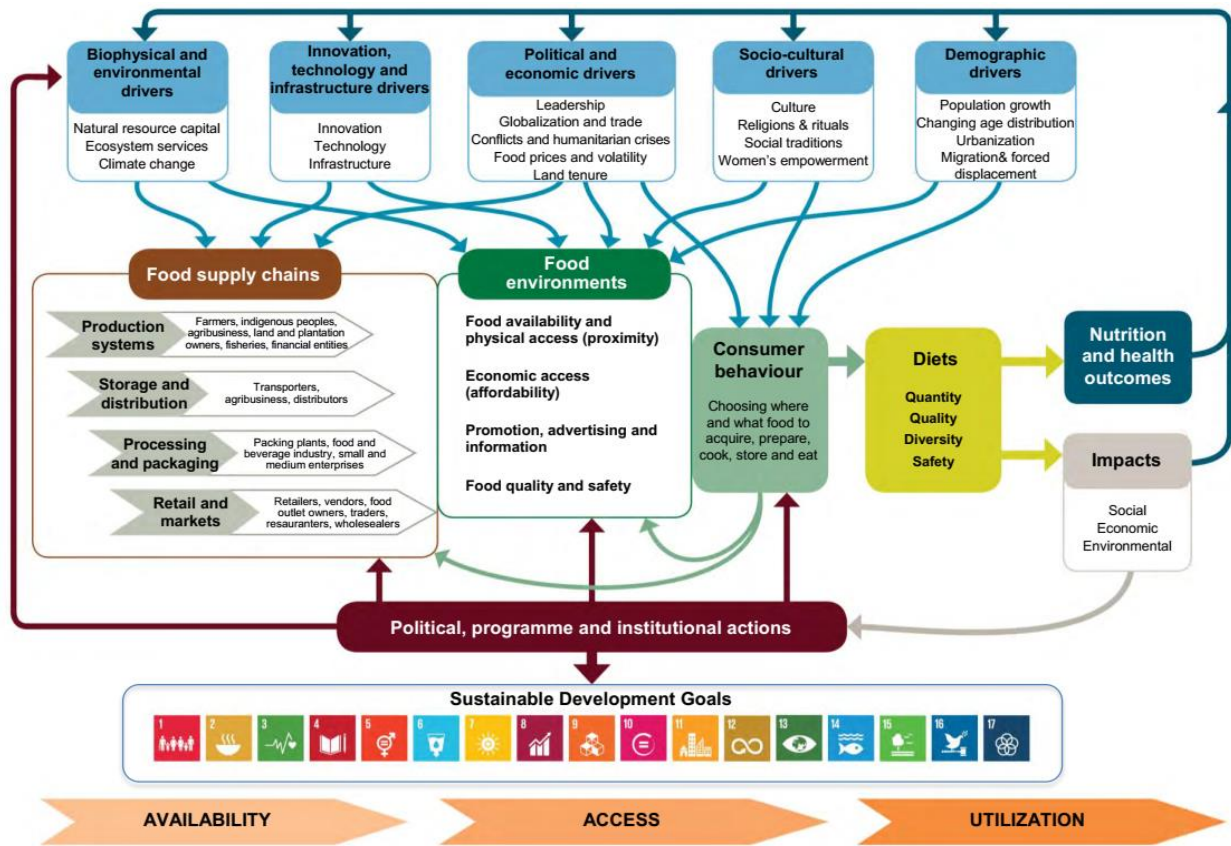


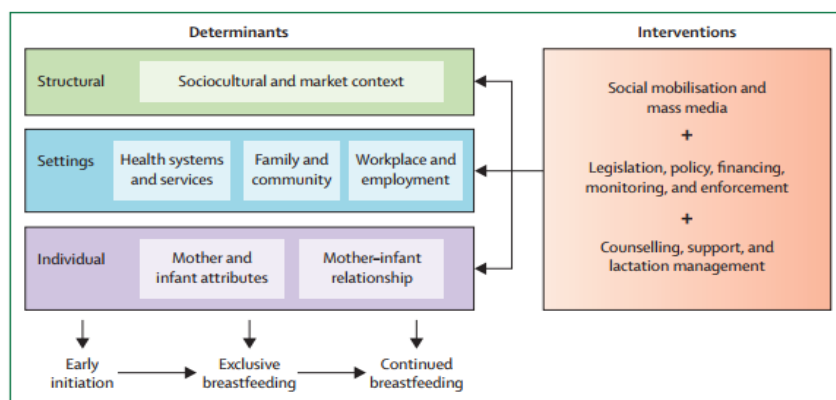
Figure 1 The 2017 Conceptual Framework of Food Systems for Diets and Nutrition

However, this framework does not articulate a critical element: the first-food system, the system that provides food for children aged 0-36 months (Baker et al. 2020). It omits any mention of breastfeeding

or breastmilk, the first human food, and the relationships between its supply chain, the food environment and behavior, and nutrition and health outcomes.

This paper presents three key elements of this first-food system that should be included in upcoming food system discussions and incorporated into future food system frameworks: the marketing of commercial milk formula (CMF)¹ by the formula industry; maternity protection policies and practices; and the impact of the CMF industry on the environment. Any future framework should specifically include reference to the first food – breastmilk – and the direct impact of the CMF industry and other social, cultural, political and economic drivers on breastfeeding (see Figure 2). This paper aims to help stakeholders at the summit recognize the critical role breastmilk plays in food systems as the "first food" - and ensure the framework addresses factors that impede breastfeeding.

Figure 2: A mother’s decision to breastfeed is influenced by determinants at the structural, settings, and individual levels as shown below in the conceptual framework from the 2016 Lancet Series on Breastfeeding (Rollins et al. 2016).



At the **structural level**, social norms and customs, often influenced by the media, advertising, and marketing but also national policies and legislation, influence perceptions, knowledge, and beliefs around infant feeding behaviors. These factors help to shape the external environment for breastfeeding behaviors and beliefs.

At the **settings level**, the health system and health providers, family and community members (including mothers-in-law, peers, religious leaders, etc.), and the mother’s workplace and/or employment, are the sources of influence. The health system and health providers provide advice and support for mothers to breastfeed but can also deter and harm breastfeeding practices by promoting CMF and/or offering unclear guidance. Family and community members help to establish and enforce social norms around breastfeeding and are critical to ensuring that mothers have the time, support, and space to breastfeed. Without maternity protections that allow mothers the time and space to breastfeed or express and store breastmilk, employment can impose practical barriers to breastfeeding. Within the health system, the COVID 19 pandemic has brought unprecedented impacts on nutrition service provision. Seventy-six countries reported disruptions to maternal health services, which encompass antenatal and postnatal care, including breastfeeding support (UNICEF, 2020).

At the **individual level** a mother’s personal attributes, such as her age and education level, her personal beliefs, perceptions, knowledge, and intentions around breastfeeding, and her relationship with her infant, affect her breastfeeding choices (Rollins et al. 2016).

The food system, taken as a whole, impacts the availability, accessibility, and utilization of foods, some of which can significantly interfere with breastfeeding practices. A survey of children, parents and caregivers found that more than 75% of households reported income losses since the start of the COVID-19 pandemic: 81% of those surveyed reported finding it hard to pay for food (Save the Children, 2020). The resultant increased risks of malnutrition and food insecurity reinforce the importance of protecting, promoting and supporting breastfeeding through its immunological protection to the infant.

¹ CMF is a term that can be used interchangeably with the term breastmilk substitutes.

WHERE BREASTMILK AND BREASTFEEDING FIT WITHIN THE HLPE FRAMEWORK

Breastfeeding/breastmilk fits directly within the HLPE's framework discussion around improving diets and ultimately nutrition and health outcomes. Breastmilk is a critical part of a young child's diet and should be the only food for infants under six months. Consistent and substantial global evidence highlights the importance of breastfeeding for the optimal health and well-being of women and children around the world; in fact, increasing breastfeeding practices to optimal levels could save more than 800,000 infant lives every year (Victora et al. 2016).

The World Health Organization recommends that infants be exclusively breastfed for six months, including initiation within the first hour of life, and that they continue to breastfeed for up to two years or beyond.

Breastfeeding gives all children the healthiest start to life. Providing for breastfeeding according to recommendations reduces infant morbidity and mortality, and continues to protect children throughout life – reducing the likelihood of stunting and wasting, guarding against infections, supporting recovery from illness, and reducing the risk of childhood obesity and chronic illness (Black et al. 2008; Lamberti et al. 2011; Debes et al. 2013; Horta and Victora 2013). Breastfeeding also protects the mother, reducing her risk of breast and ovarian cancer and assisting in birth spacing (Victora et al. 2016).

Breastfeeding directly contributes to improved social and economic development. Breastfeeding stimulates cognitive development – resulting in improved intelligence, education attainment, and income; ultimately translating at a national level to greater economic productivity (Victora et al. 2015; Horta et al. 2015; Victora et al. 2015). At the national level, improving breastfeeding practices through programs and policies has been shown to be one of the best investments a country can make, as every dollar invested is estimated to result in a US \$35 economic return (Walters et al. 2017).

Supporting breastfeeding and recognizing breastmilk as an optimal element of the first-food system also has benefits for society through its contribution to reducing climate change. As the shortest food chain – mother to child – breastmilk is more environmentally friendly than breastmilk substitutes, which utilize resources to produce, transport, and market.

PROTECTING, PROMOTING AND SUPPORTING BREASTFEEDING: THE FSS DIALOG

Stakeholders at the FSS have an important opportunity to ensure that breastmilk and breastfeeding are understood as critical to the health and nutrition outcomes envisioned by the HLPE framework. By recognizing the contributions of the practice of breastfeeding to social and economic development and the negative impacts of the use of breastmilk substitutes, they can identify actions to protect, promote and support breastfeeding that will help the FSS to achieve its objectives related to the 2030 Sustainable Development Goals. Below and in Figure 3, we have highlighted key gaps in the current framework that merit specific attention.

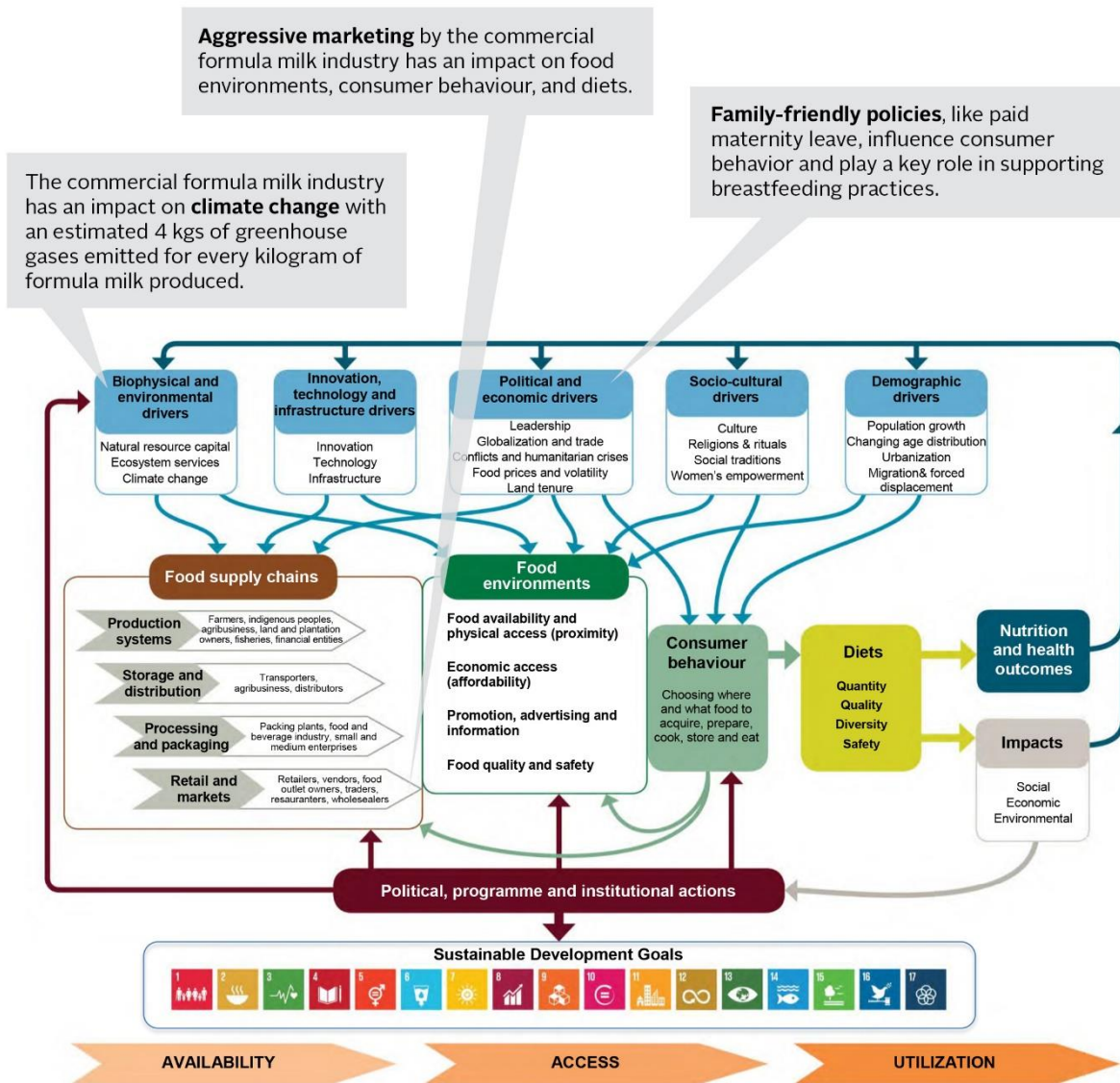


Figure 3 How the commercial milk formula industry and regulatory policies influence breastfeeding and the first-food system.

Gap 1: Impact of the CMF industry on the food environment and consumer behavior

The current framework indicates the influence of retail and markets on food environments, consumer behavior and ultimately health and nutrition outcomes. The specific and significant impact of the CMF industry on the health and nutrition outcomes of young children via its impact on the food environment and consumer behavior should be explicitly recognized.

Why is this addition important?

The CMF industry, valued at over US\$60 billion in 2018 and expected to reach US\$119 billion by 2025, has tremendous influence over how the world's most vulnerable population – infants aged 0-36 months – are fed (Global Breastfeeding Collective, 2020). The industry's marketing undermines efforts to promote and support breastfeeding. In 2016 breastfeeding was declared a human rights issue that should be protected and promoted. Despite this, only around 44% of the world's children are exclusively breastfed, in part due to the aggressive promotion of CMF products (UNICEF, 2021).

While some infants need formula for medical reasons and formula is the choice of feeding by some parents, globally the CMF market far exceeds population growth—more formula is being produced than there are children to consume it (Save the Children, 2018). In addition, this growth is far greater than any other comparable product (Ibid). Furthermore, in some countries, such as Cambodia, CMF companies spend 60 times more money promoting their products than the Government spends to promote breastfeeding (Ibid).

The CMF industry uses diverse and continuously evolving marketing strategies to change social norms and influence feeding decisions such as product and cross-product promotion (e.g., promotion of milks for children aged 12-36 months to create brand recognition), distribution through trusted sources like health facilities and health workers, and extensive social and mass media campaigns. Some companies use false health claims and tout formula as an equivalent, if not superior, product to breastmilk, affecting parents' abilities to make informed choices regarding what to feed their infants (Global Breastfeeding Collective, 2020; Save the Children, 2018). This kind of promotion is often illegal, violating the International Code of Marketing of Breastmilk Substitutes (Code), adopted in 1981. The Code and its subsequent resolutions were created to protect infants and young children from inappropriate marketing by prohibiting the promotion of breastmilk substitutes, bottles, and teats to the public, health-care workers and facilities, and the distribution of samples or vouchers to new parents. However, despite legislation in 84 countries that have enacted the Code, violations of the Code are widespread. Data from 2014-2017 document more than 800 violations of the Code in almost every one of those 84 nations (IBFAN-ICDC, 2017). Aggressive marketing deceives consumers and puts children's lives at risk, especially when these products are promoted where access to clean water and supplies to safely provide formula to infants is lacking. It is no wonder then that babies who are exclusively breastfed are 14 times less likely to die than babies who are not breastfed (Lamberti et al. 2011).

CMF companies highly target health workers. According to a study of CMF industry practices, Mead Johnson Nutrition (acquired by RB in 2017) had a global salesforce of 1,900 employees in 2010, of which 1,350 (71%) were dedicated to selling to health professionals, and the remaining 550 (29%) to pharmacy and supermarket retailers (Baker et al. 2020).

The CMF industry's -multibillion-dollar campaigns to aggressively market their products drastically influence both the food environment (access, availability, affordability, quality) and consumer behavior (choosing what food to purchase and prepare for young children), resulting in negative health and nutrition consequences. Explicit mention of the impact of CMF companies on the food system during discussions of the HLPE framework can help to ensure adequate attention and focus on addressing the industry's aggressive marketing, benefiting young children, mothers and families around the world.

Gap 2: Role of family-friendly policies on a mother's ability to breastfeed

The role of political and economic drivers in the food system is a key component within the HLPE framework. Missing are those influential policies (e.g., paid maternity leave and other maternity protections) that impact a mother's ability to provide her infant with the optimal first food – breastmilk. These political and economic drivers should explicitly include family-friendly policies that influence consumer behavior related to breastfeeding and the impact on nutrition and health outcomes.

Why is this addition important?

Family-friendly policies,² including maternity protections such as paid maternity leave, paid breaks to either breastfeed or express breastmilk, and access to safe, private, and hygienic spaces for expressing breastmilk at work, are critical to maternal and infant health and well-being. Inadequate maternity protection policies and domestic laws within both the formal and informal work sectors are key barriers to breastfeeding. Women need time, space, and support from their families, communities, and workplaces to breastfeed successfully.

Maternity protection policies and family-friendly workplaces have been shown to have a positive impact on the initiation, the exclusivity, and the duration of breastfeeding, as well as allowing mothers time to bond with their infants following birth.

- Research from 38 lower-and-middle-income countries found that a one-month increase in the duration of maternity leave was associated with a 5.9 percentage point increase in the prevalence of exclusive breastfeeding and a 2.2-month increase in breastfeeding duration (Chani et al. 2018).
- Research also showed that women allowed lactation breaks during work were nearly 62 times more likely to continue breastfeeding than those who do not (Alive & Thrive, 2020). In addition, female workers who are encouraged by their coworkers and supervisors to continue breastfeeding are 2.4 times more likely to continue breastfeeding than those who do not have that support (ibid).
- Female workers who have access to a dedicated lactation room are 2.4 times more likely to continue breastfeeding than women who do not (Tsai, 2013). In Kenya, workplace policies providing breastfeeding flexitime, breaks for breastfeeding mothers, day-care for infants,

² Family-friendly policies are defined as “policies that help to balance and benefit both work and family life that typically provide three types of essential resources needed by parents and caregiver of young children: time, finances, and services” (UNICEF, 2019a).

facilities for breastmilk expression and home-based nutrition counselling for pregnant and lactating women led to a four-fold increase in the probability of exclusive breastfeeding (Kimani-Murage et al. 2020).

Improved breastfeeding practices benefit not only individual mothers and children, but national and global economies as well. In 2016, the Lancet Series on breastfeeding found that economic losses due to suboptimal breastfeeding reached more than \$300 billion in 2012 (Rollins et al. 2016). Research that examined the value of breastmilk as a commodity, found that breastmilk was worth more than \$110 billion a year in the United States but that the country loses nearly two-thirds of that value due to early cessation of breastfeeding (Smith, 2013).

Family-friendly policies are also good for businesses and the economy. These policies benefit businesses and employers by increasing workers' productivity, earnings, and satisfaction, helping businesses attract and retain high quality staff, improving the company's brand and image (and often earnings), and improving employee health, morale, and engagement (UNICEF 2019a; Office of Women's Health, 2018; Global Breastfeeding Collective, 2019). Studies from the United States demonstrated that workplace breastfeeding policies saved an average of US\$3 for every US\$1 invested due to reduced employee turnover, increased employee retention and satisfaction, and reduced absences related to illness (Office of Women's Health, 2018). Studies from Kenya and Bangladesh showed similar benefits, indicating reduced absenteeism and improved workplace productivity (Global Breastfeeding Collective, 2019). Furthermore, studies in the United States have shown that companies with breastfeeding-friendly workplace policies report maternal employee retention rates of 83-94 percent, which is much higher than the national rate of 59 percent (Office of Women's Health, 2018).

Economic pressures, income insecurity, and heavy workloads are significant challenges that women face around the world, often negatively impacting breastfeeding practices and the overall health and well-being of mothers and children. However, adequate maternity protections can help protect women from these pressures by offering compensation for economic losses, protection against gender discrimination, and a reduction of health risks. Despite these benefits, worldwide only 40% of women with newborns have even minimal maternity benefits, and this disparity only worsens in Africa where just 15% of women with newborns have any protection (UNICEF, 2019b). Women working in the informal economy are particularly unlikely to have any form of maternity protection, contributing to a cycle of poverty and food insecurity.

A lack of family-friendly policies constrains mothers in their ability to choose how and when to feed their infants, significantly affecting how the youngest members of society are fed, their health and nutrition as well as the health of their mothers. HLPE framework discussions should take into consideration the impact of these policies (or lack thereof) on how women are able to feed their families, especially among women working in informal economies who do not benefit from existing maternity protections.

Gap 3: Impact of the CMF industry on climate change and the environment

The HLPE framework identifies the influence of biophysical and environmental drivers such as climate change on the food environment, with no specific mention of the fast-growing CMF industry. Discussions around biophysical and environmental drivers must include the impact of the CMF industry on climate change and the food environment.

Why is this addition important?

Climate change is a real and persistent issue that needs to be addressed immediately. Reducing the purchase and consumption of CMF and improving the prevalence of breastfeeding can help. Research has shown that formula production is emerging as a significant contributor to greenhouse gas (GHG) emissions around the world and the impacts are only likely to increase given the tremendous expansion of the CMF industry (WABA, 2020). A 2016 study found that emissions created by producing CMF from just six Asian Pacific countries (Australia, China, Malaysia, India, Philippines, and South Korea) generated 2.89 million tonnes of carbon dioxide, which was equivalent to driving more than six billion miles by car. Conservative estimates indicate that each kilogram (kg) of milk formula produced generated four kg of GHGs during production (Smith, 2019).

CMF production impacts the climate in numerous ways. First, the main ingredient in most CMF is cow's milk and dairy farming is a major contributor to GHGs through the release of methane and other gases into the air. In addition, the land necessary to feed dairy cattle can lead to deforestation and the food used to feed dairy cows often utilizes pesticides and fertilizers, further degrading the environment. Aside from the specific impacts to the air, land, and water, CMF products also require energy and materials to produce, package, distribute and prepare the formula. Breastmilk production, on the other hand, only requires the mother to consume 500 additional calories a day to account for the extra energy expended in producing milk. CMF products also often come in non-recyclable materials. Research shows that feeding one million babies with formula for two years requires, on average, approximately 150 million cans of formula. Although using a breast pump to express milk requires additional equipment, many of these products can be reused and thus are better for the environment than the one-time use containers of CMF products (WABA, 2020). Given these impacts, a specific mention of the emerging role CMF products play in climate change in the HLPE framework would help to bring attention to addressing the negative impacts of the CMF industry on the environment and the food system itself.

RECOMMENDATIONS

The following recommendations propose how stakeholders at the UN World Food Systems Summit could begin to support the first-food system within their action tracks. First, they suggest focusing on the massive influence of the CMF industry on breastfeeding as well as the industry's negative impact on the environment and climate change. In addition, these recommendations address how stakeholders could protect, promote, and support breastfeeding – the first food – through supportive programs and family-friendly policies that ensure that women have the knowledge, time, and support to breastfeed.

Action track 1: Ensure access to safe and nutritious food for all and reduce the incidence of non-communicable disease, enabling all people to be nourished and healthy.

- Governments, donors, and the private sector need to ensure women have access to quality breastfeeding counselling and services before, during, and after childbirth. Breastfeeding is nutritionally, immunologically, neurologically and endocrinologically superior to breastmilk substitutes (McFadden et al. 2016).
- Governments and the private sector need to provide breastfeeding-friendly workplaces that provide breastfeeding and/or breastmilk expression breaks as well as clean, hygienic, and private places for mothers to express and store breastmilk.
- Governments, donors, and implementers need to work with communities to develop solutions to address the lack of maternity protections for women working in the informal sector, such as through universal health coverage with financial risk protection, microinsurance schemes, and by targeting social protection transfers to vulnerable pregnant or breastfeeding mothers. Governments also need to provide at least 14 weeks of paid leave around childbirth (as recommended by the International Labor Organization), but optimally at least 18 weeks of paid leave.

Action Track 2: Shift to sustainable consumption patterns including through building demand for sustainably produced food, improving nutrition, eliminating wasteful patterns of food consumption and recognising that we need to facilitate a transition in diets towards more nutritious foods that require fewer resources to produce and transport.

- Governments need to incorporate the Code and its subsequent resolutions into their laws and regulations and monitor and enforce the Code in collaboration with WHO's monitoring mechanism, NetCode.
- Stakeholders, including consumers, investors, civil society organizations (CSOs), and the UN need to demand CMF companies publicly commit to full compliance with the Code and disclose a concrete plan for achieving this goal by 2030 at the latest. The Code is for all stakeholders who have a responsibility to protect, promote and support breastfeeding.
- Governments and stakeholders (including investors, CSOs, and the UN) need to increase public awareness and understanding of the Code and its role in promoting and protecting breastfeeding and regulating inappropriate promotions of breastmilk substitutes. Communications should focus on promoting breastfeeding as a social norm, de-normalizing the consumption of CMFs, and calling out CMF companies and media platforms when they violate the Code (Ching et al. 2021).
- Governments, donors, and stakeholders should implement multi-channel social and behavior change interventions for a wide range of audiences (e.g., families, community leaders, health workers, employers, media,) to ensure a supportive enabling environment for breastfeeding that can counter the aggressive marketing of the CMF industry.

- Stakeholders, including consumers, investors, CSOs, and the UN need to raise awareness among decision-makers around the impact of CMF production and consumption on food security, climate change, and the environment.
- Stakeholders, including investors, CSOs, and the UN need to conduct additional research on the impact of CMF on the climate and the environment.

CONCLUSION

Current discussions of the food system and its impact on diets and nutrition outcomes are missing a critical component— breastfeeding and breastmilk. The inclusion of the suggestions shared in this paper will foster a more comprehensive discourse on food and health systems. Breastmilk is the first food and is a vital part of the first-food system. Indisputable evidence highlights the importance of breastfeeding for the health and well-being of individual children as well its significant impact on the health, development, and wealth of nations. Yet despite the tremendous benefits of breastmilk, only 44% of infants worldwide are exclusively breastfed for the first six months of life as recommended by WHO (UNICEF, 2021). This paper describes three key elements that must be included in food system discussions, highlighting how they influence breastfeeding and bringing much needed attention and action to address them. Women do not make the decision to breastfeed alone; rather, influences on multiple levels impact their feeding decisions.

Stakeholders across the food system need to act to ensure women and families have the ability and support to make the best food choices for their children, including breastfeeding. Explicitly recognizing the barriers to breastfeeding within the food system and recognizing breastmilk as a critical first food, is an important first step in ensuring that children around the world receive the food and nutrition they need to grow, survive, and thrive.

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