

1.5 HOW BREASTFEEDING CONTRIBUTES TO A HEALTHY ENVIRONMENT



Formula proves to be a disaster to the environment!

In contrast, to breastfeeding which is ecologically friendly, formula feeding is unsustainable and leaves a large, heavy ecological footprint. The concept of ecological footprint includes the resources consumed by the human population as well as the waste left behind. The carbon footprint of greenhouse gases left behind contributes to climate change, while waste and garbage pollute our environment. All the resources and raw materials that are extracted cause the depletion of our planet's limited and non-renewable natural capital. In addition to these factors, formula feeding involves transportation at every stage of manufacturing and aggressive marketing.

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A Quilt of Greenhouse Gas Emissions

While it is important to examine **the inputs or resources** needed for producing formula milk powder, it is vital to also investigate **the outputs or waste products**

that are left behind in these processes. These outputs have a direct impact on *greenhouse gas emissions* or *GHG*. Carbon dioxide, methane and nitrous oxide are examples of the greenhouse gases produced by anthropogenic or 'man'-made activities.

They are named greenhouse gases because they act like the glass of a greenhouse and trap the heat of the sun's rays. Calculating the carbon footprint of infant formula use can be done either at the industry level or at the home level. While it is possible to calculate the ecological footprint of formula production for each country independently, much of the data required is not easily available. For instance, if formula is produced nationally, where is the milk sourced from? How many cows are needed to produce the milk? How is the dairy managed? How distant are these milk collection centres? Is the milk transported by road or by rail? If formula is imported, then it is even more difficult to calculate these factors, as they occur in distant countries and all involve transport.

According to the Food and Agriculture Organization of the United Nations (FAO), the average global GHG emissions from milk production, processing and transport are estimated to be **2.4 kg CO₂-eq. per kg of FPCM** (fat and protein corrected milk) at the farm gate. In 2007, globally 553 million tons of milk were produced, processed and transported generating 1328 million tons CO₂-eq of GHG. Globally, from every 100 kg raw milk produced and processed, only 20 Kg (that is 20%) is used for producing powdered milk leading to production of 2.2 kg powdered milk. This means, for each 1 kg of powdered milk production and processing, 21.8 kg CO₂-eq. of GHG is emitted. This figure may be used to estimate GHG emissions caused by production of formula milk powder at country level if the amount of such products produced in the country is known.⁽¹⁾



Growing deforestation has resulted in higher greenhouse gas emissions. Comparing the total emission of greenhouse gas to the total milk production across the world, the amount of emission is more than double the milk production. Greenhouse gas emission becomes even higher after adding the emissions caused due to transportation of milk across different parts of the world.

The growing burden on the environment is a point of concern



Ecological Footprint or environment footprint is a measure of human demand on the earth's resources and the load imposed on nature by a given activity or population. To leave no ecological footprint means that a person or an activity replaces in the environment exactly what is taken out.

By assessing the use of non-renewable resources it is possible to estimate how much of the Earth or how many Earth-are needed to sustain a particular level of consumption.

Carbon Footprint is "the total set of greenhouse gas (GHG) emissions caused by an organization, event, product or person." GHG can be emitted through transport, and clearance, and the production and consumption of food, fuels and manufactured goods. The carbon footprint is often expressed in terms of the amount of carbon dioxide, CO₂, emitted or its equivalent comprised of other GHGs such as methane, (CH₄). These gases together contribute to global warming and are expressed in terms of CO₂-e (equivalent).

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To estimate the total ecological footprint of formula feeding products, it is necessary to focus on the whole process of manufacturing the formula feed, including milk production, industrial manufacturing, transportation and preparation. Formula feeding also increases the manufacturing of associated products such as tin for cans, cans for packing the formula, plastic for bottles and teats, labels and printing for marketing and distribution, and sterilizers for sterilizing the bottles. This puts a

burden on the planet additional to that of manufacturing formula from liquid milk.⁽¹⁾

Besides that, babies, especially those under six months of age, cannot take milk in any form except liquid. Producing formula involves turning liquid milk into a powder, and then adding water to turn it into a liquid again for consumption. Even so, we need to estimate the emissions from each stage-production of milk formula, including transport, the manufacturing of feeding bottles, and finally reconstituting formula into a liquid that the infant can consume- as there is a huge requirement of



Use of Scarce Raw Materials for Packaging

Aluminum, cadmium and other metals are used in manufacturing, storage and packaging of formula products. The processing and recycling aluminum are both energy intensive. Apart from being energy intensive processes, contamination caused by Aluminum for packaging of formula is also a cause of concern. A research paper on this subject states: "The aluminum content of infant formulas is between 10 and 40 times higher than the aluminum content of breast-milk and will contribute significantly towards the body burden of aluminum in infants. There is evidence of immediate and delayed toxicity in infants, and especially pre-

energy, most often causing irreversible damage to the environment.

The processing of milk into powder, the packaging, and transportation all result in emissions of carbon dioxide and other greenhouse gases, leading to global warming. Emissions are relatively high if coal is used in energy production, as is the case in many developing countries. No less important are the **indirect impacts** of formula feeding such as deforestation, loss of woodlands and wetlands.⁽¹⁾

terms exposed to aluminum; since many of the formulas are packaged for sale using aluminum-based materials. The high content of aluminum in the soya-based formula probably reflects its prior concentration in the soybean plant ..."⁽²⁾

In 2009, the Lancet reported that while breastfeeding is a thoroughly eco-friendly feeding practice, the carbon footprint created by the formula milk industry from sourcing, producing and packaging is massive. The paper further stated that in the USA alone, more than 32 million kW of energy is used every year for processing, packaging and transporting formula and 550 million cans, 86,000 tons of metal and 364,000 tons of paper are added to landfills every year.⁽³⁾

Use of Scarce Energy Resources

According to USFDA, powdered infant formula is manufactured by more than a dozen firms in 40-50 processing plants worldwide.⁽⁴⁾ The processes of infant milk formula manufacturing with dry blending include: dry blending to mix ingredients from different producers in many countries, sifting, transferring to bags or drums for storage, filling large cans that

are flushed with inert gas, then seamed, labeled, coded and packed into cartons for transport. Wet blending requires spray drying. Both these processes are energy intensive processes at high temperatures. "Baby milks are the end product of a number of industrial processes. The energy used to create the right degrees of temperature and the mechanical procedures cause air pollution (acid rain and greenhouse gases) and uses natural resources in the form of fuel." ⁽⁵⁾

Food Miles

There are only about 40-50 processing plants in the world that are concentrated in countries such as Ireland and New Zealand. As a result, many countries import powdered milk for formula from these countries which results in increased fuel and energy requirements for transportation. The energy costs and carbon footprints of these import and export journeys need to be impact the environment.

The calculations of the carbon emissions, which are produced by transporting milk from farms to the factories and then the formula from factories to stores to homes, depends on the size of the country. *The*

same calculations need to be made for complementary foods introduced after six months, when these are not made from local foods produced using sustainable agricultural methods. Unlike traditional indigenous foods, these processed, packaged, transported or imported complementary foods leave a large ecological footprint as they travel from farm - or factory - to plate.



Piling on of Toxic Chemicals, Waste and Garbage

Impact on Human Health and Wellbeing

Currently, out of the 136.7 million babies born annually, only 39% of children aged less than six months are exclusively breastfed in 2012. ⁽⁹⁾

Abiding to the Global strategy of WHO ⁽⁶⁾ and the code of marketing ⁽⁷⁾ is essential as every baby who is not breastfed will add an additional baby to the market of formula which will thus bring severe consequences for infant health as well as for the environment. ⁽⁹⁾

References

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The Tree of Life



In Asia, the Arab countries and many other regions of the globe, the *Tree of Life* is a powerful image. Trees such as the *banyan*, the *Bodhi*, the coconut and the date palm and *peepal* trees, symbolize the interconnection of all life on our

planet. They give us much of our food, drink and medicines.

They also give shade, shelter and building materials for humans, plants and animals, and provide a focus to our meeting points. Most of all, they absorb carbon dioxide, thus mitigating the climatic effects of greenhouse gas. They also emit oxygen, without which there can be no human life.

Trees charge no fee for all these services to humankind. Just like the *Tree of Life*, every breastfeeding mother gives her baby nourishment, fluids and protection through the thousands of live immune cells acting as anti-infective agents. Breastfeeding can be sustained without any harm to Mother Earth. For all this the mother often receives only scanty recognition, if any. It is proposed that every breastfeeding mother should be awarded a golden leaf to symbolize her contribution to the health of her baby and the health of our planet.

Reference

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