



Human Health and the Food System

A Brief for True Cost Accounting Considerations

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This brief highlights the issues and opportunities regarding human health and the food system. It is the first of three with the second focused on organic foods. The third brief will consider strategies to incorporate human health into accounting. They are intended to further develop the concept of true cost accounting with regards to human health for food businesses.

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Human Health and the Food System: A Brief for True Cost Accounting Considerations

This short human health brief is not meant to be exhaustive¹, e.g. the emerging area of mental health and the gut biome will not be discussed herein. Rather we intend to paint a broad brushstroke of domains of impact with several examples in each – both positive and negative. It's also useful to be clear up front that food system policies and practices making optimal human health a prime consideration will have implications on the market.

This is intended! The Sustainable Development Goals (SDGs) endorsed by the United Nations General Assembly are arguing for transformation towards sustainability. For our purposes it means that either businesses are changing their business model or they will be outcompeted by more innovative sustainable business models. That is a general statement and not a statement regarding any individual company, but does mean that all should be examining themselves and identifying ways that they, if needed, can work to transform their current business model to one that does have the ability to tackle this consideration across the dimensions of human health impacts. And assessing the true costs of production could help companies to make the right decisions on time.

We will primarily take a supply chain approach to positive and negative externalities while recognizing the global food system is much more than this – it also includes a range of policies, institutions, norms and behaviors, among other influences while overlapping with a number of other systems – such as governance and economy². With respect to food-related businesses and the food system there are five key channels where human health is impacted:

- occupational hazards,
- environmental contamination,
- contaminated foods,
- unhealthy dietary patterns,
- and food insecurity.

The consumer side is both broad and difficult when applied to individual food businesses given the diversity of reach, scope, and product. Chronic and/or food-related health issues generally fall in three categories – non-communicable diseases (healthy vs. unhealthy food), residue related health issues (environmental and food contamination), and food insecurity and malnutrition issues (amount of nutrition and calories).

Some companies, by definition, generate largely healthy food (e.g. a fresh produce company) – with a number of positive health

1. For a much more detailed treatment see: Hamm, M.W., Frison, E. and Tirado von der Pahlen, M.C. (2018). Human health, diets and nutrition: missing links in eco-agri-food systems. In TEEB for Agriculture & Food: Scientific and Economic Foundations. Geneva: UN Environment. Chapter 4, 111-159. <http://teebweb.org/agrifood/wp-content/uploads/2018/11/Ch4.pdf>

2. See figure 2.4 of the Economics of Ecosystems and Biodiversity (TEEB) (2018) report for a more complete visual representation of food systems <http://teebweb.org/agrifood/wp-content/uploads/2018/11/Ch2.pdf>

benefits – while others generate largely unhealthy food (e.g. soft drink beverage company) – with distinctly negative health impacts. In all cases there are potential human health issues that can arise. It is clear that diet-related chronic diseases – key among them the rising levels of obesity (over 650 million people globally in 2016³) – account for a large amount of morbidity and mortality globally. The soft drink industry is under increasing pressure regarding the amount of sugar-sweetened beverages consumed globally⁴ with soda taxes demonstrating an impact in Mexico⁵. Necessary dietary consumption pattern changes, especially in the global north, are fairly straightforward – increase fruit and vegetable, increase high-fiber grain, decrease total calorie and empty calories, reduce meat and processed meat, increase nuts and legumes^{6, 7, 8}.

While reducing non-communicable disease morbidity and mortality requires a multi-dimensional strategy there are certainly aspects that can be accomplished in specific industries and overall among food system businesses. If a company's general business plan would benefit by these types of changes then it is more straightforward concerning how to grow market share. If a company's general business plan is intuitively counter then the challenge is larger – how to restructure the business plan to move in a direction that would accommodate

these changes. If the business plan is mixed in this regard – e.g. parts of the company need to increase calorie consumption for market growth to occur while another part might require more legume-based protein foods – it will be more nuanced. This only addresses non-communicable diseases based on dietary pattern.

Consumers experience a range of other food-related health issues – both chronic and acute. Food poisoning is the most typical acute problem. Although essential for good health, fruits and vegetables have provided incidents of food-borne illness – for example a Romaine lettuce⁹ incident in the US. There are also problems of environmental contamination (e.g. pesticide residues on food, endocrine disrupting chemicals, water and air pollution), spoilage (e.g. overly long supply chains with short shelf life), and food borne pathogens (e.g. bacterial contamination via processing and packaging). Endocrine disrupting chemicals are considered widespread and of great health concern¹⁰ – including a range of pesticides, packaging materials, and animal-production hormones. Air and water pollution for example can impact both workers in the particular areas as well as members of the larger community. In this case more stringent production and supply-chain management strategies could be considered (e.g. sourcing via certified organic farms and processors OR more stringent application of pesticide residue testing and rejection).

It may be useful to consider the supply chain diversity within a company in this regard as well. This summer's experience with record-breaking temperatures and/or record rains during prime planting season has demonstrated that sourcing from a limited

3. See the WHO fact sheet on obesity and overweight <https://www.who.int/en/news-room/fact-sheets/detail/obesity-and-overweight>

4. See, for example, the call for dramatic curbs on the advertising of junk food and drink to children <https://www.theguardian.com/society/2016/nov/12/stop-junk-food-advertising-curb-childhood-obesity-experts>

5. Colchero MA, Popkin BM, Rivera JA, Ng SW. (2016) BMJ (Clinical research ed). 352:h6704 (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4986313/>)

6. Nordic Nutrition Recommendations (2012) <http://norden.diva-portal.org/smash/get/diva2:704251/FULLTEXT01.pdf>

7. USDA Scientific Report of the 2015 Dietary Guidelines Advisory Committee https://ods.od.nih.gov/pubs/2015_DGAC_Scientific_Report.pdf

8. Advisory report Dutch dietary guidelines 2015 Dutch Report <https://www.healthcouncil.nl/documents/advisory-reports/2015/11/04/dutch-dietary-guidelines-2015>

9. See the recent outbreak of *E. Coli* infections linked to Romaine lettuce <https://www.cdc.gov/ecoli/2018/o157h7-11-18/index.html> (accessed 09/09/19)

10. See the WHO/UNEP report for in-depth discussion: https://apps.who.int/iris/bitstream/handle/10665/78102/WHO_HSE_PHE_IHE_2013.1_eng.pdf?sequence=1 (accessed 09/23/19)

number of production regions probably has increasing risks. This, along with strategies of regionalization, could provide a big opportunity for food companies (although outside the scope of this short brief – e.g. the ability to electrify the transportation infrastructure¹¹). Eliminating the non-therapeutic use of antibiotics would help improve human health both directly (with farmworkers managing the animals) and indirectly through longer efficacy periods for human use of specific antibiotic classes.

Those working within the supply chain are subject to a range of challenges including exposure to toxic chemicals (e.g. pesticides of various types), toxic pathogens, antibiotics, as well as work-related injuries¹². Especially in the under-resourced world this can exacerbate malnutrition of both macro and micro-nutrients – leading to stunting, poor cognitive development, blindness, and other debilitating conditions (as well as very early death). The question becomes which of these fall within the purview of individual companies and how might they be categorized/quantified? Workers in the supply chain face a number of preventable hazards. Starting with farmworkers and farmers they are most typically exposed to a range of toxic chemicals and work-related injuries. Occupational hazards in the workplace are endemic. Agricultural production has a very high rate of worker injury and death – due to machinery, temperature exposure, and/or acute pesticide poisoning. Processing plants (especially within the meat sector) also have high rates of worker injuries. In all cases, these are largely avoidable with proper controls, hazard-mitigation equipment, equipment safeguard protocols in place, and job pacing. It is important to note that most of these

issues are not covered in organic certification requirements.

The five impact channels are typically compounded by inequality and poverty. Unhealthy dietary patterns and food insecurity can affect all end-point consumers – including everyone working in the supply chain. It is first useful to recognize that many workers in the food system, like workers generally, are not paid a living wage – an attribute enshrined in the UN Declaration of Human Rights¹³. Less-than-living-wage workers often fall below the national poverty line and thus have high levels of food insecurity, consume insufficient calories and protein, and/or eat high levels of relatively unhealthy food due to lower cost. In addition, since many agricultural worker jobs are paid on a piece-basis there is an incentive for workers to cut corners (connecting with occupational hazards outlined below).

The notion of a livable wage is gaining momentum globally and it would be useful for companies to do a global analysis of the wage structure in their supply chains – determining to what extent moving to a livable wage with reasonable pace-of-work strategies would impact cost and profitability as well as in-stream and down-stream (supply chain workers as consumers) human health impacts.

Clear and transparent analysis of supply chains is a first step in understanding opportunities to impact human health throughout the workforce, within affected communities, and across the consuming public. In all of the cases outlined above there are a range of opportunities to consider how a broader accounting standard could be beneficial to the company, to the workers in their supply chains, and to the customers who buy their products regarding human health.

11. See, for example, the potential for truck electrification in Sweden v. Switzerland <https://reader.elsevier.com/reader/sd/pii/S0306261918318361?token=F291A40C9801B8A6FC81844362A78B-DEAED08BC7911852CACA8A9F28AC283F66B879B5E2CA8A17D-1C5015414245BC8D3>

12. IPES-Food (International Panel of Experts on Sustainable Food Systems) (2015). The new science of sustainable food systems. Overcoming barriers to food system reform: Brussels: IPES-Food.

13. See Article 23.3 of the UN Declaration of Human Rights <https://www.un.org/en/universal-declaration-human-rights/index.html>



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