Global Panel
on Agriculture
and Food Systems
for Nutrition

Improving diets in an era of food market transformation:

Challenges and opportunities for engagement between the public and private sectors

This brief seeks to stimulate governments and other stakeholders to help build strategies to incentivize the private sector to influence food systems in ways that will improve the food environment, and enable better dietary choices.



WFP
World Food Programme

This abridged version of the Global Panel brief has been developed for the World Food Programme. September 2019.

ABOUT THE GLOBAL PANEL ON AGRICULTURE AND FOOD SYSTEMS FOR NUTRITION

The Global Panel is an independent group of influential experts with a commitment to tackling global challenges in food and nutrition security. It works to ensure that agriculture and food systems support access to nutritious foods at every stage of life.

© 2019 by the Global Panel on Agriculture and Food Systems for Nutrition.

This report may be freely reproduced, in whole or in part, provided the original source is acknowledged. This publication is a product of the Global Panel on Agriculture and Food Systems for Nutrition, supported by the Panel Secretariat, and was peer reviewed. The findings, interpretations and conclusions expressed in this work do not necessarily reflect the views of the organisations or governments that the Global Panel members represent.

RECOMMENDED CITATION: Global Panel. 2019. Improving diets in an era of food market transformation: Challenges and opportunities for engagement between the public and private sectors. Abridged Policy Brief. London, UK: Global Panel on Agriculture and Food Systems for Nutrition.

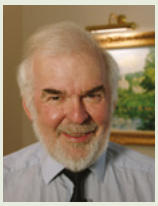
Cover photo: istockphoto.com

W glopan.org
@Glo_PAN

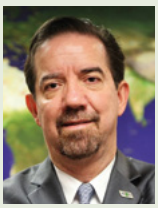
Global Panel members:



Akinwumi Adesina
President, African Development Bank (AfDB)



Tom Arnold
Former Director General, Institute of International and European Affairs (IIEA)



Celso Moretti
President, Brazilian Agricultural Research Corporation (Embrapa)



John Beddington
(Co-Chair) Former United Kingdom Government Chief Scientific Adviser



Shenggen Fan
Director General, International Food Policy Research Institute (IFPRI)



José Graziano da Silva
Special Ambassador to the Global Panel.



Agnes Kalibata
President, Alliance for a Green Revolution in Africa (AGRA)



John Kufuor
(Co-Chair) Former President of Ghana



Rachel Kyte
Special Representative of the UN Secretary General for Sustainable Energy; CEO of Sustainable Energy for All (SE4All)



Srinath Reddy
President, Public Health Foundation of India



Emmy Simmons
Senior Adviser, Non-resident, to the Center for Strategic and International Studies Global Food Security Project



Rhoda Peace Tumusiime
Former Commissioner for Rural Economy and Agriculture, African Union



Sandy Thomas
Director, Global Panel on Agriculture and Food Systems for Nutrition

Foreword

The World Food Programme (WFP) has committed to build food systems thinking into its humanitarian and development programmes. This includes engagement with the private sector to deliver improved nutrition at the global and country level in a collective effort to end malnutrition in all its forms. A recent policy brief by the Global Panel on Agriculture and Food Systems for Nutrition entitled, "Improving diets in an era of food market transformation: Challenges and opportunities for engagement between the public and private sectors" informs this important work. An abbreviated version is presented here.

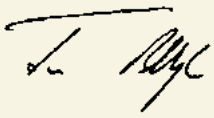
Today, approximately 165 million children suffer chronic undernutrition. This affects both their mental and physical development, causing significant harm throughout their entire lives. Malnutrition is not the only challenge. Food-related non-communicable diseases, including diabetes and cardiovascular disease, are the most rapidly growing causes of death in low- and middle-income countries. Without urgent and decisive action, these threaten to overwhelm health care systems which are already overstretched. At the most fundamental level, poor diets hurt national growth and development, health and wellbeing, constituting a global challenge which affects us all.

However, this bleak outlook is not inevitable. With broader access to affordable and nutritious diets, people – and countries – can reach their full potential in all parts of the world. To achieve this, we need to harness the considerable knowledge, skills and resources found throughout the food industry. The industry is already doing much to meet the dietary needs of the rapidly growing global population, though it is often focused on delivering individual food products and, to some critics, helping to create unhealthy food environments.

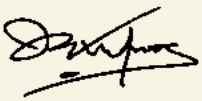
As co-convener of the SUN Business Network, WFP recognises that food systems play a major role in influencing the food choices available to consumers, and that businesses are the main investors and participants in these food systems. Therefore, a key challenge is to leverage the role of the private sector in transforming food systems to improve diets and nutrition. This document highlights multiple opportunities to achieve this major shift in ambition.

The scale of WFP's operations makes it uniquely well positioned to help lead a systemic approach in fulfilling the huge potential of the private sector, by bringing governments and the private sector together to establish a common understanding of the critical role of diet quality in achieving development goals.

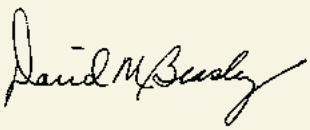
We urge WFP staff, partners and others working in the humanitarian development nexus to play their part in driving this very critical agenda forward to help secure the transformation of food systems to deliver healthy diets for all.



Sir John Beddington
(Global Panel Co-Chair)
Former UK Government Chief Scientific Advisor



H.E. John Kufuor
(Global Panel Co-Chair)
Former President of Ghana



David Beasley
Executive Director
World Food Programme

Introduction

Diets are changing rapidly around the world. Leaders in almost all low- and middle-income countries (LMICs) today face a complex policy challenge: how to resolve persisting undernutrition and vitamin and mineral deficiencies while simultaneously preventing the global escalation of overweight and obesity.

Governments in some LMICs are beginning to focus on improving consumer knowledge and shaping demand through price and trade policies, but there are still few examples where governments have successfully harnessed the market power of private sector actors to achieve positive gains in nutrition. This is a huge missed opportunity which must be rectified.

Urgent action is needed at the interface of engagement between public and private stakeholders across the food system if the impending crisis of diet-related diseases is to be avoided and global nutrition goals are to be met. This brief seeks to stimulate governments and other stakeholders to help build national and city-based strategies to engage and incentivize private sector actors to influence food systems in ways that will improve the food environment and enable better dietary choices.

Changing diets

Many consumers in low-income countries (LICs), particularly in Africa and South Asia, still have diets based predominantly on starchy staples such as maize, millet, sorghum, rice or cassava. These diets can lack essential nutrients, which leads to forms of undernutrition such as child stunting, and vitamin and mineral deficiencies.

This heavy reliance on starchy staples is due primarily to low incomes, and lack of access to and availability of animal products, pulses and nuts, and fruit and vegetables.[1,2] In Malawi, for example, average diets are heavily dependent on maize, which accounts for over 54% of daily caloric intake.[3] Dietary diversity is also very low in Bangladesh, where the share of calories from non-starchy staples in rural diets in 2011 was less than 30% in all but the wealthiest income group.[4]

The consequences of a lack of dietary diversity are clear. While the global burden of undernutrition has been gradually decreasing,[5] the latest data show the estimated number of chronically undernourished people rising from 777 million in 2015 to 815 million in 2016.[6] Child stunting continues to affect 155 million pre-school children (one in four children globally),[7] resulting in an increased risk of impaired cognitive ability, weakened performance at school and infection. Over 50 million children are wasted and face a higher risk of infection and mortality, while 2 billion people continue to suffer from micronutrient deficiencies.[8,9]

At the same time, dietary patterns are shifting in all parts of the world, characterized by a move away from traditional foods towards fats, sugars, and ultra-processed foods.[10,11] The pace of this transition is fastest in middle-income countries, such as China, Mexico and Thailand, but it is also taking place in rural areas of South Asia and sub-Saharan Africa.[12,13,14] As countries get wealthier, their inhabitants tend to increase their consumption of foods that are associated with high-quality diets. However, the consumption of foods that are associated with low-quality diets (i.e. processed meat, sugar-sweetened beverages, sodium and foods high in saturated fat, salt and free sugars) increases even more.[15,16]

This shift in dietary patterns, known as the 'nutrition transition', coincides with economic development, demographic transition[i] and changes in energy expenditure (i.e. more sedentary lifestyles).[17,18,19] In recent decades, the nutrition transition has accelerated amongst LMICs, with a significant shift away from consumption of legumes and coarse grains to consumption of refined grains purchased at informal markets, modern supermarkets and convenience stores.[20] Diets high in ultra-processed foods are associated with a lack of essential vitamins and minerals, overweight and obesity as well as 'diet-related non-communicable diseases (NCDs).[21,22,23]

Obesity is therefore no longer only a high-income country (HIC) problem, and diet-related NCDs are now the leading cause of death in LMICs.[24] Most LMICs are experiencing a poorly managed nutrition transition with an epidemic of diet-related NCDs, coinciding with persisting 'diseases of poverty' linked to undernutrition.[17,18,25]

According to the Global Burden of Disease Study, the risk that poor diets pose to mortality and morbidity is now greater than the risks of air pollution, alcohol, drug and tobacco use combined and amplifies the health consequences of diseases such as HIV/AIDS, malaria and measles.[26] This calls for careful policy attention to all forms of malnutrition, and for policymakers to avoid making the assumption that rising incomes equate with better diets and better nutrition.

i. Demographic transition refers to the transition from high birth and death rates to lower birth and death rates as a country or region develops from a pre-industrial to an industrialized economic system (Available at: http://populationeducation.org/content/what-demographic-transition-model).

The role of the private sector

Solutions to these complex, interlinked challenges cannot be found in public sector actions alone. Policies that influence food systems assume multiple forms with many (sometimes conflicting) goals. For example, agriculture or trade policies may have supply and income growth as primary targets, while health policies, national dietary guidelines and food safety regulations may have health risk reduction as their goals. In other words, governments rarely have a united policy agenda which cuts across the food system to achieve clear outcomes at the consumer level.

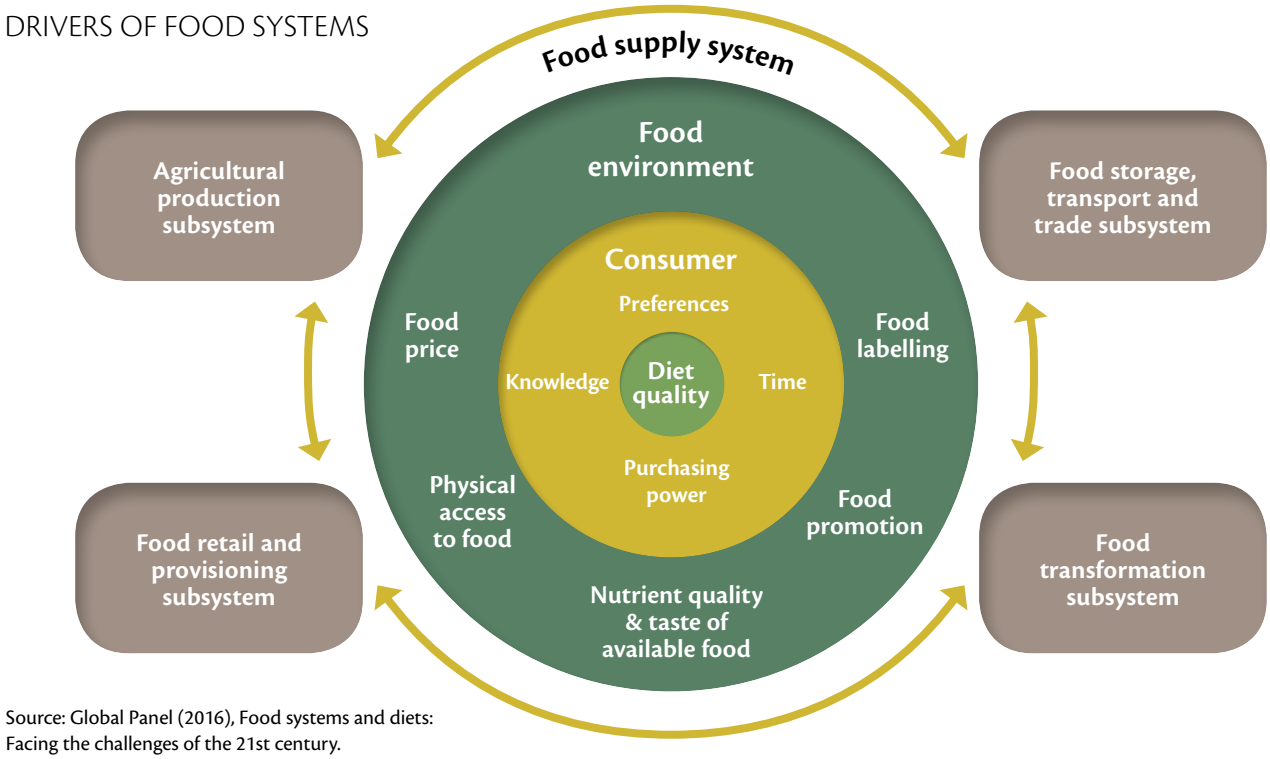
Similarly, the private sector represents a wide range of interests, capacities and investment approaches that generally seek profit from within the food system. In most low-income contexts, the role of industry in the food sector is largely dominated by staple food production (supply) and retail (typically along short-chain routes). Enhancing the diet quality of consumers is rarely the goal of such industry actors.

But the profit motive does not axiomatically run counter to the ambition of high-quality diets for all consumers, and because the private sector is involved in all segments of the food system (see Figure 1) it has considerable potential to make food environments healthier.[27,28] In addition to shaping the production of wholesale and retail food, the private sector influences people's attitudes, perceptions and desires, as well as the affordability of key food items in local and global markets.[28]

Could the private sector do more to improve the food environment and enable better dietary choices? Yes, but the right mix of regulations and incentives will be needed. Food companies might do more to improve the accessibility of fresh produce or the desirability of less well-known ingredients if they had better access to business loans, if transport and market infrastructure were enhanced, and if consumer demand was reshaped through improved knowledge. In each of these three areas, the private sector could improve supply if public sector investments facilitated change. However, lack of technical capacity, lack of access to other inputs (e.g. technology, business services, food ingredients) and an unfavourable investment climate (weak property rights enforcement, import barriers, and burdensome regulations) often pose formidable barriers for many businesses to invest in nutritious foods.

The food industry has long been criticized for its part in making food environments 'unhealthier'.[16,29] In several countries, private sector entities have recently acknowledged that they can do more to support public health agendas.[30] For example, some are engaged in policy dialogues around the promotion of healthy diets, including product reformulation, the removal or reduction of certain ingredients (such as sodium, sugar and trans fats), and commitments to greater transparency on the nutritional characteristics of their portfolios of products. The challenge for policymakers in all countries is to build on this and find the best ways to establish productive dialogue and engagement with private sector stakeholders in order to improve diet quality for everyone.

Figure 1: Conceptual framework for the links between diet quality and food systems



Source: Global Panel (2016), Food systems and diets: Facing the challenges of the 21st century.

Opportunities for engagement

The private sector is involved in all segments of the food system, from agricultural production and harvesting to processing, packaging, food transformation, marketing and consumer access. It also plays a major role in influencing both the food environment and consumer preferences. In this section, we focus on the private sector's role in food transformation, food retail, and public-private engagement for improving diets and nutrition, with examples of good practice.

Food processing

Food processing, such as refrigeration, freezing, fermentation, pickling, canning, drying and pasteurization, provides important opportunities for preserving foods, converting inedible to edible foods and transforming difficult-to-prepare foods into nutritious and convenient forms. These methods can also help to increase food availability, extend seasonality through the 'hunger gap' in many LICs and make food safer to eat.[5]

There are many opportunities for this sector to play a bigger role in enhancing diets through forms of processing which improve the availability and quality of nutritious foods. Strengthening the capacity of smallholders and small entrepreneurs, particularly women, to store, preserve, process and package foods can help secure a year-round food supply which improves nutrition and income generation.[31] (See Box 1)

However, entrepreneurs in SMEs who want to invest in food processing technologies that would make nutritious foods more available and affordable to consumers face several barriers. For example, small- and medium-sized fisheries and aquaculture enterprises responsible for fish processing in LICs often struggle to market their products as demand increases, to meet food safety and quality standards, and to gain access to credit and to market information.[32] Public-private partnerships (PPPs) can be a useful approach for improving supply chain management and making micronutrient-rich foods more available and affordable in lower-income settings.

Box 1: Green Growth 4 Africa

Preserving spontaneously fermented local foods (i.e. food produced by the activity of microorganisms) in the West African diet can contribute to food security and develop local businesses. Green Growth 4 Africa is a project established in 2014 and financed by the Danish development agency Danida which aims to improve production methods through the use of starter cultures, upgrading all parts of the food value chain and implementing new business models.[36] The project has established bio-banks in Ghana, Burkina Faso and Benin, developed technologies for the production and distribution of starter cultures to SMEs, created new market opportunities through scaling up from household to semi-industrial production, and processes specific indigenous foods to fulfil the needs of an urbanized population.[37]

New and reformulated products

There are many instances of product development with specific nutritional goals marketed to low-income populations. Ready-to-use Therapeutic Foods (RUTFs), for example, are energy dense, micronutrient-enhanced pastes used in therapeutic feeding. They are produced by a number of companies, such as Hilina Enriched Food PLC, which supplies high-quality nutritional and fortified foods for both institutional and commercial markets in Ethiopia and the East Africa region. The company's product portfolio mainly comprises Plumpy'nut (RUTF), Sheba Peanut Butter, Sheba Peanut Splits and Tafo Iodized Salt and Tafo Iodized Salt. With 253 employees (2014) and a network of local suppliers, Hilina plays an important role in the local economy and the country's food security.[ii]

Grameen Danone Foods Ltd (GDFL) in Bangladesh, a social enterprise established as a joint venture between GroupeDanone and Grameen Enterprises, is also a good example of how business can play a bigger role in enhancing consumption of nutritious foods in lower-income settings.[33] It manufactures and distributes two fortified yoghurt products to poor consumers, predominantly in rural Bangladesh. The flagship product, Shokti+, is a fresh probiotic yogurt that is packaged in 60g plastic pots and sold for $0.12. Another product, Shokti Pocket, is ultra-heat-treated yogurt sold for $0.07. Both products are fortified with 30% of the recommended daily amount (RDA) of zinc, iodine, iron and vitamin A.

Reformulating products is time-intensive and costly but it can, in some settings, provide a good opportunity to improve the nutritional value of processed foods. To reformulate at scale, the food and beverage industry needs incentives either from consumer demand or from government action. These incentives could include change in government policies, such as putting in place national salt or sugar reduction strategies, working with the food industry to negotiate commitments, agreeing voluntary targets for specific product categories, or establishing mandatory limits.[34]

Examples of successful product reformulation are primarily from HICs.[1] In breakfast cereals, for instance, between 2001 and 2008, French manufacturers voluntarily reduced sugar by 10%. In Argentina, the government adopted a law in 2013 on mandatory maximum levels of sodium permitted in meat products, soups,

ii. Recent evidence shows that processed products from peanuts may contain aflatoxins, which are harmful to child health. See also more on this in the Global Panel Food Safety Policy brief.

Box 2: Fortify West Africa

The Fortify West Africa (FWA)[45] initiative is a public-private partnership which aims to reach 70% coverage of vitamin A fortified cooking oil and 70% coverage of wheat flour fortified with iron, zinc, folic acid and B vitamins in the region. National alliances between government ministries of health, commerce, industry and finance, United Nations agencies, NGOs, domestic food industries, food importers and local research organisations have four functions:

- Developing national standards and directives on mandatory fortification;
- Building capacity for cooking oil and wheat flour milling industries to implement fortification, and for regulatory agencies to monitor compliance;
- Developing and implementing social marketing campaigns on branding fortified foods;
- Supporting public sector enforcement of standards and quality assurance systems.

As of 2011, approximately 55 million people in West Africa were consuming fortified wheat and the same number were consuming fortified vegetable oil.

seasoning mixes, bread and starch products, and tinned foods.[34] This led to a rapid response from the food industry and between 2011 and 2015, national average daily salt intake fell by 2 grams per day, from 11.2 to 9.2 grams.[35]

Fortification

The fortification of staple foods with micronutrients was recently ranked among the top three international development priorities by the Copenhagen Consensus Centre[38] which calculated that the annual cost of increasing iodized salt access to reach 80% of the population of South Asia and sub-Saharan Africa would be just 5 cents per person treated, or $19 million in total.[38] The benefits were calculated to be worth as much as $570 million in health-care savings and increased productivity.[38] Several large and small-scale food fortification initiatives have been established (see Box 2) but despite reaching millions of people and legislation for mandatory staple food fortification being in place in over 80 countries, challenges persist.

One issue is that when companies pass the cost of fortification on to consumers, fortified foods can become inaccessible to poor consumers. It is therefore important to introduce mandatory regulation in high-burden countries to create a level playing field for businesses and increase their incentive to fortify. Globally, 87 countries have legislation to mandate fortification of at least one industrially milled cereal grain.[39] This is the kind of certainty companies need to commit to fortification.

Another challenge concerns food fraud in that consumers are unable to check whether food is fortified, which can adversely affect demand. Strong quality assurance/control (QA/QC) is therefore essential to get universal impact. Trade and labelling needs to be predictable and consistent across borders to justify the necessary investments. This is currently not the case for many countries. The Global Fortification Data Exchange (GFDx) is a new analysis and visualization tool for food fortification data, designed to allow donors, implementers, governments, private sector and research institutions to access the latest available fortification data for all countries.[40] The Fortification Assessment Coverage Toolkit (FACT) developed by GAIN in 2013, can assess fortification programme coverage and utilization data can help identify programme barriers and estimate the potential for impact.[41]

Strengthening the informal food market

In cities throughout LMICs, the informal sector plays a central role in making food more accessible to the urban poor and is an important source of non-agricultural employment.[42] Despite the growing supermarket penetration in some low- and middle-income areas, the urban poor are highly dependent on food from the informal sector. Informal markets are ubiquitous and provide valued services, but their role is often underestimated in public policy dialogues.

Although the role of informal food traders and street food vendors in providing affordable and accessible meals for low-income households is well known, it is seldom quantified.[43] One review of 23 studies (mostly conducted in Africa) found that the daily energy intake from street foods was 13%-50% in adults and 13%-40% in children.[44] The review also found that street foods significantly contribute to daily protein intake, and often provide 50% of the recommended daily allowance (RDA).



Opportunities for engagement *continued*

Box 3: 'Makati Vendors Programme of the City' (Philippines)[54]

The 'Makati Vendors Programme of the City', which was started in 1992, involves 760 street vendors, most of whom are women. They sell their cooked food, which is based on local products (rice and vegetables), in the vicinity of schools, bus stops and stations. Apart from supporting the creation and management of vendors' micro-enterprises, the programme encourages cleanliness and hygiene at the point of sale. The vendors are made aware of sanitary regulations and are penalized for failing to comply (e.g. when not wearing the proper clothing). The programme has provided participants with uniform market stalls and allotted them a vending space. The vendors have been able to improve their standard of living and no longer fear being detained because they are now recognized by local authorities.

In many LICs, governments have adopted a restrictive approach to the informal food sector which focuses on regulation and control,[46] and ignores the role that it plays in providing food security for low-income households. It is commonly believed, for example, that supermarket food is safer than informal market food. However, in case studies of milk in India, Kenya, and Tanzania, as well as meat in Vietnam and Kenya, the food sold in the formal sector was found to be no better (and sometimes worse) at meeting standards than food sold in the informal sector.[47]

There are examples of government actions which have resulted in positive outcomes both for informal traders and consumers, while enforcing quality standards (see Box 3). In Kenya and India, initiatives to train milk traders and provide an enabling environment were effective, economically attractive, scalable and sustainable.[47] Currently, an estimated 6.5 million consumers benefit from safer milk sold by trained and certified traders in the two countries. As it is often difficult or impossible for lone traders to achieve such standards, they could be met through the formation of informal trader cooperatives.

More effective regulation and accountability

Promoting a healthy food environment requires involvement across multiple sectors and stakeholders, encompassing the public and private sector. It is important for the public sector to lead in promoting and facilitating healthy diets via setting standards, signalling appropriate practices and enabling business environments. The private sector must be incentivized to ensure that nutrient-rich, safe and affordable foods and food products become accessible in all market settings.

Public sector interventions fall into two categories. One is a recourse to regulation, for example to restrict the marketing and advertising of less nutritious foods, and the sugar and salt content in food and beverage products. Largely in response to the introduction of new regulations in a number of countries, the food industry has begun to tackle nutrition- and health-associated challenges in two complementary ways: (i) by removing or replacing unhealthy ingredients such as trans fats, salt and added sugar; (ii) by incorporating 'health-promoting ingredients' and bio-active compounds in new products.[48]

The other category, which can be successfully combined with regulation, is the creation of conditions in which more nutritious choices are easier to make, for example through nutrition education, nutrition labelling and Food Based Dietary Guidelines (FBDG).[1] Private-sector commitments have typically been framed by self-regulation and voluntary codes of practice, often as part of corporate social responsibility initiatives.[49] However, outcomes are generally weak and uncertain in the absence of independent monitoring and compliance programmes.

The Access to Nutrition Index (ATNI),[50] which aims to achieve widespread recognition as a public accountability tool, recently found that most food and beverage companies perform poorly across a range of indicators relating to the food environment (see Box 4). Some of the positive steps taken by a number of companies include global public commitments to address food reformulation, consumer information, responsible marketing, promotion of healthy lifestyles and involvement in public-private partnerships.[51] These voluntary approaches have delivered some progress in a small number of areas, such as reducing dietary salt in some countries[52] and restricting a small amount of advertising.[53]

Box 4: The Access to Nutrition Index

The Access to Nutrition Index (ATNI) is a monitoring initiative that evaluates global food and beverage manufacturers on their nutrition-related commitments, disclosure practices, and performance related to obesity and undernutrition. ATNI uses a broad set of indicators on corporate governance, product portfolios, accessibility of products, marketing practices, support for healthy lifestyles, food labelling and health claims, and stakeholder engagement, to score companies on a scale of zero to ten. The initial assessment of the largest 25 global food and beverage manufacturers in 2013 found that most companies were rated poorly (scored less than 5 out of 10) and that there was substantial scope for companies to improve food environments.[55] A second assessment was made in 2016.[56] Both assessments found that company practices lack transparency and often do not reflect their nutrition commitments and policies.[57]

Conclusion



Policymakers in almost all low- and middle-income countries today face a complex challenge: how to tackle persisting undernutrition and vitamin and mineral deficiencies while simultaneously preventing the escalation of overweight and obesity. The evidence presented in this brief suggests that governments, the private sector, and individual consumers all have key roles to play in making healthy diets available and affordable for all. There are good opportunities and benefits for both public and private interests to move forward in partnership and it is imperative that both sides find ways to work together at a new and much more ambitious level.

The Global Panel sets out five key questions which need to be addressed and resolved as part of this partnership approach. They are intended to be used as a basis to promote dialogue aimed at achieving more ambitious and effective links between the public and the private sectors.

The health burden associated with poor diets already affects one in three of the global population. The prospect of this rising to one in two in the decades ahead shows that policymakers and the private sector cannot afford inaction.

ENCOURAGING INVESTMENTS IN FOOD SECTOR SMEs

How can SMEs access loans to invest in food products which enhance dietary diversity and quality?

PROMOTING CONSUMER DEMAND FOR HEALTHY DIETS

How can consumer demand for high-quality diets and nutritious food products be created and promoted so that companies have confidence to invest and take risks in delivering more nutritious foods?

PUBLIC INCENTIVES FOR APPROPRIATE ACTION IN THE PRIVATE SECTOR

How should governments incentivize private companies to improve the quality of food products?

BUILDING TRUST

How can governments ensure that engagement with for-profit companies to promote universal access to healthy diets is underpinned by core principles of transparency and accountability?

INFRASTRUCTURE

How can infrastructure planning be better geared toward reducing food losses and promoting year-round access to enhanced diets?



References

1. Global Panel. 2017. Improving nutrition through enhanced food environments. Policy Brief No. 7. London, UK: Global Panel on Agriculture and Food Systems for Nutrition.

2. Global Panel on Agriculture and Food Systems for Nutrition (Global Panel). 2017. Policy actions to support enhanced consumer behaviour for high-quality diets. Policy Brief No. 8. London, UK: Global Panel on Agriculture and Food Systems for Nutrition.

3. Minot, N. 2010. Staple prices in Malawi. Prepared for the Comesa policy seminar on "Variation in staple food prices: causes, consequence, and policy options". Available at: https://ageconsearch.umn.edu/bitstream/58558/2/AAMP_Maputo_22_Malawi_ppr.pdf (accessed February 2018).

4. Headey, DD, & Hoddinott, J. 2016. Agriculture, nutrition and the green revolution in Bangladesh. *Agricultural Systems*, 149: 122–131.

5. Global Panel. 2016. Food systems and diets: Facing the challenges of the 21st century. London, UK.

6. Food and Agriculture Organization (FAO), International Fund for Agriculture Development (IFAD), United Nations Children's Fund (UNICEF), World Food Programme (WFP) & World Health Organization (WHO). 2017. The State of Food Security and Nutrition in the World 2017. Building resilience for peace and food security. Rome, FAO.

7. UNICEF, WHO, World Bank Group. 2017. Levels and trends in child malnutrition. Key findings of the 2017 edition. Available at http://www.who.int/nutgrowthdb/estimates2016/en/ (accessed February 2018).

8. FAO & WHO. 2014. Second International Conference on Nutrition: Framework for Action. Available at http://www.fao.org/3/a-mm215e.pdf (accessed January 2018).

9. Via, M. 2012. The Malnutrition of Obesity: Micronutrient Deficiencies That Promote Diabetes. *ISRN Endocrinol*., 2012; 2012: 103472.

10. Baker, P. 2016. Project future trends of processed food consumption. Working Paper No. 2. Global Panel Foresight Report 'Food systems and diets: Facing the challenges of the 21st century'. School of Regulation and Global Governance. Australian National University.

11. Tschirley, D., et al. 2015.The rise of a middle class in East and Southern Africa: Implications for food system transformation. *Journal of International Development*, 27, 628-646.doi:10.1002/jid.3107

12. Pingali P. 2015. Agricultural Policy and Nutrition Outcomes – Getting Beyond the Preoccupation with Staple Grains. *Food Security*, 7:583-591.

13. Baker P, & Friel S. 2016. Food systems transformations, ultra-processed food markets and the nutrition transition in Asia. *Globalization and Health; 12:80.*

14. Stuckler D, et al. 2012. Manufacturing epidemics: the role of global producers in increased consumption of unhealthy commodities including processed foods, alcohol, and tobacco. *PLoS Med*;9(6):e1001235.

15. Imamura, F. et al. 2015. Dietary quality among men and women in 187 countries in 1990 and 2010: a systematic assessment. *Lancet Global Health*, 3: e132–42.

16. Moodie R, et al. 2013. Profits and pandemics: prevention of harmful effects of tobacco, alcohol, and ultraprocessed food and drink industries. *Lancet*, 381: 670–679.

17 Popkin, BM et al. 2012. Now and then: The Global Nutrition Transition: The Pandemic of Obesity in Developing Countries. *Nutr Rev*., 70(1): 3–21.

18. Popkin, BN, & Ng, SW. 2006. The Nutrition Transition in High and Low-Income Countries: What are the Policy Lessons? Paper presented at the International Association of Agricultural Economists Conference, Gold Coast, Australia, August 12-18, 2006.

19. Popkin, BM & Gordon-Larsen, P. 2004. The nutrition transition: worldwide obesity dynamics and their determinants. *International Journal of Obesity*, 28, S2–S9.

20. Monteiro CA, & Cannon G. 2012. The impact of transnational "big food" companies on the South: a view from Brazil. PLoS Med. 2012;9(7):e1001252.

21. Canella, DS, et al. 2014.Ultra-processed food products and obesity in Brazilian households (2008–2009). *PLoS One*, 9:e92752.

22. Mendonça, RD, et al. 2016. Ultraprocessed food consumption and risk of overweight and obesity: the University of Navarra Follow-Up (SUN) cohort study. *Am J Clin Nutr*., 104(5):1433-1440.

23. Louzada, MLCD, et al. 2015. Consumption of ultra-processed foods and obesity in Brazilian adolescents. *Preventive Medicine*, 81:9-15.

24. WHO. 2018. The top 10 causes of death. Available at: https://www.who.int/news-room/fact-sheets/detail/the-top-10-causes-of-death (accessed August 2018).

25. Monteiro, CA, et al. 2013. Ultra-processed products are becoming dominant in the global food system. *Obesity reviews*, 14: S2, 21-28, doi: 10.1111/obr.12107.

26. Global Burden of Disease 2016 Risk Factor Collaborators. 2017. Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. *Lancet*, 390: 1345–422.

27. Popkin, BM. 2001. The Nutrition Transition and Obesity in the Developing World. *The Journal of Nutrition*, 131(3): 871S-873S.

28. Gortmaker, SL, et al. 2011. Changing the future of obesity: science, policy, and action. *Lancet*, 378: 838–847.

29. Nestle, M. 2002. Food Politics: How the Food Industry Influences Nutrition and Health. University of California Press: Los Angeles, CA.

30. Allen, L, & Bloomfield, A. 2016. Engaging the private sector to strengthen NCD prevention and control. The Lancet, Global Health, 4(12): e897–e898.

31. FAO. 2017. Nutrition-sensitive agriculture and food systems in practice. Options for intervention. Available at http://www.fao.org/3/a-i7848e.pdf (accessed January 2018).

32. Weirowski, F, & Hall, SJ. 2008. Public-private partnerships for fisheries and aquaculture: getting started. Available at: http://pubs.iclarm.net/resource_centre/WF_1068.pdf (accessed January 2018)

33. Maestre, M, & Poole, N. 2018. Introduction: Value Chains for Nutrition in South Asia: Who delivers, How, and to Whom? In: IDS Bulletin. Value Chains for Nutrition in South Asia: Who delivers, How, and to Whom? IDS, 49 (1).

34. Webster, J, et al. 2014. Target Salt 2025: A global overview of national programs to encourage the food industry to reduce salt in foods. *Nutrients*, 6: 3274-3287.

35. IFPRI. 2016. Global Nutrition Report 2016: From Promise to Impact: Ending Malnutrition by 2030. Washington, DC: IFPRI.

36. Green Growth 4 Africa. 2014. Green Growth 4 Africa. Available at: http://www.greengrowth.dk/ (accessed January 2018)

37. Danida Research Portal. 2017. Preserving African Food Microorganisms for Green Growth. Available at: http://drp.dfcentre.com/project/preserving-african-food-microorganisms-green-growth (accessed January 2018).

38. The Copenhagen Consensus. 2017. Micronutrient Fortification and Biofortification Challenge. Available at: https://www.copenhagenconsensus.com/guide-giving/gtg-micronutrient-fortification-and-biofortification-challenge (accessed August 2017).

39. Food Fortification Initiative. 2017. Global Progress. Available at: http://www.ffinetwork.org/global_progress/ (accessed November 2017).

40. Global Fortification Data Exchange (GFDX). Available at: http://fortificationdata.org/ (accessed November 2017).

41. GAIN. 2019. Fortification assessment coverage toolkit (FACT). Available at: https://www.gainhealth.org/resources/reports-and-publications/fortification-assessment-coverage-toolkit-fact (accessed August 2019).

42. Skinner, C & Haysom G. 2017. The informal sector's role in food security: a missing link in policy debates? Discussion paper No 6. Hungry cities partnership. Available at: http://hungrycities.net/wp-content/uploads/2017/03/HCP6.pdf (accessed August 2017).

43. Skinner, C. 2016. The Nature, contribution and policy environment for informal food retailers: A review of evidence. Annotated bibliography for the consuming urban poverty project. African Centre for Cities, Cape Town.

44. Steyn, NP. et al. 2013. Nutritional contribution of street foods to the diet of people in developing countries: a systematic review. Review article. *Public Health Nutrition*, 17(6), 1363–1374.

45. Hoddinott, J, Gillespie, S, & Yosef, S. 2016. Public-Private Partnerships and undernutrition: Examples and future prospects. World Rev Nutr Diet. 2016;115:233-8.

46. International Labour Office. 2014. Transitioning from the informal to the formal economy. International Labour Conference, 103rd Session. Available at: http://www.ilo.org/wcmsp5/groups/public/---ed_norm/---relconf/documents/meetingdocument/wcms_218128.pdf (accessed September 2017).

47. Grace, D. 2015. Food Safety in Low and Middle Income Countries. *Int J Environ Res Public Health*, 12(9): 10490–10507.

48. British Medical Association. 2012. Behaviour change, public health and the role of the state – BMA Position Statement. Available at: file:///C:/Users/SIDCFVIL/AppData/Local/Temp/behaviourchangestatement2012-2.pdf (accessed February 2018).

49. Sharma, LL, Teret SP, & Brownell KD. 2010. The food industry and self-regulation: standards to promote success and to avoid public health failures. *Am J Public Health*, 100: 240–246; Hawkes, C. & Lobstein T. 2011. Regulating the commercial promotion of food to children: a survey of actions worldwide. *Int J Pediatr Obes 6*, 83–94.

50. Access to Nutrition Index (ATNI). 2017. Access to Nutrition Index. Available at: https://www.accesstonutrition.org/about-index (accessed July 2017).

51. Yach, D et al. 2010. The role and challenges of the food industry in addressing chronic disease Globalization and Health. 6:10. Available at: https://globalizationandhealth.biomedcentral.com/articles/10.1186/1744-8603-6-10 (accessed July 2017).

52. van Raaij J, Hendriksen M, & Verhagen H. 2009. Potential for improvement of population diet through reformulation of commonly eaten foods. *Public Health Nutr*, 12: 325–330; Webster JL, et al. 2011. Salt reduction initiatives around the world. *J Hypertens*, 29: 1043–1050.

53. EU Pledge. EU Pledge 2010 Monitoring Report, 2010. Available at: http://www.eu-pledge.eu (accessed November 2017); Center for Science in the Public Interest (CSPI). 2010. Report Card on Food-Marketing Policies: An Analysis of Food and Entertainment Company Policies Regarding Food and Beverage Marketing to Children. Available at: https://cspinet.org/new/201003091.html (accessed November 2017).

54. FAO. 2003. The Informal Food Sector. Municipal support policies for operators. A briefing guide for mayors, city executives and urban planners in developing countries and countries in transition. Rome: FAO.

55. ATNI. 2017. Global Index 2013. Available at: https://www.accesstonutrition.org/sites/in16.atnindex.org/files/resources/atni_global_index_2013.pdf (accessed July 2017).

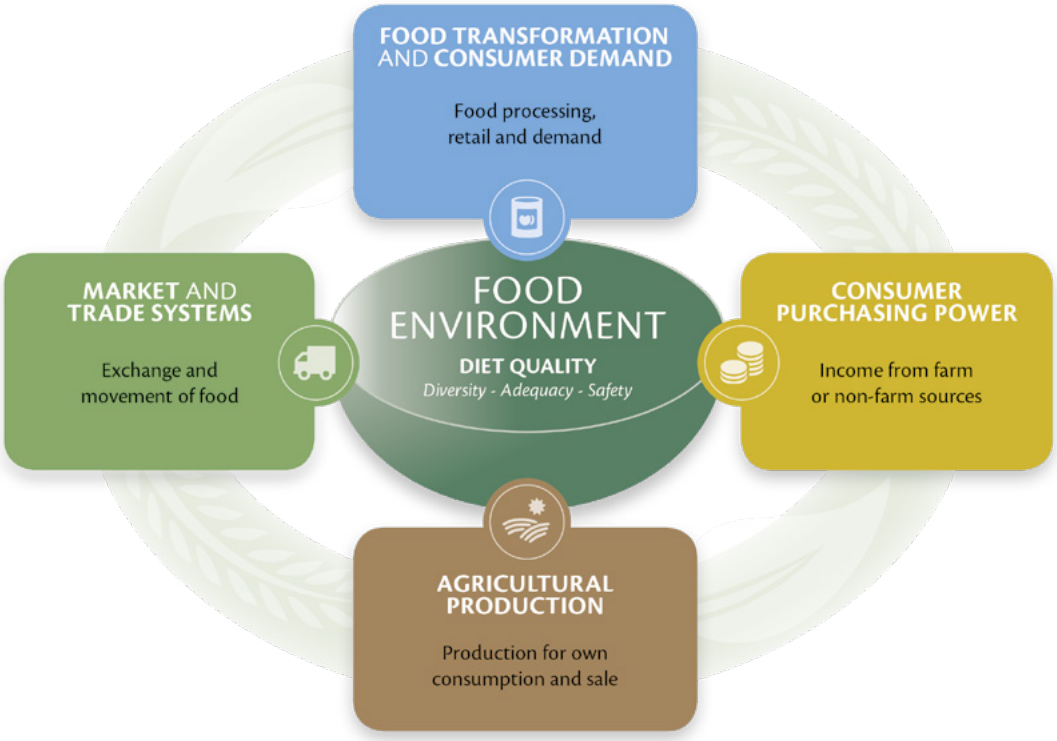
56. ATNI. 2017. Global Index 2016. Available at: https://www.accesstonutrition.org/sites/in16.atnindex.org/files/resources/atni-global-index-2016.pdf (accessed October 2017).

57. Sacks, G et al. 2013. A proposed approach to monitor private-sector policies and practices related to food environments, obesity and non-communicable disease prevention. *Obesity reviews*, 14,S1.

How can Agriculture and Food System Policies Improve Nutrition?

The multiple burdens on health in low- and middle-income countries due to food-related nutrition problems include not only persistent undernutrition and stunting but also widespread vitamin and mineral deficiencies and a growing prevalence of overweight, obesity and non-communicable diseases. These different forms of malnutrition limit people's opportunity to live healthy and productive lives, and impede the growth of economies and whole societies.

The food environment from which consumers should be able to create healthy diets is influenced by four domains of economic activity:



In each of these domains, there is a range of policies that can have enormous influence on nutritional outcomes. In the Global Panel's first Technical Brief, we explain how these policies can influence nutrition, both positively and negatively. We make an argument for an integrated approach, drawing on policies from across these domains, and the need for more empirical evidence to identify successful approaches.

Find out more here: Glopan.org/nutrition

Although the private sector is involved in all segments of the food system, this policy brief focuses predominantly on the role it plays in shaping diets and provisioning consumer choice through its activities in food transformation and food retail.

Download *Abridged Private Sector Brief* here: **glopan.org/privatesector**

Jointly funded by

UKaid from the British people

Bill & Melinda Gates foundation

This report is based on research funded in part by the UK Government and the Bill & Melinda Gates Foundation. The findings and conclusions contained within are those of the authors and do not necessarily reflect positions or policies of the funders

T +44 20 3073 8325 E secretariat@glopan.org W glopan.org @Glo_PAN