

GLOBAL
ALLIANCE
FOR THE
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OF FOOD



SYSTEMIC SOLUTIONS FOR HEALTHY FOOD SYSTEMS

Approaches to Policy & Practice

GLOBAL ALLIANCE FOR THE FUTURE OF FOOD

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This collection of case studies is part of a suite of materials that presents how narratives, policies, and practices across the food-health nexus can be transformed to promote human, ecological, and animal health and well-being. It is the result of a stakeholder-led engagement process that gathered insights and feedback from a diverse array of individuals and organizations within and across many contexts, scales, cultures, and geographies. The content supports the 14 recommendations, aimed at national government policymakers, that are featured in *Systemic Solutions for Healthy Food Systems: A Guide to Government Action*.

Users are also encouraged to read *Food Systems Transformation — Promoting Human, Ecological, & Animal Health & Well-being: A Shared Vision & Narrative*, which articulates a new vision and narrative for food systems that promote health.



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INTRODUCTION

The following set of case studies from around the world demonstrates what can be and is being achieved through food systems policy and practice reform that promotes human, ecological, and animal health and well-being. This set of case studies has been designed as part of a suite of documents, aimed at government advocates and actors working across food and health systems, to influence policy at local, national, and international levels. The case studies serve to provide diverse evidence on the positive impacts that have informed both of its companion publications: *Systemic Solutions for Healthy Food Systems: Guide to Government Action* and *Food Systems Transformation — Promoting Human, Ecological, & Animal Health & Well-being: A Shared Vision and Narrative*.^{1,2} Government leadership and public policy for health is crucial if we are to achieve this vision:

*The way food is produced, harvested, processed, distributed, marketed, eaten, and disposed of promotes human, ecological, and animal health and well-being. All actors are actively shaping and contributing to healthy, equitable, renewable, resilient, just, inclusive, and culturally diverse food systems.*³

This diverse set of case studies represents a spread of geographies and cultures, as well as interventions at a variety of scales (local, national, and regional levels).

During our research, we came across hundreds of exciting and innovative initiatives that illustrate how organizations are working in collaboration with others, at multiple scales, to improve health — of people, planet, and animals. We selected the case studies using insights from an external advisory committee⁴ and based on the following criteria:

1. Geographical spread, reflecting differing cultural perspectives and health-specific challenges;
2. Case studies that focused on multiple determinants of health and used several levers of change; and
3. Initiatives that operated at different scales — working at community, local, regional (city), national, and international levels.

Where possible, we complemented desk-based research with interviews with key stakeholders and sought insights from individuals with lived experiences.

This set of case studies seeks to:

1. Highlight the plethora of amazing initiatives and projects undertaken by food systems actors, including governments, who are working to transform our food systems so they are resilient, healthy, and sustainable.
2. Explore how these initiatives are using a combination of levers of change that address key determinants of health and promote health and well-being.

3. Demonstrate that policy and practice reform is possible and requires vision, leadership, and a new narrative that moves us from a productivist, feed-the-world approach to a focus on the quality of food produced so it contributes to healthy, sustainable, equitable, renewable, resilient, just, inclusive, and culturally diverse food systems.
4. Highlight how ecological and animal health are fundamental pillars of human health and well-being outcomes — physical health, mental health, and human happiness.

The case studies that follow show the initiatives some people are spearheading to acknowledge and transform the fundamental relationship between food and health and well-being.

Governments, in particular, play a crucial role in this and have an opportunity to facilitate and enable these initiatives more actively, using a range of levers of change to shape our food systems through policy and practice. We have identified six key levers, as follows:

1. **Vision & leadership:** Food systems visions, supported by a portfolio of goals, targets, and strategies that promote health and well-being.
2. **Governance:** Integrated and participatory approaches to establishing food policy and setting the rules, laws, and standards.
3. **Fiscal influences:** Financial incentives/disincentives that influence certain choices/actions that, in turn, impact all aspects of food systems and their effects on health at a population level.
4. **Knowledge & education:** Policies and practices that inform, educate, promote, and empower decision-makers and citizens about the interrelationships between food and health.
5. **Research & innovation:** Policies and investments that influence the focus and application of research and innovation to the food systems.
6. **Collaboration:** Cross-sector and interdisciplinary collaboration at local, national, and international scales to ensure the appropriate food systems linkages are forged.

These levers of change have been successfully applied by many of the initiatives outlined in this document, and many of the people who contributed to this set of case studies recognized the crucial role that governments can and need to play in scaling up and sustaining their achievements. For example, in Rwanda, Gardens for Health International welcomed recent moves by the Rwandan government to require community health centres to address nutrition, a policy that reinforces their own efforts to help people to improve their access to a more diverse, nutritious diet.

Each case study includes a table that highlights how these levers of change have been employed. An accompanying document — *Systemic Solutions for Healthy Food Systems: A Guide to Government Action* — provides further details of how governments can use these levers of change along with specific recommendations for each.⁵

The case studies address a variety of determinants of human health and well-being, demonstrating the diverse opportunities in our food systems to create positive health

benefits. At every stage of life, food systems impact our health, which is determined by complex interactions between social, economic, and ecological factors; the physical environment; and individual behaviours. The main health determinants used within these case studies can be seen in Figure 1, with more detailed descriptors for each case study in the Appendix (see page 64).

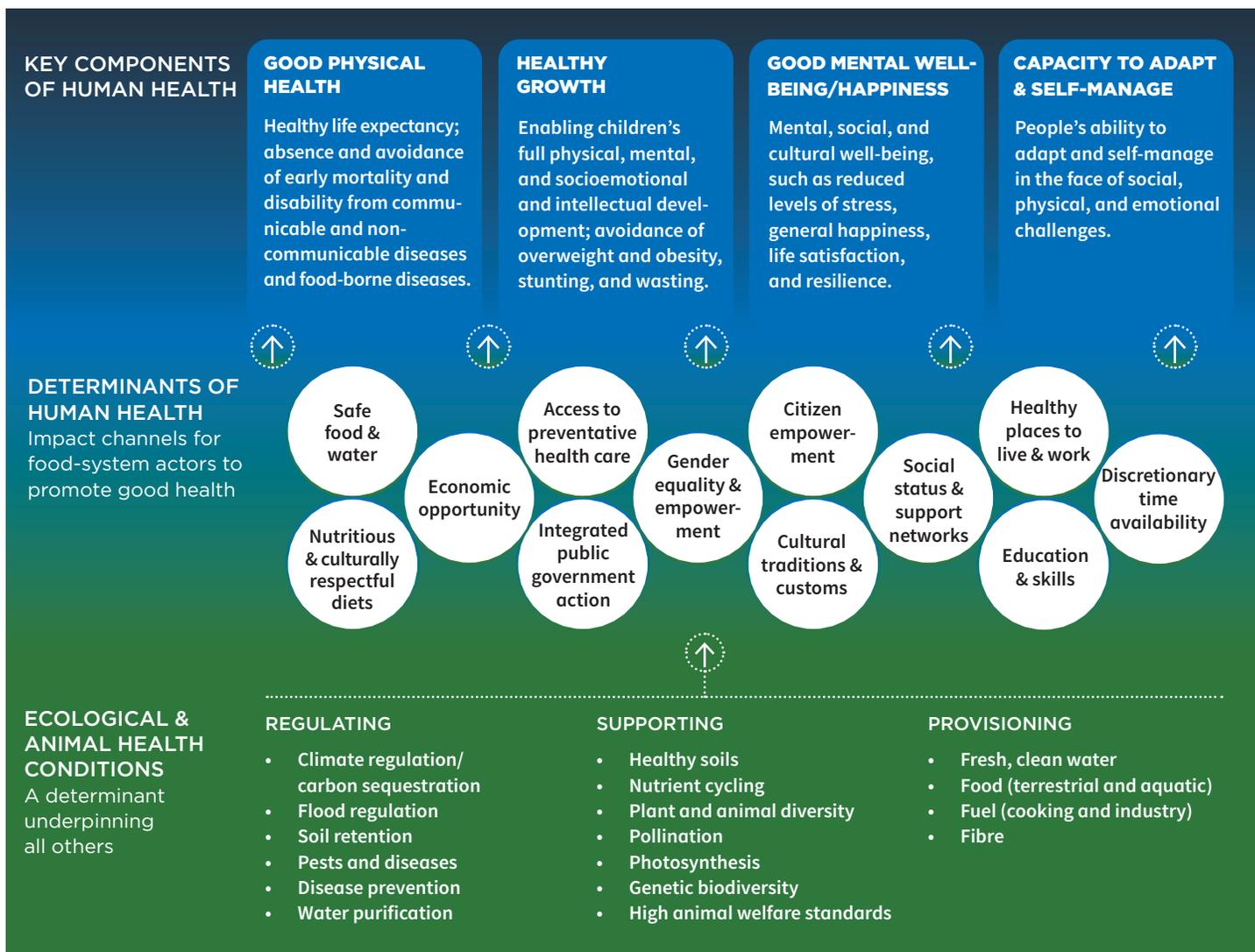


FIGURE 1. Human, ecological, and animal health determinants underpin human health outcomes

Food systems policies and practices can influence all interrelated determinants of health. Many of the solutions described within this set of case studies require action to improve outcomes in relation to multiple determinants of health concurrently. To achieve the scale of health improvements our communities need, this is critically important. Several of the determinants of health feature in many of the case studies: nutritious diets, ecological and animal health, safe food and water, safe places to live and work, and economic opportunity.

The table that follows summarizes the main determinants of health tackled by each of our case studies:

| MAIN DETERMINANTS OF HEALTH IDENTIFIED IN OUR CASE STUDIES  |  |  |  |  |  |  |  |  |  |
|--|---|---|---|---|--|---|---|---|---|
| NAME OF CASE STUDY  | ECOLOGICAL & ANIMAL HEALTH | SAFE FOOD & WATER | NUTRITIOUS & CULTURALLY RESPECTFUL DIETS | ECONOMIC OPPORTUNITY | INTEGRATED GOVERNMENT ACTION | GENDER EQUALITY | CITIZEN EMPOWERMENT | HEALTHY PLACES | EDUCATION & SKILLS |
| ACCELERATING A SHIFT TOWARD ORGANIC AGRICULTURE IN GERMANY | ✓ | ✓ | | ✓ | | | | ✓ | ✓ |
| ALLEVIATING FOOD INSECURITY THROUGH FOOD WASTE LAWS IN FRANCE | ✓ | ✓ | ✓ | | | | | | |
| BOOSTING VEGETABLE CONSUMPTION THROUGH CROSS-SECTOR ACTION IN THE U.K. | ✓ | | ✓ | ✓ | | | | | |
| CUTTING AFLATOXIN FOOD CONTAMINATION IN AFRICA | ✓ | ✓ | | ✓ | | | | | |
| CUTTING CHRONIC DISEASES THROUGH CONSUMER INFORMATION LAWS IN CHILE | | | ✓ | | | | | ✓ | ✓ |
| DRIVING DEMAND FOR ORGANIC FOOD THROUGH PROCUREMENT RULES IN COPENHAGEN, DENMARK | ✓ | ✓ | ✓ | ✓ | | | | | ✓ |
| HARNESSING THE PURCHASING POWER FOR HEALTH IN THE U.S. | ✓ | | ✓ | ✓ | | | | ✓ | ✓ |
| IMPROVING FOOD SAFETY IN INFORMAL SETTLEMENTS IN NAIROBI, KENYA | ✓ | ✓ | | ✓ | | ✓ | ✓ | | |
| IMPROVING FOOD SECURITY & RESILIENCE IN BELO HORIZONTE, BRAZIL | ✓ | | ✓ | ✓ | | | ✓ | ✓ | ✓ |
| IMPROVING NUTRITION IN RWANDA | ✓ | ✓ | ✓ | ✓ | | | ✓ | | |
| IMPROVING SOILS & HEALTH THROUGH COMMUNITY-SUPPORTED AGRICULTURE IN CHINA | ✓ | ✓ | ✓ | | | | | ✓ | |
| REVIVING TRADITIONAL DALIT COMMUNITY FOODS TO IMPROVE NUTRITION IN SOUTH INDIA | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ |
| SUPPORTING BETTER LIVELIHOODS & NUTRITION THROUGH SCIENCE-BASED FISHERIES MANAGEMENT | ✓ | | ✓ | ✓ | | | ✓ | | ✓ |

Overall, this set of case studies shows that fundamental change to our industrial food system is possible, driven by actors across food systems working together — food producers, community groups, businesses, researchers, investors, civil society organizations, and governments. It is when these initiatives focus on multiple determinants of health that the most significant systemic change can occur.

In particular, our case studies highlight the need for governmental leadership — at local and national levels. The case studies from Brazil, Chile, Germany, France, and Denmark highlight that governments who have a vision and who engage multiple actors in strategies to tackle the key determinants of health tend to have the most significant impact. In Brazil and Chile, the case studies highlight the important role government champions can play to tackle the socioeconomic determinants of good health with a focus on economic well-being, equality, and social inclusion.

In almost all of the case studies, there is a recognition that ecological and animal health underpins human health. The German government's organic farming strategy recognizes that organic farming can improve livelihoods of farmers at the same time as reducing pesticide and fertilizer use, improving on-farm biodiversity, and improving water quality. In China, community-supported agriculture shows how agroecological approaches are key to soil health, reduced contamination, and improved food-safety standards, while at the same time improving the nutritional qualities of foods. In France, the government implemented food waste laws that helped reduce ecological impacts and improved food security outcomes for the most vulnerable.

Some of the case studies demonstrate where there is a need for greater government intervention and leadership and how other food systems actors can advocate for that change. Peas Please from the U.K. provides a great example of how industry can collaborate with civil society organizations to advocate for food and farming policies that promote consumption of more fresh fruit and vegetables. Gardens for Health in Rwanda works in partnership with government-run health centres advocating for greater integration of agriculture and nutrition within the Rwandan health system. Oceana works with local communities around the world campaigning for change to destructive fishing practices. The impact of these initiatives could be even more significant if actively supported by governments at various levels.

We hope this set of 13 case studies will provide hope and inspiration, as well as demonstrate what can be achieved when governments work with other actors to advance a set of actions to improve health for people, the planet, and animals. The 13 case studies are:

1. **Accelerating a Shift Toward Organic Agriculture in Germany:** A multifaceted government strategy including a 2030 target, fiscal incentives for farmers, and funding for research and capacity-building.

2. **Alleviating Food Insecurity through Food Waste Laws in France:** Pioneering government regulations to scale up redistribution of surplus food and reduce food loss and waste.
3. **Boosting Vegetable Consumption through Cross-sector Action in the U.K.** A multifaceted program by Peas Please to make vegetables appealing, affordable, and accessible.
4. **Cutting Aflatoxin Food Contamination in Africa:** Better farming and storage practices and agricultural innovation to reduce cancers, cut food loss, and improve livelihoods.
5. **Cutting Chronic Diseases through Consumer Information Laws in Chile:** Innovative package of government policies, including labelling and advertising, a school feeding program, and collaboration with health practitioners to tackle obesity and diet-related diseases.
6. **Driving Demand for Organic Food through Procurement Rules in Copenhagen, Denmark:** The power of municipal spending to increase production of local, organic agriculture.
7. **Harnessing the Purchasing Power for Health in the U.S.:** How the Center for Good Food Purchasing is helping public institutions drive a shift toward pro-health food systems.
8. **Improving Food Safety in Informal Settlements in Nairobi, Kenya:** Community-led mapping and citizen science to support multistakeholder collaboration.
9. **Improving Food Security & Resilience in Belo Horizonte, Brazil:** A holistic whole-value chain approach with a focus on high-risk populations.
10. **Improving Nutrition in Rwanda:** How Gardens for Health International is empowering women with food safety and nutrition knowledge, alongside skills and tools for gardening, to improve dietary diversity.
11. **Improving Soils & Health through Community-Supported Agriculture in China:** How Shared Harvest is responding to growing awareness about food safety and directly connecting consumers and farmers.
12. **Reviving Traditional Dalit Community Foods to Improve Nutrition in South India:** How the Deccan Development Society is supporting local sovereignty and building awareness on the nutritional and ecological benefits of traditional food systems.
13. **Supporting Better Livelihoods & Nutrition through Science-based Fisheries Management:** How Oceana is working with local communities in Peru, Brazil, and the Philippines to improve enforcement and ensure access for smaller and artisanal fishing fleets.

1) ACCELERATING A SHIFT TOWARD ORGANIC AGRICULTURE IN GERMANY

The German Government's "Organic Farming — Looking Forwards Strategy" sets a target for 20% of agricultural land in Germany to be organically farmed by 2030. This target is part of the Federal Republic's Sustainability Strategy.⁶ The German government and European policy have both supported organic agriculture for many years. In setting this new strategy for 2030, they are recognizing the need to build on progress and accelerate a shift to a more sustainable, healthy food system.

According to the government, "the strategy is intended to help address resource policy challenges in agriculture and identify additional development prospects for farm operators in Germany."

The Federal Scheme for Organic Farming and Other Forms of Sustainable Agriculture (BÖLN) was created with the aim of supporting improvements in the general conditions for the organic agri-food sector and other forms of sustainable agriculture in Germany, and paving the way for a well-balanced expansion of supply and demand. Alongside encouraging farmers to convert to organic agriculture, the government also hopes for other advances in agriculture; for example, to reduce the use of pesticides and fertilizers, and of drugs in livestock farming.

A package of support — five lines of action — is being implemented in support of the strategy. This includes financial incentives for farmers, research and development spending on improving organic agriculture, knowledge transfer, and training for farmers all delivered in partnership with industry organizations. It is underpinned by clear national governance of organic standards to build consumer trust and confidence. By the end of 2018, 12% of all agricultural holdings, farming around 9.1% of the total utilized agricultural area, practiced organic farming. With continued support and encouragement, continued growth toward the 2030 target is anticipated.

HOW DOES THE LOCAL CONTEXT INFLUENCE HEALTH?

- The European Union (EU) is the second-largest single market for organic products after the United States, and Germany is the largest organic food market in the EU.⁷
- The Nutrition Report in 2019, based on a survey commissioned by the Federal Food and Agriculture Ministry, showed that half of respondents look out for the "Bio-Siegel," the state organic label.⁸
- When the Organic Farming — Looking Forwards strategy was launched in 2015, around 6% of cultivated land in Germany was farmed organically, significantly less than in other European countries.⁹



WHAT POLICIES & PRACTICES ARE BEING USED TO CREATE CHANGE?

Financial assistance to enable farmers to bear costs associated with conversion to organic farming — such as high labour costs, and the disruption of finding new markets for products — has been a core part of the German approach for many years. The government and wider industry have now set a deliberately comprehensive 5-point strategy with 24 action areas, utilizing a number of different levers of change to accelerate organic farming, which are set out in the table that follows.

| LEVERS OF CHANGE EMPLOYED BY THE GERMAN GOVERNMENT | |
|--|---|
| VISION & LEADERSHIP | <ul style="list-style-type: none"> The Organic Farming — Looking Forwards Strategy sets an ambitious target for 20% of agricultural land in Germany to be organically farmed by 2030. |
| GOVERNANCE | <ul style="list-style-type: none"> EU legislation sets the precise production and manufacturing requirements for agricultural produce and foods labelled as organic, and the rules for importing organic products. In 2001, Germany introduced the Bio-Siegel, a government standard and seal for organic products. A six-sided logo with green edges identifies food products that have been produced and monitored in compliance with the EU legal requirements for organic agriculture. Germany's Organic Farming Act has been in place since 2002 (updated in 2009 and 2013 to reflect EU policy changes) to lay down requirements for reporting, farm and food business inspections (including food service venues), and penalties for violations of regulations. Due to Germany's federal structure, the Länder (federal states) authorities are in charge of organic farming and responsible for supervision of private inspection bodies that monitor and control organic certifications. Detailed criteria for the accreditation of private inspection bodies is enshrined in federal law to ensure high standards of consumer protection and fair competition. |

| | |
|---|---|
| <p>FISCAL INFLUENCES</p> | <ul style="list-style-type: none"> • Germany has promoted the introduction of organic farming with public funds since 1989. • Since 1994, the introduction and maintenance of organic farming has been supported under the Länder programs for rural development, with funding co-financed at a ratio of 60:40 by the federal government and the Länder. • Payments to farmers for the introduction and maintenance of organic farming are supported with public funds from the EU, the federal government, and the Länder. • Annual payments currently range from €210 to €900 for introduction of organic farming, and from €210 to €750 per hectare for maintenance; these have been available since 2015, depending on the type of land use. • Financial penalties for violations of regulations are set by the 2002 Organic Farming Act (and subsequent updates). |
| <p>KNOWLEDGE & EDUCATION</p> | <ul style="list-style-type: none"> • A knowledge transfer and advanced training program for the entire value-added chain was devised and implemented. • Support was also provided for companies via trade fairs, information, and sales promotion projects on organic farming. |
| <p>RESEARCH & INNOVATION</p> | <ul style="list-style-type: none"> • Research and innovation to improve productivity of organic agriculture is part of the government’s “five lines of action” to enact their 2030 strategy, including funding for interdisciplinary and practice-oriented research. |
| <p>COLLABORATION</p> | <ul style="list-style-type: none"> • The 2030 strategy was developed jointly with representatives of the organic food sector, and with the Länder and scientists. |

ADDRESSING THE DETERMINANTS OF HEALTH



Ecological & animal health: They are protecting and restoring biodiversity, soils, and ecosystems through increasing use of organic practices.



Safe food & water: EU legislation governing organic farming only permits a very limited number of ingredients, additives, and processing. As a rule, organic fruit and vegetables contain less nitrate and fewer pesticide residue agents, reducing the likelihood of people consuming additives that may be harmful to health.



Economic opportunity: Improved incomes for organic farmers have been seen in Germany (see results that follow).



Healthy places to live & work: Reducing use and potential exposure of workers to harmful agricultural chemicals, and reducing community water/soil contamination can contribute to improved health.



Education & skills: Increased training and knowledge transfer is used to encourage successful adoption of organic and sustainable farming practices.

RESULTS & IMPACTS

- Recent figures published by the government show that the average income of the organic test farms exceeded the income of the conventional reference farms by around €10,000 or 36%.¹⁰
- Market experts estimated that the sale of organic foods (excluding away-from-home catering) rose to €11.97 billion in 2019, an increase of 9.7%.
- Since 2002, 1,140 research projects have been supported, with around €170 million in funding.

ACKNOWLEDGEMENTS

The majority of the content for this case study was drawn from the latest government report on progress with organic agriculture: *Organic Farming in Germany: As of February 2020* by the Federal Ministry of Food and Agriculture Organic Farming in Germany.

2) ALLEVIATING FOOD INSECURITY THROUGH FOOD WASTE LAWS IN FRANCE



France became the first country to pass a national regulation against food waste in 2015. The law requires large retailers and manufacturers to follow the food waste hierarchy — prevention, redistribution, and recycling. In 2016, this was followed by a formal requirement for large supermarkets to enter into agreements with surplus food redistribution organizations that provide food to people who are experiencing food insecurity and are otherwise vulnerable, for example, via food banks.

The French laws evolved from several years of workshops and policy proposals as part of the National Pact against Food Waste, started in 2012 by Guillaume Garot, then Minister of Agrifood Systems. According to Dr. Marie Mourad, who studied the development and impact of the regulations, the finance available for food assistance was becoming increasingly tight *and* the need to tackle the environmental impacts of food waste was increasing. Regulation to increase food donations and cut food waste gained significant support from the government because it addresses both challenges.

Critics may argue that the law is largely symbolic and difficult to enforce, doing little to accelerate the progress already being made through voluntary partnerships between business and food assistance organizations. Others highlight its important role in “promoting responsible corporate behaviour and formalizing social expectation to donate food.”¹¹ By 2019, 3 years after the law was enacted, and after a lot of media attention, France was seeing more supermarkets making agreements to donate food and a higher volume of food donations. Also, as an indirect consequence, innovative start-ups have sprung up, helping connect food donors and recipients.

The law requiring donations of surplus food has now been extended to restaurants and manufacturing sectors. Large businesses that are required by law to publish a corporate responsibility report must also report how they are tackling food loss and waste, a step toward greater transparency and accountability for results.

HOW DOES THE LOCAL CONTEXT INFLUENCE HEALTH?

- France has relatively comprehensive social welfare protections in place and one of the lowest levels of poverty in Europe, although according to official data around 14% of the population live below the national income poverty line.¹²
- In practice, there are people who are experiencing food insecurity and rely on France’s network of around 80 officially registered food assistance organizations, and hundreds of smaller organizations participating in edible food redistribution (although data is not collated for the latter).

- For food waste, France tops the global Food Sustainability Index with some of the lowest levels, in part due to existing regulations.¹³ In 2016, total food loss and waste across the food value chain was at around 10 million tons per year, with each household wasting around 29 kilograms per year on average. This causes greenhouse gas emissions of 15.3 million tons of CO₂ equivalent, amounting to 3% of all emissions for the domestic economy.¹⁴
- According to Marie, the end of the European Union’s program that supported the redistribution of agricultural surplus for food assistance spurred interest in redistribution of surplus food at a national level. Overall EU funding available for food-based welfare programs was reduced, which made donations of surplus food attractive, enabling welfare provision.

WHAT POLICIES & PRACTICES ARE BEING USED TO CREATE CHANGE?

The French government has implemented several complementary regulations: the edible food recovery law since 2016 and also a suite of pre-existing and new regulations to create a cohesive package. This package will continue to evolve in an effort to create more benefits for people and the planet. The levers of change are set out in the table that follows.

| LEVERS OF CHANGE EMPLOYED BY THE FRENCH GOVERNMENT | |
|--|---|
| VISION & LEADERSHIP | <ul style="list-style-type: none"> • The National Pact Against Food Waste sets the goal of cutting food waste in half by 2025 (from a 2012 baseline). • France also has a National Waste Prevention Plan, 2014–2020.¹⁵ • The leadership of the French government is inspiring other governments to explore similar approaches. |
| GOVERNANCE | <ul style="list-style-type: none"> • Supermarkets above 400 square meters must sign an agreement with food assistance organizations to donate their excess edible, unsold products (no minimum quantity or frequency is mandated). • Other regulations control safety of edible food recovery, such as temperature of hot food and other management practices. |
| FISCAL INFLUENCES | <ul style="list-style-type: none"> • A long-standing tax incentive for businesses to donate food — around 60% of the food’s inventory value — plays an important role in encouraging donations. • France has a long-standing tax on landfilling and incineration of waste. • Limited financial support was initially made available to food assistance organizations to help them handle additional donations. |

| | |
|----------------------------------|--|
| KNOWLEDGE & EDUCATION | <ul style="list-style-type: none"> • The presence of the law raised awareness of food waste amongst businesses, encouraging action. • Education programs in schools and training for food professionals on addressing food waste have been mandated. |
| RESEARCH & INNOVATION | <ul style="list-style-type: none"> • New food recovery start-ups like Comerso and Phénix have set up in response to help supermarkets connect to donation recipients. |
| COLLABORATION | <ul style="list-style-type: none"> • A multistakeholder process built consensus and ensured the buy-in and long-term commitment of multiple actors. |

ARE FOOD BANKS A SUSTAINABLE FOOD SOLUTION?

Food banks and other handouts are a hotly debated topic in the fight against food insecurity. For some they represent huge national shame, a highly visible sign that we are failing to tackle the underlying causes of food insecurity, such as low wages, insecure work, inadequate government social welfare programs, and lack of access to affordable, nutritious food. Furthermore, the surplus food donated to many food assistance programs ideally should not be produced in the first place — a sustainable food system avoids food waste. And so food banks are arguably a symptom of the broken food system, a short-term fix that justifies overproduction and not a sustainable solution.

Others would highlight their vital role in both helping people and enabling redistribution of food that would otherwise go to waste, a win-win delivering social and environmental benefits. According to the manager of one U.K.-based food assistance organization, human frailty will always exist, and so some people will need urgent assistance during a challenging period of their lives, even when other social protection schemes are in place. Food banks, soup kitchens, and other food assistance programs should be here to stay.

It is clear that food assistance organizations provide an invaluable support to many people and will continue to do so until food insecurity is eradicated, but that a sustainable food system — backed by wider society and governments — should address the underlying causes of food insecurity (such as poverty and food access challenges) as a priority as well as tackle food overproduction.

ADDRESSING THE DETERMINANTS OF HEALTH

The French Food Waste Law aims to positively act on multiple determinants of good health:



Ecological & animal health: Preventing food waste reduces greenhouse gases, particularly methane from avoided landfilling and incineration of food waste and avoided impacts from resource use associated with food production.



Safe food & water: Food donations must be safe to eat, with at least 2 days left before the expiry date to allow redistribution while still fresh.



Nutritious & culturally respectful diets: It aims to increase access to food for people experiencing food insecurity, although it has been criticized for not fully addressing the nutritional quality of donated food.

RESULTS & IMPACTS¹⁶

- Percentage of supermarkets donating unsold products rose, according to one study, from 66% prior to 2016 to more than 90% in 2018. The government's latest qualitative assessment showed that 94% of supermarkets donate food but 55% do not donate every day.
- Estimated increase of between 10 and 30% in food quantity donated, with around 8 to 30% of this discarded because it could not be reused.
- 80 food banks recover approximately 46,000 tons of edible food annually, donated by 2,700 supermarkets, although there has been criticism that these organizations are pressured to accept what is donated, regardless of quality and preferences, which are then passed on to the recipients.
- The law has helped to improve the quality of donated food, as supermarkets are expected to sort fruit and vegetables and to donate packaged items 48 hours before their expiration dates, although recent research has shown that in practice some is donated with only 1 day remaining.
- Other ways to recover and redistribute surplus food have experienced a boost: 92% of supermarkets now offer their soon-to-expire food to customers at discounted prices and other methods, such as the app "Too Good to Go," which have seen increased activity.
- Initiatives that were developed and coordinated at the local (regional) level were particularly successful.
- A pilot operation among 20 manufacturing companies helped them reduce food waste by 18%, which reduced economic losses by 12.8% and carbon emissions by 14%.
- Successfully raised awareness of the scale of food waste and the practice of making unsold products unfit for consumption (which was banned in theory but still done).¹⁷
- The creation of a new inter-ministerial committee between the Ministries of Health, Agriculture, and Environment has been announced by the Government in September 2020 to coordinate action on tackling food insecurity.¹⁸

ACKNOWLEDGEMENTS

We would like to thank Dr. Marie Mourad (Zero Food Waste Specialist whose Ph.D. research focused on this case) for agreeing to be interviewed, sharing additional documentation and data from her research, and for reviewing this case study.

3) BOOSTING VEGETABLE CONSUMPTION THROUGH CROSS-SECTOR ACTION IN THE U.K.



Peas Please, a U.K.-wide initiative led by The Food Foundation, with program partners Food Sense Wales, Nourish Scotland, Food Northern Ireland, and the Belfast Food Network, aims to drive an increase in vegetable consumption in the United Kingdom to achieve two positive changes: 1) improved nutrition to address the challenges of obesity, overweight, type-2 diabetes and other diet-related diseases; and 2) improved “ecological health” from the dietary shift to more plant-based food, thereby reducing environmental impacts.¹⁹

In 2016, The Food Foundation took key stakeholders from governments, farming unions, retailers, manufacturers, and civil society organizations on a field trip to explore challenges for vegetable production and consumption. This experience was critical to galvanizing a diverse group of organizations across the food value chain into action. They helped co-create the multifaceted program — now named “Peas Please” — focused on a common goal of making it easier for everyone to eat vegetables and thereby improve health outcomes.

The program focuses on initiating multiple opportunities, across the food value chain, for increasing vegetable intake. It encourages a diverse range of organizations to take actions within their specific remit to drive increased vegetable consumption. It also catalyzed a national multimedia, creative advertising campaign for vegetables called “Veg Power” to counter the marketing spend heavily skewed toward unhealthy products.²⁰

“To get the level of change that’s needed we have to start everywhere at once.”

PEAS PLEASE ANNUAL PROGRESS REPORT, 2019²¹

To date, 96 organizations have pledged actions to drive up vegetable consumption, including retailers, caterers, and public institutions such as the Scottish Government, who are introducing new school food rules mandating more vegetable servings.²² Almost half the children who saw the Veg Power advertising campaign said they had tried more vegetables.

HOW DOES THE LOCAL CONTEXT INFLUENCE HEALTH?

- The U.K. suffers from high levels of obesity and overweight, type-2 diabetes, and other diet-related diseases resulting from poor-quality diets.
- When Peas Please was launched, 7.2% of the weight of the average shopping basket was composed of vegetables. It should be 20% to be in line with the U.K.’s national nutritional guidelines.²³
- The U.K. has a policy of not charging VAT (point of sale value-added tax) on fresh vegetables.
- The U.K. government has previously run information campaigns to encourage people to eat “5-a-day” fruit and vegetables, including outreach in schools and partnering

with industry on consumer labels — yet most of the population still does not eat enough vegetables for a healthy, sustainable diet.

- The U.K. is characterized by highly urban populations, high consumption of prepared and convenience foods, high expectations of taste, and a wide choice of foods.
- Peas Please responds in part to experience that, to date, consumer education programs have not had the desired impact.

WHAT POLICIES & PRACTICES ARE BEING USED TO CREATE CHANGE?

Peas Please includes multiple different activities, in partnership with collaborating organizations across public, private, and civil society sectors. Several levers of change that contributed to success are set out in the table that follows.

| LEVERS OF CHANGE EMPLOYED BY PEAS PLEASE | |
|--|--|
| VISION & LEADERSHIP | <ul style="list-style-type: none"> • The shared positive goal of “more vegetable consumption” is critical to success — specific and broad enough to allow different actors to contribute. • A positive win-win narrative — health, environment, and business benefits. This attracts diverse partners. • The pledge framework is encouraging diverse organizations to demonstrate leadership, making clear commitments to drive positive changes. |
| GOVERNANCE | <ul style="list-style-type: none"> • Public organizations are encouraged to pledge to change rules on food served in public food institutions. |
| FISCAL INFLUENCES | <ul style="list-style-type: none"> • Public and private sector organizations have pledged to use fiscal drivers (for example, more vegetables included in government food vouchers, retailers commit to affordable vegetable offerings). |
| KNOWLEDGE & EDUCATION | <ul style="list-style-type: none"> • Peas Please uses a variety of marketing strategies: “Veg Power” is an above-the-line advertising campaign; other actions undertaken by participating organizations include taster sessions in lunchrooms; in-store marketing and product placement; and community awareness campaigns. • Working with influencers such as chefs amplifies scope for change. |
| COLLABORATION | <ul style="list-style-type: none"> • Peas Please’s collaborative approach is a critical element of success. • It has helped to create new collaborative initiatives: The Fruit & Veg Alliance and the Veg Cities Collaboration.^{24, 25} |

THE BUILDING BLOCKS OF THE PEAS PLEASE INITIATIVE

The 5 Ps

Peas Please aims to foster action across five different drivers of change or “the five Ps”:

1. **Pleasure:** Making vegetables delicious whenever we eat them and connecting us to where our vegetables come from.
2. **Producers:** Growing vegetables sustainably at all different scales.
3. **Prices:** Pricing vegetables at rates that work for producers and consumers.
4. **Products:** Putting more vegetables into the products we buy and eat every day.
5. **Placement:** Giving vegetables more prominence in shops and on menus, and providing more places in towns and cities to buy them.

THE FOUR CORE ACTION AREAS

- **A flexible “Pledge Framework”:** Guiding organizations to make meaningful pledges that are relevant for their own organization (for example, marketing and sales targets for retailers, policy action for public sector organizations, product or menu reformulation for manufacturers or food service operators) — all aiming to increase vegetable intake.
- **Innovative multimedia advertising:** “Veg Power” multimedia (TV, billboards, web, print media, menu templates) advertising campaign promoting vegetables to children and normalizing vegetable consumption, co-created with input from food businesses and adhering to advertising health claims regulations.²⁶
- **The Fruit & Veg Alliance:** Creation of a new trade body for fruit and vegetable producers to enable collective action to boost the sector and market in the United Kingdom.
- **Veg Cities:** Multifaceted program working with varied stakeholders at a city scale to promote vegetable consumption at a local level, building on existing city-wide partnerships.

ADDRESSING THE DETERMINANTS OF HEALTH

Peas Please aims to address several determinants of good health:



Ecological & animal health: They aim to reduce the environmental impact of food by creating a dietary shift to more plant-based food, thereby improving ecological health.



Nutritious & culturally respectful diets: Improved nutrition via increased consumption of vegetables, particularly amongst children and low-income families, via culturally appropriate menus, products, and recipes.



Economic opportunity: The initiative aims to demonstrate the business benefits and economic opportunities for farmers, food producers, retailers, and food service businesses in increasing vegetable supply and demand.

RESULTS & IMPACTS²⁷

- 96 organizations have made commitment pledges as part of the initiative, including 80% of the retail sector and 65 to 70% of the contract catering sector.
- Progress with pledges is monitored by the Peas Please team and publicly reported — 36 organizations are on track to meet their pledge or have already met it.
- 25 cities and local areas have signed up to the “Veg Cities” campaign — 379 local organizations, such as schools and community groups, restaurants, caterers, councils, and food-growing enterprises are participating.
- The campaign has, to date, led to an additional 89.9 million portions of vegetables sold or served by pledging organizations.
- Nationally, the proportion of vegetables in the shopping basket has not yet increased, although for pledging retailers a small increase from 7.9% in 2016/17 to 8.0% in 2018/19 has been observed.
- Monitoring surveys of “Veg Power” advertising campaign show that 69% of children liked the campaign, 57% said it made vegetables more fun, and 46% of children who have seen the advertisement said they recently tried more vegetables. Sales data confirms a 2.3% positive impact on vegetable sales and 1.7% increase in vegetable consumption by children.
- Store visits to assess the food environment are also carried out including use of “The Consumer Nutrition Environment Tool,” which measures variety, price, quality, promotions, shelf placement, store placement, nutrition information, healthier alternatives, and sales of 18 preselected products (results will be published in 2020).
- Data from the National Diet Survey will also be used to assess progress, once data for the period of the initiative is available.

ACKNOWLEDGEMENTS

We wish to thank Courtney Scott and Rebecca Tobi, from The Food Foundation, for providing information and reviewing this case study.

4) CUTTING AFLATOXIN FOOD CONTAMINATION IN AFRICA



In Africa, there are 90,000 cases of liver cancer alongside health problems (for example, weakened human immune system and child stunting) every year due to the consumption of food contaminated by aflatoxins.²⁸ A collaborative effort by the Partnership for Aflatoxin Control in Africa (PACA) aims to address this health challenge through changes in agricultural practice and adoption of novel technological innovations.²⁹

Drawing on research by the International Institute of Tropical Agriculture (IITA) and the CGIAR Research Program on Agriculture for Nutrition and Health, and with support from donors, a program of interventions was created — changing cultural practices, access to finance, monitoring, grain drying, sorting, storage, and improvements in post-harvest processing — combined with an innovative biological control product, known as Aflasafe.^{30, 31, 32}

Spreading these approaches through farmer-to-farmer champion networks and farm-to-market linkages is yielding results. Following extensive field trials in Nigeria, Senegal, The Gambia, and other parts of Africa, the AgResults Nigeria Aflasafe Challenge Pilot project,³³ working with more than 25,000 farmers and using an innovative incentive-based “pull mechanism,” demonstrated that low-aflatoxin maize has economic value for farmers and value chain actors, such as the poultry and food industries, who are concerned about quality and premiums that safer products can earn.

“The product has many benefits, and I was particularly drawn to the health advantages and prevention of liver cancer. And then there is the better price offered for Aflasafe-treated groundnuts. Both of these aspects are very important for family and community health and well-being.”

MODU DIOU, GROUNDNUT FARMER FROM THE GAMBIA³⁴

The focus now is on sustainably scaling up production and commercialization of Aflasafe. A manufacturing plant capable of producing 10 tons a day has been established at IITA headquarters in Nigeria, with additional plants in Senegal and Kenya.

This initiative demonstrates the need for a systemic approach to reduce the health risks from aflatoxin exposure for the general population while increasing the economic and health opportunities for poor farmers by preventing crop and income losses. Aflatoxins pose significant economic burdens on many economies within West Africa and are estimated to render 25% or more of the world’s food crops unsafe for consumption.

HOW DOES THE LOCAL CONTEXT INFLUENCE HEALTH?

- Aflatoxins are estimated to cause 25% or more of global food crops to be unsafe for consumption.
- In Africa, aflatoxins are thought to result in 30% of liver cancer. The highest rates of aflatoxin-related liver cancers and anaemia are amongst women in Sub-Saharan Africa, which can have devastating and disruptive impacts on family and communities.
- Other health impacts include the weakening of the human immune system, stunting child growth, and, in the worst case, death.
- Aflatoxins can decimate crops in the field and also during storage where crop storage facilities are poor, creating significant economic losses and burdens on many economies.
- In Africa alone, the potential economic losses can be several hundred million dollars' worth of groundnut, maize, rice, and sorghum due to a failure to reach premium domestic and international premium markets.

WHAT POLICIES & PRACTICES ARE BEING USED TO CREATE CHANGE?

The program uses multiple approaches and interventions concurrently, based on previous research by multiple partners into what is effective in reducing aflatoxin, alongside the Alfasafe technology. Several levers of change that contributed to success are set out in the table that follows.

| LEVERS OF CHANGE EMPLOYED BY THE PARTNERSHIP FOR AFLATOXIN CONTROL IN AFRICA | |
|--|---|
| VISION & LEADERSHIP | <ul style="list-style-type: none"> • A shared goal of reducing Aflatoxin and associated health impacts and reducing post-harvest losses allowed multiple partners to collaborate. |
| GOVERNANCE | <ul style="list-style-type: none"> • The governments of Nigeria, Senegal, The Gambia, Malawi, and Tanzania have now incorporated the use of Alfasafe in the national agricultural investment plans. |
| FISCAL INFLUENCES | <ul style="list-style-type: none"> • The government of Kenya purchased 230 tons of Alfasafe product for distribution to farmers. • The financial premium for low-aflatoxin maize encouraged adoption by farmers. In some cases, the Nigerian government subsidizes the use of the product in maize. |
| KNOWLEDGE & EDUCATION | <ul style="list-style-type: none"> • Farmer training and outreach has been critical to the success of the project. |
| COLLABORATION | <ul style="list-style-type: none"> • This project was led by the IITA, and with funding from international aid agencies, the Partnership for Aflatoxin Control in Africa (PACA), and several other donors. |

AFLASAFE: A BIOLOGICAL AFLATOXIN CONTROL PRODUCT — HOW DOES IT WORK?

A shocking 4.5 billion people are exposed to aflatoxin B1, the most deadly and prevalent aflatoxin — a group of highly toxic and carcinogenic mycotoxins that frequently contaminates crops, including maize and groundnuts, in warm agricultural areas across the globe.³⁵

Carefully selected non-toxin-producing strains of the fungus *Aspergillus flavus*, found naturally in local soils, are used to coat ordinary, but roasted, sorghum grains. These can easily be broadcast onto fields long before the crop flowers. The non-toxic *Aspergillus* fungi effectively out-compete the toxic, aflatoxin-producing fungi. Once established, they reside in the treated crops and become associated with the crops. They improve crop quality and do not impact soil health. Aflasafe has the advantage that it stays with food, protecting it all the way through storage and onto the plate.

“Food insecurity frequently forces people to consume contaminated foods because no other food options are available. In addition, commodities rejected from premium export markets are often processed and offered at low prices in informal markets where such products can contain highly concentrated aflatoxin quantities.”

RANAJIT BANDYOPADHYAY, IITA³⁶

ADDRESSING THE DETERMINANTS OF HEALTH

This initiative simultaneously tackles several determinants of good health:



Ecological & animal health: Controlling aflatoxin helps to cut food loss and waste, which is associated with significant environmental impacts, and improves ecological health.



Safe food & water: Reducing food contamination from aflatoxin can significantly reduce ill health for both farmers and other consumers.



Economic opportunity: Providing a way to reduce aflatoxins in their crops helps improve income and food security for producers.

RESULTS & IMPACTS

- Farmers receive roughly 8 to 17% premium on their “aflasafe” grain, depending on maize yield and market prices, and assuming they hold back 1 ton of maize for family consumption.
- An independent evaluation of AgResults Nigeria Aflasafe Challenge Pilot project concluded that Nigerian maize farmers earned an additional \$318 from maize and consumed 18% more aflatoxin-safe food.
- While quantifiable assessment of the impacts and health benefits of this product is still required, a wide variety of in-the-field surveys from producers highlight anecdotal evidence of many health benefits.

“The seasonal return on investment for Aflasafe is between 190 to 540% ... Farmers have also said they would buy it with or without subsidies because they feel healthier from eating safer maize, and in some cases can earn a premium in the market or sell more readily.”

RANAJIT BANDYOPADHYAY, IITA³⁷

ACKNOWLEDGEMENTS

We would like to thank Dr. Ranajit Bandyopadhyay, Dr. Alejandro Ortega-Beltran, and Ms. Njeri Okono from the International Institute of Tropical Agriculture (IITA) for being interviewed and for reviewing this case study.

5) CUTTING CHRONIC DISEASES THROUGH CONSUMER INFORMATION LAWS IN CHILE



In 2016, Chile implemented a set of regulations to tackle the obesity epidemic, including associated non-communicable diseases and cancer, with a particular focus on children.

The “Law of Food Labelling and Advertising” is a set of policies designed to prevent further increases in obesity prevalence. It focuses on changes to labelling, marketing, and rules regarding sale of unhealthy foods. Food and beverage high in energy, sugar, sodium, and saturated fat content are subjected to marketing restrictions, are banned in nurseries and schools, and need to have a national mandatory front-of-package (FOP) warning-label system.

The new FOP is arguably the linchpin of the initiative — it requires packaged food companies to prominently display black warning logos in the shape of a stop sign on items high in sugar, salt, calories, or saturated fat.

Reflecting on the implementation of the law in 2018, Senator Guido Girardi said: “People have a right to know what these food companies are putting in this trash, and with this legislation, I think Chile has made a huge contribution to humanity.”³⁸

Senator Girardi was a champion for the approach: as a doctor, who had first-hand experience of the health challenges, he recognized the need for “structural changes and the need to build a clear and consistent message around prevention.” His leadership was critical, alongside strong, sustained partnership and collaboration between the government and academia to build an evidence base and ensure a compelling case for action to address key determinants of health.

“[It required] patience, perseverance, and determination” during a “long and exhausting process which requires continued and engaged effort.”

CAMILA CORVALÁN, INSTITUTE OF NUTRITION AND FOOD TECHNOLOGY, UNIVERSITY OF CHILE³⁹

Early results indicate the approach is yielding positive results, including a reduction in consumption of sugar-sweetened beverages — something many countries around the world are trying to achieve.

HOW DOES THE LOCAL CONTEXT INFLUENCE HEALTH?

- In Chile, obesity and diet-related diseases reached epidemic proportions: one out of four school children and one-third of the adult population are obese, while high body mass index and diet-related risk factors are the main cause of premature death and disability in the country.

- Levels of obesity are rising faster in children than they are in adults.
- Sales of sugar-sweetened beverages are the highest worldwide. Almost one-third of the total calorie consumption of Chileans comes from ultra-processed foods.⁴⁰
- Health inequalities are also significant: the incidence of obesity doubles in people with lower education attainment levels, with a greater proportion of women within these lower education groupings.

WHAT POLICIES & PRACTICES ARE BEING USED TO CREATE CHANGE?

The Chilean government instigated a multifaceted approach, led by extensive research and testing, to maximize the likelihood of achieving the scale of changes needed to address their escalating health crisis. Several levers of change utilized by the program are set out in the table that follows.

| LEVERS OF CHANGE EMPLOYED BY THE CHILEAN GOVERNMENT | |
|---|---|
| VISION & LEADERSHIP | <ul style="list-style-type: none"> • A clear ambition to tackle a growing obesity epidemic was championed by Senator Guido Girardi. • Chile identified goals for specific target populations — including children, and people with lower education attainment. • Chile was the first country to mandate front-of-package (FOP) labelling, and now other countries are discussing similar approaches: Peru and Israel have already implemented these; Mexico and Uruguay have approved measures soon to be implemented; and Brazil and Canada are in early discussion phases. |
| GOVERNANCE | <ul style="list-style-type: none"> • New regulations were introduced, including the mandatory use of FOP warning labels on packaged foods and beverages high in energy, sugars, saturated fats, and sodium; restrictions on advertising (on television, in cinemas, etc., and to children under 14 years old); and a ban on the sale or promotion of these foods in schools and nurseries. |
| FISCAL INFLUENCES | <ul style="list-style-type: none"> • Funding for a school feeding program was initiated to provide free breakfast, snacks, and lunch to more than 50% of school-age children from disadvantaged families. |
| KNOWLEDGE & EDUCATION | <ul style="list-style-type: none"> • They are educating citizens via FOP labelling and reducing children’s exposure to marketing (through food packaging, television, cinemas, etc.). |
| COLLABORATION | <ul style="list-style-type: none"> • Collaboration between health practitioners, government, and academia was critical to making progress with implementation. |

ADDRESSING THE DETERMINANTS OF HEALTH

Chile's approach aims to address multiple determinants of health and inequality through designing policies specifically targeting lower socioeconomic groups that are more likely to suffer health impacts of poor diets.



Nutritious & culturally respectful diets: The government aims to create a dietary shift toward healthier eating patterns, reducing consumption of foods that are high in calories but low in nutrients. The initiative has often been quoted as “the world’s most ambitious attempt to remake a country’s food culture.”⁴¹



Healthy places to live & work: Their approach utilizes regulating, marketing, and consumer information to create healthier food environments in communities and schools.



Education & skills: Through labelling, marketing, and community information changes they are increasing food literacy and citizens’ ability to make healthy choices.

RESULTS & IMPACTS⁴²

A number of quantitative and qualitative evaluations have and are being undertaken to assess the impacts of this regulation with some early initial impressive results.

- The purchase volume of high-in-sugar beverages decreased by 22.8 milliliters per capita per day or 23.7% after the regulation was implemented (during the first full year of the policy up to December 2017).
- This decrease is greater than purchase changes that have been observed following implementation of single, standalone policies in Latin America, such as a sugar-sweetened-beverage tax.
- The study highlighted that “Future research will be needed to understand to what degree these changes are attributable to reformulation of products and/or to changes in consumer behaviour as well as the impact of these regulations on dietary intake and health-related outcomes.”

Camila Corvalán from the Institute of Nutrition and Food Technology (INTA), University of Chile, one of the report authors, also highlighted other positive changes when interviewed for this case study, including:

- A 50% reduction in exposure of children to television and packaging marketing of unhealthy foods.^{43, 44}
- Significant reformulations of food products in certain categories (for example, sweet beverages, milk-based products, baked products, processed meats, etc.), particularly for sugars and sodium.⁴⁵

- An initial survey as well as a focus group of mothers of school-aged children valued and appreciated the law, although those in lower socioeconomic groups thought it was restrictive.⁴⁶

ACKNOWLEDGEMENTS

We would like to thank Camila Corvalán from the Institute of Nutrition and Food Technology (INTA), University of Chile, Santiago, Chile, for agreeing to be interviewed for and reviewing this case study. Camila is working, in partnership with the University of Carolina, to assess the impacts of the regulation.

6) DRIVING DEMAND FOR ORGANIC FOOD THROUGH PROCUREMENT RULES IN COPENHAGEN, DENMARK

With sustained efforts over more than 15 years, the municipality of Copenhagen, the capital city of Denmark, has increased the proportion of organic food it buys for the half a million public meals it produces each day.

In 2001, the Copenhagen government created an “Eco-Metropolis Vision.” As a result of a national advocacy effort by Organic Denmark, a trade organization for organic producers set targets for organic food procurement (60% by 2009, 75% by 2011, 90% by 2015)⁴⁷ — aiming to use public sector food spending power as a driver to encourage the transition toward organic agriculture.⁴⁸ The initiative aims to drive an increase in Danish organic agriculture rather than rely on imported produce: expecting the greatest benefits (i.e., carbon savings, protecting the natural environment, and health benefits from reduced agrochemical use) would come from using public procurement to drive production changes in local agriculture.

Rising to the challenge, city officials had to develop new capacity for centrally aggregated purchasing for multiple organizations and create a coordination network to facilitate sharing of knowledge on how to achieve the changes (for example, via common tender/purchasing templates).⁴⁹ Active engagement with the market was also essential; particularly, finding sources of halal and organic meat was important in ensuring that they could meet the requirement for sustainable, healthy, and culturally respectful food. The increase in organic purchasing was achieved within the “Healthy School Meals in Copenhagen” system⁵⁰ and existing food budgets by training staff to be flexible, adapt menus and recipes, avoid waste, and buy affordable seasonal produce that also met cultural needs, such as a requirement for halal meat.

By 2007, the proportion of organics in the city’s meals was 51%, and then the City Council unanimously agreed on a policy that all foods it purchased would be 90% organic by the end of 2015 — a goal that has largely been met, with some venues exceeding the target.

HOW DOES THE LOCAL CONTEXT INFLUENCE HEALTH?

- Desire to improve healthy eating in schools — for example, increasing sales of vegetables in school meals, which were very low, and enabling children to learn healthy eating habits — has been a common political objective in Denmark.
- Responsibility for health promotion (including addressing diet- and health-related issues typical of European countries, such as obesity and related conditions) has motivated many municipalities to make a health policy for the municipality, including food guidelines in some schools.



- The policy context for organic agriculture was also significant. The Danish government launched the Danish Organic Action Plan 2020, intending to double the organic agricultural area in Denmark by 2020. National and municipal targets for organic agriculture created a key driver for increased public procurement of organic food.

WHAT POLICIES & PRACTICES ARE BEING USED TO CREATE CHANGE?

The key lever of change is the use of public spending power as a demand driver to create a shift toward healthy, sustainable consumption and production practices — specific policies and practices were used within the package of measures in support of this core action. Several levers of change included in the program are set out in the table that follows.

| LEVERS OF CHANGE EMPLOYED BY COPENHAGEN MUNICIPALITY | |
|--|---|
| VISION & LEADERSHIP | <ul style="list-style-type: none"> • National and municipal targets for organic agriculture created a key driver for increased public procurement of organic food. • Nutrition-related goals were also set for public food procurement. • The City Council and mayor showed leadership via setting policy, and also publicly highlighted a key health benefit of the organic shift, “helping to ensure clean drinking water free of pesticides.” |
| GOVERNANCE | <ul style="list-style-type: none"> • Policy for healthy school meals and mandated targets for organic procurement were key elements of the approach. |
| FISCAL INFLUENCES | <ul style="list-style-type: none"> • Public food procurement spending was used as a “demand driver” — creating a clear market signal to suppliers and farmers that organic produce was a viable business model. • Economies of scale: changes were implemented across all municipal catering facilities maintaining affordability standards within existing budgets. |
| KNOWLEDGE & EDUCATION | <ul style="list-style-type: none"> • Copenhagen invested funds in training catering staff to plan, prepare, and procure nutritious enjoyable food within their food budgets, such as training in using seasonal produce; using less meat; baking; preserving; fermenting; and waste avoidance. • A focus on increasing consumer awareness of organic food helped drive wider increased demand. |
| COLLABORATION | <ul style="list-style-type: none"> • The European Union (EU) Green Public Procurement guidance provided a credible source of research, which supported translation of desired requirements into acceptable criteria for procurement. |

COPENHAGEN'S SCHOOL MEAL SYSTEM

“Healthy School Meals in Copenhagen” (Køss) is a meal system providing meals for school stalls and canteens in Copenhagen. The aim of the meal system is to allow the students to develop healthy eating habits, and therefore the aim was for the food to be healthy and mainly organic. The Køss meal system was first piloted in one region of the city before being expanded to the rest of the city.

ADDRESSING THE DETERMINANTS OF HEALTH



Ecological & animal health: Increasing organic agriculture cuts harmful pesticide pollution, improves soils, and protects ecosystems.



Safe food & water: Shifting to more organic food helped reduce risk of exposure to toxic food residues and reduced water contamination.



Nutritious & culturally respectful diets: Ensuring healthy food choices that respect community religious beliefs are served in public institutions, which raises awareness amongst families and the community.



Economic opportunity: Consistent demand for organic food from the municipality creates business opportunities for healthy, sustainable food.



Education & skills: Copenhagen has invested significant funds in training, particularly for catering staff.

RESULTS & IMPACTS

- Since setting targets in 2001 as part of the city's “Eco-Metropolis Vision,” organic food purchasing has grown to 88%, with many venues sourcing more than 90% organic.
- The majority of the approximately 900 kitchens in the city are 90% organic — and in some places the rate of organic food is even higher. That goes for nurseries, kindergartens, and the large “EAT” kitchen (canteen for public workers and others), which all have an overall organics rate above 90%. The city's total organics rate stands at 88%.⁵¹
- None of the wholesalers operating on the national level in Denmark were offering fresh organic meat (only a small assortment of frozen cuts was available) until the municipality of Copenhagen published a tender in 2012 specifying a wide assortment of fresh, organic meat — which then became available through several of the wholesalers shortly afterward.⁵²
- Switching to 100% organic milk in Copenhagen's public procurement saves approximately 370,822,400 litres of groundwater from being contaminated with pesticides each year.⁵³

No specific health impact-related metrics have been publicly reported and communicated in relation to this initiative — the focus for monitoring is on tracking organic transition as a positive food system change that can deliver health benefits. To measure progress against the 2020 organic target, credible measures of organic purchasing were developed.

ACKNOWLEDGEMENTS

This case study was based on a review of documentation referenced.

7) HARNESSING THE PURCHASING POWER FOR HEALTH IN THE U.S.

The Good Food Purchasing Program (GFPP) aims to “harness the purchasing power of major institutions to encourage greater production of sustainably produced food, healthy eating, respect for workers’ rights, humane treatment of animals, and support for the local small business economy.” It “provides a metric-based, flexible framework that encourages large institutions to direct their buying power towards ‘good food’ and the multiple benefits it can bring.”^{54, 55}

The GFPP was developed by the Los Angeles Food Policy Council (LAFPC), which was convened by Mayor Antonio Villaraigosa based on the recommendation of the Los Angeles Food Policy Task Force. This brought together more than 200 people and organizations to explore opportunities for healthy, affordable, fair, and sustainable food. The GFPP was designed through an extensive 2-year working group process involving multisector, interdisciplinary, and multistakeholder collaboration and an iterative review process by the designated team of the LAFPC, which included the mayor’s senior advisor on food policy.

The GFPP standard was adopted formally first in the City of Los Angeles (L.A.). In 2012, via a policy mandate from the mayor, with unanimous support of the city council. The program was then implemented across the L.A. Unified School District (LAUSD), which annually serves about 750,000 meals a day, with a budget of US\$150 million, providing children with more “good” — local, sustainable, fair, and humanely produced — food.

The program generated significant interest from other municipalities, particularly after the L.A. mayor’s office shared their work via the U.S. Conference of Mayors.



“We didn’t have to invent the process from scratch. We could have assistance from a tried-and-true process and, at the same time, develop our own goals and processes that would reflect our values.”

EDWIN MARTY, CITY OF AUSTIN OFFICE OF SUSTAINABILITY

In 2015, the Center for Good Food Purchasing (CGFP) was established as a separate non-profit organization to facilitate the expansion of the GFPP to public institutions throughout California and beyond, aiming to shift as many public dollars as possible toward “good food” in order to achieve an economy of scale. To date, 49 public institutions in 20 U.S. cities are now enrolled in the GFPP — representing significant spending power driving a shift toward a pro-health food system.⁵⁶

“A network-building approach has been critical to expansion of the program — with passionate champions who shared the vision of the program, from labour rights organizers to a food service business manager.”

ALEXA DELWICHE, EXECUTIVE DIRECTOR, CGFP⁵⁷

HOW DOES THE LOCAL CONTEXT INFLUENCE HEALTH?

In the United States, overall:

- There are relatively high levels of preventable, chronic metabolic diseases, creating healthcare costs of around US\$1.8 trillion per year. Low-income communities and communities of colour are disproportionately affected.
- Agriculture is a leading source of air and water pollution, as well as greenhouse gases, and is responsible for 70 to 80% of total U.S. antibiotic usage, creating a significant threat to human health from potential antimicrobial resistance.
- The food system employs more than 20 million people in the U.S., one-sixth of the nation's workforce, but has a high proportion of the worst-paying jobs, and many small and mid-sized farmers are leaving the sector, which is harming local economies.

In California:

- California is one of the leading U.S. states in terms of cash receipts from agriculture, and has relatively high and rising adoption rates of organic farming practices.
- There are substantial environmental threats from agriculture, such as significant pesticide and synthetic fertilizer applications contributing to groundwater contamination and putting farmworker health at risk.⁵⁸
- The state is heavily dependent on river water, Sierra Nevada run-off, and variable and increasingly scarce groundwater, with agriculture accounting for 80% of water usage.⁵⁹
- When the GFPP began, the majority (64%) of adults in L.A. County were overweight or obese, and nearly 23% of children in grades 5, 7, and 9 were obese.⁶⁰
- Alongside national policy, the City of L.A.'s Sweatfree Purchasing Ordinance was also a contextual driver.

WHAT POLICIES & PRACTICES ARE BEING USED TO CREATE CHANGE?

GFPP encourages large institutions to direct their buying power toward the five core values and provides a structured, verifiable standard and program to guide organizations through assessing their current alignment to the values, and implementing steps to improve, verify, and report on progress.

The GFPP Standard references various existing certification schemes or practices that are relevant to the five values — such as USDA Organic, Marine Stewardship Council, Animal Welfare Approved, farms with union contracts — providing a simple way for purchasers to fulfill the Standard’s requirements.

Throughout the development of the approach, and subsequent expansion of the scheme, a number of different levers of change have been used, as shown in the table that follows.

| LEVERS OF CHANGE EMPLOYED BY THE GOOD FOOD PURCHASING PROGRAM | |
|---|---|
| VISION & LEADERSHIP | <ul style="list-style-type: none"> • Clear, positive vision and goals were created by the Los Angeles Food Policy Task Force, the successor to the Los Angeles Policy Council. • Leadership from the L.A. City mayor and senior officials demonstrated willingness to set clear goals and act on them with diverse local stakeholders, encouraging them to engage. |
| GOVERNANCE | <ul style="list-style-type: none"> • The mayor issued an executive directive, supported by a companion motion of the L.A. city council, to all city departments that purchased over \$10,000 of food, mandating the adoption of the GFPP Standard. • Other cities, regions, and public institutions have since passed their own mandates for adoption of the GFPP standards. • Clear GFPP Standard and verification process enable transparency and accountability for public organizations that participate. |
| FISCAL INFLUENCES | <ul style="list-style-type: none"> • Suppliers were incentivized to adopt sustainable practices by creating a larger, stable market for their goods. • Clear economies of scale reduced the cost of sustainable food, making it affordable for more people. • The L.A. Department of Public Health received a federal grant from the Center for Disease Control to develop a healthy and sustainable food procurement policy, which enabled their participation in development of the nutrition aspect of the GFPP Standards. Other individuals and entities were similarly supported by their organizations for their participation in the development process. • GFPP has donor funding as a non-profit organization, and receives a percentage of earned revenue from the enrolled institutions who pay for the baseline and annual assessments. |

| | |
|---|---|
| <p>KNOWLEDGE & EDUCATION</p> | <ul style="list-style-type: none"> • Guidance and support is given in areas such as record-keeping, menu design, bidding processes, and assessing purchasers’ and suppliers’ adherence to the five values. • As-needed training and peer support is provided to increase the capacity for non-profit organizations and coalitions to engage with the institutions and governmental entities regarding the program. |
| <p>RESEARCH & INNOVATION</p> | <ul style="list-style-type: none"> • GFPP Standard is one of the first models for food service procurement to support five core food systems values, with the rigor of detailed verification and feedback. |
| <p>COLLABORATION</p> | <ul style="list-style-type: none"> • Cross-sector, interdisciplinary collaboration was critical to the successful development and implementation — more than 100 local, state, and national public, private, and non-profit organizations vetted the guidance. • The L.A. Public Health Department co-wrote the nutrition aspects of the standard, with reference to national standards and policy goals, ensuring credibility, and other national civil society organizations participated in the development of the local economies, fair labour, and environmental and animal welfare standards. |

GOOD FOOD PURCHASING CENTER'S VISIONS & FIVE CORE VALUES

Improving equity, affordability, accessibility, and consumption of high-quality culturally relevant “good food” in all communities is central to the Good Food Purchasing Center’s focus on advancing good food purchasing practices.

Nutrition:

- Promote health and well-being by offering generous portions of vegetables, fruit, whole grains, and minimally processed foods while reducing salt, added sugars, saturated fats, and red meat consumption and eliminating artificial additives.

Local economies:

- Support small and mid-size agricultural and food-processing operations within the local area or region, as well as historically disadvantaged and minority business owners.

Valued workforce:

- Provide safe and healthy working conditions and fair compensation for all food chain workers and producers from production to consumption.

Environmental sustainability:

- Source from producers that employ sustainable production systems that reduce or eliminate synthetic pesticides and fertilizers; avoid the use of hormones, routine antibiotics, and genetic engineering; conserve soil and water; protect and enhance wildlife habitats and biodiversity; and reduce on-farm energy and water consumption, food waste, and greenhouse gas emissions; and increase menu options that have lower carbon and water footprints.

Animal welfare:

- Provide healthy and humane care for farm animals.

ADDRESSING THE DETERMINANTS OF HEALTH

GFPP Standard acts positively on multiple determinants of good health:



Ecological & animal health: Environmental sustainability and animal health criteria are integral to GFPP Standard (for example, purchasing more organic

and sustainably produced food, and avoiding industrially farmed animals addresses some, if not all, local environmental impacts of farming). GFPP Standard also encourages procurement practices known to have less environmental impact (for example, reduced meat consumption).



Nutritious & culturally respectful diets: Core value of “nutrition” is integral to the GFPP approach.



Economic opportunity: GFPP purchasing criteria for “valued workforce” and “local economy” help create new local jobs and provide fair wages.



Healthy places to live & work: Buying from local organic and sustainable producers can help cut worker exposure to harmful agricultural chemicals and also help reduce local water and land pollution, creating a healthier place to live. Healthy and safe working conditions are integral to supplier requirements of GFPP Standard.



Education & skills: GFPP encourages food distributors along the supply chain to improve supply chain transparency and to increase knowledge and skills for sustainability and good working practices, as well as increase purchasers’ “good food” knowledge and procurement skills.

RESULTS & IMPACTS⁶¹

- Initial results in the L.A. Unified School District (LAUSD) in the first year:
 - increased from 10% local sourcing of produce to an average of 60% local produce;
 - redirected US\$12 million to more sustainable, local food production;
 - created 150 new well-paid food chain jobs in L.A. County, including food processing, manufacturing, and distribution, due to increased local sourcing.
- From 2011 to 2017, LAUSD reduced purchases of all industrially produced meat (beef, poultry, and pork) by 32%, cutting carbon and water footprint by around 20% each per meal.
- From 2012 to 2019, institutions participating in the GFPP:
 - doubled their annual spend — from 14.4 to 22.2% — on foods supporting diverse, family, and cooperatively owned small- and mid-size agricultural and local food-processing operations;
 - directed US\$20 million toward suppliers with union wages and worker protections;
 - are currently purchasing 42% whole foods or minimally processed foods, with a commitment to increasing the total amount by 25% in 5 years and reducing red and processed meat by 5% a year;
 - shifted US\$4.3 million in aggregate toward suppliers with higher environmental standards, which represents a 250% increase; and
 - increased animal welfare purchases by 50%.

ACKNOWLEDGEMENTS

Many thanks to Paula Daniels, Co-Founder, Chief of What's Next and Chair of the Board, CGFP, and Alexa Delwiche, Co-Founder and Executive Director, CGFP, for participating in an interview to inform this case study and sharing helpful resources and references.

8) IMPROVING FOOD SAFETY IN INFORMAL SETTLEMENTS IN NAIROBI, KENYA

Muongano wa Wanavijiji, a federation of the urban poor, has long used innovative and participatory mapping to gather knowledge that local governments lack. Working with the Urban Zoo project in Mathare,⁶² they used the “red balloon” mapping approach to explore how to improve food safety and work with street vendors and livestock keepers. The project roots trace back to an exchange visit between members of the Kenyan and Ghanaian urban poor federations in 2012. During the exchange, several women — themselves food vendors — challenged negative perceptions of food vendors in informal settlements, highlighting the practice as a vital income-generating activity for women with few other opportunities.⁶³ Many residents of informal settlements also rely on street food vendors for cooked food, fresh produce, and other essentials.

A community-led process maps out health hazards in Mathare, equips local residents and businesses with new knowledge and evidence to encourage local authorities to join forces with communities, and develops solutions to problems the urban poor face. Similar approaches are now being replicated in other settlements.⁶⁴

In Mathare, one of Nairobi’s biggest informal settlements, a floating red balloon acts as an “eye in the sky,” helping the community to identify and deal with safety hazards that threaten their daily food supplies. As the balloon’s handler walks through the narrow alleyways, a camera dangling from the balloon snaps a photo every second.

“We saw where the vendors are, where the drainage and hazards are. Through the balloon mapping we saw recent photos of the area, which are not up to date in Google maps.”

JULIA WASHERA, A FOOD VENDOR AND MUONGANO WA WANAVIJJJI MEMBER FROM MATHARE⁶⁵

By creating the first maps to show food kiosks, mobile street vendors, and hazards such as rubbish dumps and open sewers, the project is helping to ensure that both food and the people who sell it are safe. Street food vendors in informal settlements typically sell cooked meals, fresh produce, packaged goods, and dried beans or cereals. Health hazards from environmental contamination, poor hygiene, food spoilage, and close proximity to livestock rearing cause ill health, such as diarrhea, stomach aches, vomiting, cholera, typhoid, and potential exposure to zoonotic diseases.

HOW DOES THE LOCAL CONTEXT INFLUENCE HEALTH?

- Food insecurity, malnutrition, and overwhelming food expenditure are constant concerns for poor urban-dwelling people in Kenya, and typical of other African countries.
- In Nairobi, nearly two-thirds of the population — around 2.5 million people — live in one of 175 informal settlements.⁶⁶



- Official government maps, surveys, and censuses often ignore informal settlements like Mathare — Nairobi’s second-biggest informal settlement that is home to an estimated 200,000 people. This means residents aren’t “seen” and often lack basic services, such as piped water, sewers, sanitation, health care, waste collection, and schooling. They lack access to bank accounts, voting rights, and other citizens’ rights.
- Selling food is often the only way vendors, who are mostly women, can make money. They are often marginalized, stigmatized, and even criminalized as a public health nuisance, despite having no means by which they can reasonably comply with government food safety regulations (for example, access to clean water).⁶⁷

WHAT POLICIES & PRACTICES ARE BEING USED TO CREATE CHANGE?

This example is led by community organizations in collaboration with donors and research institutes and local government officials. It utilizes many of the same levers of change that could be employed by governments, and a range of effective practices that provide lessons for scaling up in other informal settlements and food markets. Several levers of change that contributed to success are set out in the table that follows.

| LEVERS OF CHANGE EMPLOYED IN MATHARE | |
|--------------------------------------|---|
| VISION & LEADERSHIP | <ul style="list-style-type: none"> • Village chief and elders allowed the community group to use their offices, signalling legitimacy and providing security for the “mappers” in the eyes of the wider community. |
| FISCAL INFLUENCES | <ul style="list-style-type: none"> • The project received funding from the U.K. Department of International Development (UK DfID) and several donor government-funded academic research councils. |
| KNOWLEDGE & EDUCATION | <ul style="list-style-type: none"> • The participatory mapping approach used builds awareness amongst community members of challenges and solutions. |
| RESEARCH & INNOVATION | <ul style="list-style-type: none"> • The balloon mapping approach is innovative and provides valuable evidence, which can be used in community negotiations with local government and helps to counteract entrenched negative perceptions of food vendors. |
| COLLABORATION | <ul style="list-style-type: none"> • The program is a collaboration between Muungano wa Wanavijiji, Mathare Food Vendors Association, International Institute for Environment and Development (IIED), Africa Population and Health Research Center, and the International Livestock Research Institute. Muungano is an affiliate of Shack/Slum Dwellers International. |

FOOD SAFETY CHALLENGES & SOLUTIONS IDENTIFIED THROUGH THE PARTICIPATORY “RED BALLOON” MAPPING APPROACH IN NAIROBI

Challenges identified in the mapping:

- Relatively high cost of inputs
- Inadequate water: expensive, inaccessible, and/or unavailable
- Poor sanitation/lack of toilets
- Open drainage channels and sewers
- Dumping wastes in vending spaces and lack of designated disposal sites
- Stagnant water promoting insect/rodent breeding
- Risks of fire due to congestion
- Spatial conflicts with roaming livestock
- Improper food storage/no refrigeration
- Unsafe practices to mitigate financial losses from food spoilage
- Inadequate public lighting and safety concerns prevent vendors from selling after dark

Mapping and community discussions identified a need for a range of solutions:

- Adequate water, sanitation, drainage, and regular rubbish collection
- Offering sheds and adequate storage to promote food safety and allow vendors to continue operating along the streets
- Vendors, livestock keepers, and other residents can also help to develop appropriate designs for markets, waste disposal points, and other community-led solutions to transform public spaces

Source: Adapted from Cravero (2015).

ADDRESSING THE DETERMINANTS OF HEALTH



Ecological & animal health: The program identified opportunities to avoid food spoilage and also safely use waste vegetables for animal feed, creating a zero-waste approach and minimizing resource use.



Safe food & water: The participatory mapping identified food safety hazards and local solutions to remediate them, without which food hazards would remain a significant cause of ill health.



Economic opportunity: Improving food safety protects food vendors' income.



Gender equality: Recognizing the contribution of women food vendors and enabling their economic autonomy contributes toward fostering women's empowerment.



Citizen empowerment: Equipping “unheard” citizens with credible evidence of their needs, solutions for healthy local food systems, and amplifying their voices.

RESULTS & IMPACTS

- The project demonstrates that communities can generate evidence themselves, which enables effective lobbying and advocacy around solutions for healthy, safe food that work for the real-life context.
- Community members identified solutions including training to improve food hygiene, clean-up exercises, designated waste disposal sites, improved water provision, sanitation and lighting, communal storage, and refrigeration facilities.
- Citizen-generated evidence, such as via the balloon mapping project, underpins citizen agency and community self-determination, helping communities exercise their own decision-making powers in support of their own priorities.
- In 2013, the project led to the creation of a pioneering Food Vendors’ Association (FVA), comprised of traders working across Nairobi’s informal settlements.
- The efforts led to public community-based solid waste collection efforts and also a rare opportunity to present findings in a parliamentary committee.

“This [process] has helped the community understand the issues of health, safety, and well-being. The collection of data, the training, the awareness, the mobilization, have helped the community [...] to understand their issues so that they can push the bigger agenda of the Federation and of the community.”

RASHID MUTUA, NATIONAL CHAIRPERSON MUUNGANO WA WANAVIJIJI⁶⁸

“The initiative has brought the right to safe food and environment to the forefront of development, planning, policy, and practice for recognition.”⁶⁹

ACKNOWLEDGEMENTS

The information for this case study has largely been drawn from the extensive project details and informative videos provided by IIED and the detailed working paper by Paolo Cravero.

9) IMPROVING FOOD SECURITY & RESILIENCE IN BELO HORIZONTE, BRAZIL

With a population of approximately 2.5 million, the city of Belo Horizonte in Brazil has, for the last two decades, been at the forefront of innovations in governance for food security and resilience. In 1994, the then mayor of Belo Horizonte, Patrus Ananias, declared that food was a right of citizenship and that it was the duty of the government to guarantee this inalienable right. A Secretariat for Food and Nutrition Security was established to develop and implement a city-wide comprehensive policy to tackle hunger and secure a healthy food supply for the future. A Municipal Council for Food and Nutrition Security, consisting of representatives from government, food producers, trade unions, consumer groups, research institutions, churches, and other civil society organizations, was created to advise in the design and implementation of a new food system. This took a holistic whole-value chain approach, establishing initiatives across production, distribution, and consumption of foods. Their vision was to increase access to healthy food for all and address some of the structural determinants to access healthy, affordable foods.

Belo Horizonte's approach focused on improving food security of high-risk populations (low-income groups) and increasing food access city-wide. It used city programs to support local agriculture and improve family farmers' livelihoods. It was also instrumental in shaping Brazil's larger national program, Fome Zero (Zero Hunger), which aimed to eradicate hunger and extreme poverty in the country and which has been recognized across the globe for its accomplishments.⁷⁰ Unfortunately, under the current government of president Jair Bolsonaro, many of the initiatives started under the Zero Hunger strategy are no longer supported, and the National Council for Food and Nutrition Security has now been disbanded. According to Cecilia Rocha, "whilst federal government support and budgets have been cut, the municipal government continues to commit and support these initiatives within Belo Horizonte."⁷¹

HOW DOES THE LOCAL CONTEXT INFLUENCE HEALTH?

- Belo Horizonte is one of the most unequal cities in the world, reflecting many of the structural socioeconomic conditions and inequities of the country.
- In 1993, 38% of families in the metropolitan region lived below the poverty line and 18% of children aged less than 3 years were malnourished.⁷²

WHAT POLICIES & PRACTICES ARE BEING USED TO CREATE CHANGE?

Belo Horizonte's municipal policy on food and nutrition security has focused on three key interventions:

1. Direct supply of healthy, nutritious foods to the population through café-style popular restaurants (serving fresh, local ingredients), school meals (serving meals to over



150,000 students in over 200 schools), and via social assistance programs aimed at the poorest.

2. Market regulation to provide low-cost food to the population through vegetable markets or straight from the farm. Many shops and licensed traders are allowed to sell fresh fruit and vegetables in designated areas on the condition they offer at least 20 products at fixed, reduced prices.
3. Supporting urban/peri-urban institutional and community agroecological agriculture systems and the establishment of over 100 community and school gardens in vulnerable communities. Food literacy skills development through training in agroecology and cooking skills were also an important part of scaling these initiatives.

Several levers of change that contributed to success are set out in the table that follows.

| LEVERS OF CHANGE EMPLOYED IN BELO HORIZONTE | |
|---|---|
| VISION & LEADERSHIP | <ul style="list-style-type: none"> The vision and leadership of Belo Horizonte’s mayor at the time, Patrus Ananias, was critical to the success of the initiative, combined with a clear strategy and the engagement of many actors through the establishment of the Secretariat for Food Policy and Supply. |
| GOVERNANCE | <ul style="list-style-type: none"> Participation of citizens and civil society organizations enabled the focused targeting of interventions to those most in need. It also facilitated a greater level of civil society mobilization. In a country with a history of corruption, this also facilitated trust between different actors. |
| FISCAL INFLUENCES | <ul style="list-style-type: none"> The municipal government subsidizes food at popular restaurants. Food markets are regulated, and the city has introduced food outlets that are licensed to private operators under the agreement that a selection of 20 quality-controlled food ingredients are sold at prices that are 20 to 50% below market price. |
| KNOWLEDGE & EDUCATION | <ul style="list-style-type: none"> A variety of educational programs are run focusing on food and nutrition literacy for disadvantaged groups across Belo Horizonte. Training has covered agroecology, food processing, food preparation, and cooking skills. |
| COLLABORATION | <ul style="list-style-type: none"> Programs are delivered in partnership with civil society, citizens organizations, private companies, academia, as well as key municipal departments. |

ADDRESSING THE DETERMINANTS OF HEALTH

The success of the Belo Horizonte initiative was due to municipal authorities deliberately targeting the key socioeconomic determinants of good health with a focus on poverty, inequality, and social exclusion.



Ecological & animal health: Urban and peri-urban agricultural initiatives use agroecological approaches including organic agriculture techniques that improve soil health, biodiversity, and reduce greenhouse gas emissions.



Nutritious & culturally respectful diets: The poorest gain increased access to fresh produce, grown locally, contributing to a healthy diet.



Economic opportunity: A key focus is on affordability of nutrient-dense fresh fruits and vegetables, which are subsidized. Small family farmers have opportunities to sell their products directly to government programs.



Integrated government action: In 2003, the program became the blueprint for then Brazilian President Lula da Silva's nationwide Zero Hunger Program, helping to guide national policy linking hunger and inequality.



Citizen empowerment: The participation of civil society within the governance structures enabled the government to design policies and practices that were most suited to the needs and challenges of those disadvantaged groups at which the project was aimed, and facilitated the mobilization and support for the wide variety of policy and programs that were provided.



Healthy places to live & work: The provision of healthy, nutritious foods directly to at-risk groups, including children and youth, the elderly, and the homeless, and within public schools, daycare centres, health clinics, nursing homes, and homeless shelters helps create a healthy food environment.



Education & skills: Training in agroecology and cooking skills are a key component of this program.

RESULTS & IMPACTS

- Infant mortality rates in the city went from 34.6% in 1993 to below 10% in 2017.
- From 1993 to 2003, child hospitalization for malnutrition fell by 75% and poverty by 25%.⁷³
- It was cost effective — they spent less than 2.5% of the municipal budget.
- They achieved successful cross-sectoral and interdisciplinary collaboration between a wide variety of actors.
- The Popular (Peoples) Restaurants serve, on average, 10,600 meals a day — almost 3 million meals a year.

“Our secret is the ethics in our work, respect for the people we serve, a philosophy of work dedicated to the neediest population of the city, those who never had access or rights to anything... We wanted to show something new, something which would be ahead of its time from a social and democratic perspective. And this was something innovative, not only for the city, but for all of Brazil. We wanted to show the country that it was possible to do something of this nature, a good public enterprise.”

CARLOS HENRIQUE, MANAGER OF THE POPULAR RESTAURANT PROGRAM, 1994 TO 2012⁷⁴

ACKNOWLEDGEMENTS

We wish to thank Dr. Cecilia Rocha, Professor, School of Nutrition and Centre for Studies in Food Security, Ryerson University, for agreeing to be interviewed and for reviewing this case study.

10) IMPROVING NUTRITION IN RWANDA

Gardens for Health International's (GHI) work in Rwanda was catalyzed by a little girl named Foybi.⁷⁵ In 2007, when GHI founders met Foybi, the 9-year-old, she was seriously under-nourished. After they rushed her to hospital for emergency food aid and essential life-saving care they quickly realized this was only a short-term fix. The root causes of her malnutrition remained.

Foybi inspired GHI founders — Julie Carney, Emma Clippinger, and Dr. Emily Morell — to create an organization to focus on children and mothers in order to prevent malnutrition. Foybi's young aunt, Florence, became one of GHI's first employees and, along with local mothers, helped design an innovative curriculum and training materials on agriculture, nutrition, and health topics to address the root causes of malnutrition.⁷⁶

GHI work with government-run community health clinics as access points to reach mothers who are themselves clearly malnourished, or have children that show signs of malnourishment, to enroll them in the program.

Their simple nutrition guidance promotes a varied diet by recommending people include four colors of food in each meal: white, orange, green, and brown — a mix that delivers a diversity of nutrients. Practical training includes songs and dance, tapping into local culture, and tips on time-saving meals to fit around women's busy working lives.



“My child was not eating very much before, but now I add vegetables, and she likes the food. After the training I decided I will always prepare meals with four colours.”

ELIMANATHA, GHI PROGRAMME GRADUATE

Creating gardens of diverse vegetables is a critical part of the approach: women are provided with vegetable seeds, fruit trees, and hands-on training in skills like composting, creating organic pesticides, and other techniques to maximize crop yields using resources readily available to families in rural Rwanda. This approach is sometimes labelled “nutrition-sensitive agriculture.”

More than 10 years on, GHI works via 19 health centres and partners with several like-minded organizations to serve thousands of families across Rwanda.

HOW DOES THE LOCAL CONTEXT INFLUENCE HEALTH?

- In Rwanda, 80% of people produce food for a living and yet 35% of children under 5 are malnourished, and only 17% of children under 2 eat an adequate diet.⁷⁷

- The prevailing type of malnutrition is chronic malnutrition, which is caused by a lack of micronutrients in their diets, often resulting from low dietary diversity.
- Government agricultural policies in Rwanda focus on efficiency and productivity, paying limited attention to nutrition. Land consolidation policies have been credited with increasing production and consumption of roots, tubers, and grains, but have also been associated with a decline in dietary diversity.⁷⁸
- Most farmers in rural Rwanda only grow one or two staple crops, such as potatoes and beans.

WHAT POLICIES & PRACTICES ARE BEING USED TO CREATE CHANGE?

Initiated by development workers in partnership with local community members, Gardens for Health International is not a government policy-based approach but does work in partnership with government-run health centres to provide lessons on how to reorient government food system policies to deliver better health outcomes. Several levers of change that contributed to success are set out in the table that follows.

| LEVERS OF CHANGE EMPLOYED BY GARDENS FOR HEALTH | |
|---|---|
| VISION & LEADERSHIP | <ul style="list-style-type: none"> • GHI promotes a positive vision and narrative: “Integrating agriculture and nutrition into the health system is the only sustainable solution to effectively treat and prevent malnutrition.” • GHI co-founders pioneered the approach in Rwanda, partnering with local people. |
| FISCAL INFLUENCES | <ul style="list-style-type: none"> • Financial support for GHI comes from various donors. • GHI aims to break the poverty cycle, helping people access social support and also become more self-reliant by growing food to boost their own access to nutrition. |
| KNOWLEDGE & EDUCATION | <ul style="list-style-type: none"> • Education is a core focus for GHI — addressing agricultural practices, health, nutrition, and practical food skills. • Working with partners to share learning is enabling replication. |
| RESEARCH & INNOVATION | <ul style="list-style-type: none"> • Local people, with lived experience, helped design the innovative programs around people’s needs. • Regular evaluation of program outcomes supports monitoring, program adjustment, and sharing of learning. |
| COLLABORATION | <ul style="list-style-type: none"> • GHI works in close partnership with the Government of Rwanda by teaming up with community health workers, delivering training at local health clinics, and advising on policy. |

“Most people in Rwanda don’t know about nutrition. They think potatoes and beans is enough.”

ANNONCIATA, GHI FIELD EDUCATOR⁷⁹

DIETARY DIVERSITY AS A MEASURE OF NUTRITION

World Health Organization Minimum Dietary Diversity refers to children receiving four or more of the following food groups:

- Grains, roots, and tubers;
- Legumes and nuts;
- Dairy product;
- Meat, fish, and poultry;
- Eggs;
- Vitamin A-rich fruits and vegetables; and
- Other fruits and vegetables.⁸⁰

At the individual level, dietary diversity indicators can serve as a proxy for diet quality, and some show nutrient adequacy.⁸¹

Improving dietary diversity requires policies to support an increase in the diversity of crops produced. Actions across the food system are also needed to promote affordability and accessibility of nutrient-dense foods (especially fruits and vegetables), address issues of food safety, reduce food waste, shape consumer demand, and increase and stabilize consumers’ purchasing power.⁸² Government agricultural policies that focus primarily on efficiency, yields, and pricing of staple crops, like Rwanda’s, can lead to increased productivity and calorie intake, without concurrent improvements in dietary diversity and associated health improvements.

ADDRESSING THE DETERMINANTS OF HEALTH

The GHI approach in Rwanda aims to positively act on multiple determinants of good health:



Ecological & animal health: Organic and agroecological approaches are promoted.



Safe food & water: Training on hygiene and food safety practices is part of the core programs.



Nutritious & culturally respectful diets: GHI focuses on improving both people’s understanding of good nutrition and access to diverse, nutritious food.



Economic opportunity: The program aims to break the cycle of poverty: well-nourished children get sick less often, perform better in school, and are more likely to escape poverty.



Citizen empowerment: GHI deliberately seeks to empower women to improve their family's health.

RESULTS & IMPACTS

- Working with mothers, caregivers, and educators enabled GHI to reach 97,000 children in 2018.
- At enrollment, GHI Maternal Nutrition Programme participants mostly grew just 1, 2, or 3 varieties of vegetables (43.61% grew 0 to 1, and 32.72% grew 2 to 3). At graduation, 85% were growing 6 or more varieties, including 39% growing 9 or more varieties.⁸³
- Surveys showed increased knowledge on topics including nutrition, hygiene, child nutrition, agroforestry, and organic agricultural practices.
- One year after their graduation from GHI Maternal Nutrition Programme, women typically have improved food hygiene behaviour, increased knowledge of balanced nutrition, and have taken steps toward improved dietary diversity and adequate nutrition for children under 2, as well as improved pre- and post-natal practices.⁸⁴

“Integrating agriculture and nutrition into the health system is the only sustainable solution to effectively treat and prevent malnutrition.”

MEGHAN MAGEE, GARDENS FOR HEALTH INTERNATIONAL⁸⁵

ACKNOWLEDGEMENTS

This case study summarizes content of Gardens for Health International website, their videos with staff and program participants, and data from their annual impact reports. We would also like to thank Meghan Magee of Gardens for Health International for participating in an interview, reviewing this case study, and sharing additional insights and information.

11) IMPROVING SOILS & HEALTH THROUGH COMMUNITY-SUPPORTED AGRICULTURE IN CHINA



Dr. Shi Yan, Founder and Director of Shared Harvest, is often referred to as “a female doctor growing vegetables in the countryside,” a title earned for her instrumental role in the burgeoning community-supported agriculture (CSA) movement in China.⁸⁶ While studying at Renmin University of China, Shi Yan was concerned about the widespread environmental damage being caused by chemical-reliant farming practices, typical of China’s industrialized agricultural system. After studying in the United States, she returned to China and founded Little Donkey Farm in 2011, the first CSA in China. In 2012, Shi Yan co-founded another CSA, Shared Harvest Farms, a completely organic farm, which aims to revive embedded cultural knowledge of local, traditional agricultural techniques.

Shared Harvest now has 3 farms supplying fresh fruits and vegetables to over 1,000 households, predominantly in Beijing.

According to Dr. Shi Yan, “One of the main aims of Shared Harvest is to promote healthy lifestyles — safe and healthy food that Chinese people can trust. One of the keys to doing this is by building agro-ecological farming systems that build soil health and reduce reliance on pesticides.”⁸⁷

As a result of Shi Yan’s pioneering work, over 1,000 farms have converted to CSA principles, and numbers continue to grow. In addition, Shi Yan has established a CSA education centre in Beijing and runs the annual CSA China conference. These are “great platforms for farmers, civil society groups, scholars, cooperatives, and others to come together to share experiences and lessons,” she says.

HOW DOES THE LOCAL CONTEXT INFLUENCE HEALTH?

- Consumer attitudes are changing in China, including increasing concerns over food safety; for example, the 2008 toxic milk powder scandal where excessive levels of melamine were discovered in China-produced milk products, putting food safety at the fore of Chinese consumer concerns.
- Pesticide and fertilizer use has skyrocketed in China over the last 40 years, as the country’s agriculture has industrialized — using 30% of all fertilizers and pesticides produced globally.⁸⁸
- China has experienced significant numbers of poisonings from contaminated soils and groundwater: there were 16,179 unintentional poisoning deaths in 2016, 31% of the world’s total of 52,077.⁸⁹

WHAT POLICIES & PRACTICES ARE BEING USED TO CREATE CHANGE?

Shared Harvest was founded, initially, as a small-scale demonstration farm — bringing together farmers and consumers, and creating new relationships, business models, and

access to land for food production. In addition, the timing was significant — Shared Harvest Farm was founded at a time of rapidly growing consumer awareness, particularly amongst the younger generation, and demand for safe food in the wake of food contamination scandals. Several levers of change that contributed to the farm’s success are set out in the table that follows.

| LEVERS OF CHANGE EMPLOYED BY SHARED HARVEST | |
|---|---|
| VISION & LEADERSHIP | <ul style="list-style-type: none"> • Dr. Shi Yan’s vision and dream resonated with farmers and consumers alike, and has been critical to its success. • Dr. Shi Yan led the way, founding the first CSA in China, and continues to champion the movement today. |
| GOVERNANCE | <ul style="list-style-type: none"> • Navigating the varied local governance structures, particularly access to land, is critical to current and future success. |
| FISCAL INFLUENCES | <ul style="list-style-type: none"> • New business models have been created, which connect farmers and consumers directly, cutting out retailers/processors. |
| KNOWLEDGE & EDUCATION | <ul style="list-style-type: none"> • Shared Harvest farm hosts educational visits for school and youth groups. • Farmers’ markets help raise awareness amongst urban consumers and attract new CSA participants. • Social-media-savvy organizers plan frequent farm visits and educational events to bring new participants. • Core groups of enthusiastic “consumer advocates” also help spread the CSA idea. • To share best practice, Shared Harvest and China CSA Network hold CSA annual conferences and run a CSA training centre that promotes Participatory Guarantee Systems (PGS) certification amongst farmers and consumers.⁹⁰ |
| COLLABORATION | <ul style="list-style-type: none"> • Local collaborations were critical, for example, connecting urban citizens with the rural regeneration movement and farmers. • Shared Harvest focuses on building a culture of shared trust around who is producing their food and how it was grown. • Shared Harvest has educational practice bases in Tsinghua University, Ren Min University, and China Agricultural University, and collaborates with them on food education and farming practice. They also cooperate with international and domestic agricultural research organizations promoting the CSA model widely while co-organizing food education, farming culture workshops, etc. |

ABOUT COMMUNITY SUPPORTED AGRICULTURE (CSA)

CSA is an approach to food production and distribution where responsibilities, risks, and rewards of farming are shared between producers and consumers. It emerged in the early 1960s in Germany, Switzerland, and Japan in response to concerns about food safety and the urbanization of agricultural land. In the 1980s, it spread to North America. There are now varied models around the world: many use agroecological approaches and local distribution, and engage consumers via part-time farming or financial commitments to the farm, for example, through advance payments or long-term purchasing commitments. Farmers receive a more stable, secure income and closer connection with their community, and consumers benefit from fresh, healthy, local food; new skills; and connection to where their food comes from. Since COVID-19, there has been a renewed interest in CSAs and their role in building local food systems that benefit local producers and consumers.⁹¹

In the case of Shared Harvest farm, there are two models of operation: people either come to the farm and rent land to grow vegetables, or farm workers grow the food and deliver it to people within Beijing. Lots of families from Beijing enjoy spending their weekends reconnecting with the soil at the farms.

ADDRESSING THE DETERMINANTS OF HEALTH

The Shared Harvest CSA approach aims to positively act on multiple determinants of good health:



Ecological & animal health: Organic methods at Shared Harvest protect ecosystems by reducing pollution, building soil health, and encouraging biodiversity.



Safe food & water: Reducing consumer exposure to pesticides in food and water.



Nutritious & culturally respectful diets: Urban dwellers gain increased access to fresh produce contributing to a healthy, nutritious diet.



Healthy places to live & work: Reducing pesticide exposure for farmers and the local community.

RESULTS & IMPACTS

Shared Harvest is just beginning to measure the impact of its work, and although data is limited, the following qualitative and quantitative impacts were noted:



- On Shared Harvest farms, soil organic matter content has increased from 1.5% to 4% over 6 years.
- The 1,000 CSA farms have effectively reduced the amount of pesticides used by 2,500 thousand tons.
- Since the introduction of CSA farms in China, over 500,000 families are now sourcing their food directly from organically grown farms.

Shi Yan also says that the government has started to take notice more recently and has more of an interest in agroecological agriculture. While it is still early days, in 2018 the government announced a national strategy on “Rural Regeneration” and are starting to focus more attention on the needs of rural communities. They have promised a “strong agriculture sector and full realization of farmers’ wealth” by 2050, with renewed focus on green and agroecological agriculture.

Through their educational programs, Shared Harvest is also helping to scale up impacts by encouraging creation of more CSAs. The 10th CSA conference in 2018 aimed to share best practices and attracted around 1,000 participants. Shared Harvest also works closely with other global CSA networks, such as Urgenci.⁹²

“I really enjoy working on the farm, and the exercise I get doing farming work means I needn’t go to the gym. I come here every weekend to plant my vegetables, get some healthy exercise, and enjoy the fresh country air.”

LIU LISHAN, OFFICE WORKER

“My whole family loves our ‘farm.’ It’s a great chance for the kids to play and enjoy nature.”

GAO, A BRIDGE ENGINEER WHO ATTENDED THE FARM WITH HIS 7-YEAR-OLD GRANDSON⁹³

ACKNOWLEDGEMENTS

We would like to thank Dr. Shi Yan, Founder and Director of Shared Harvest, for agreeing to be interviewed and for reviewing this case study.

12) REVIVING TRADITIONAL DALIT COMMUNITY FOODS TO IMPROVE NUTRITION IN SOUTH INDIA

The Deccan Development Society (DDS) — a grassroots organization of Dalit and tribal women founded over 25 years ago in the Zaheerabad region of India — has been using millet-based agro-biodiverse methods, harnessing traditional climate-adapted crops and food knowledge, to improve the nutrition and livelihoods across its 5,000-plus members and their communities.⁹⁴

The DDS members — mostly agricultural labourers and marginal farmers owning 1 or 2 acres of farmland each — have created a community-designed, community-controlled, local adaptation of India's national Public Distribution System (PDS) (one of the world's largest social safety nets, providing subsidized grains to poor people to prevent food insecurity and hunger). The "alternative" PDS in DDS villages focuses on locally adapted coarse grains such as millet rather than wheat and rice, which are usually supported.⁹⁵

The availability of subsidized rice and wheat encouraged people to leave some of their "drylands" fallow, leading to a decline in the cultivation of traditional dryland cereals and associated intercrops (i.e., pigeon pea, field bean, cow pea, and other beans). Lack of these pulses and coarse grains negatively affected the nutrition of rural people, especially women and children.⁹⁶ With access to only drylands, many villagers were also unable to benefit from price support and other subsidies that were available to farmers who were able to grow wheat and rice.

DDS persuaded the government to allow the creation of a Community Grain Fund (CGF) to provide loans on favourable terms, enabling farmers to invest in growing coarse grains for the Alternative Public Distribution System. Women deposit their excess grain in the CGF to repay the loans they receive from the PDS. Over the course of 25 years, DDS has supported Sanghams — a volunteer collective of poor women — in many villages across the region to access the Community Grain Fund and bring fallow land back into production.

The society also works to establish local sovereignty over seeds, and actively raises awareness of the benefits, growing, and cooking skills of traditional foods. They have been instrumental in capturing important local knowledge; for example, documenting "unidentified" plants and "uncultivated greens," which played an important nutritional role in traditional diets and are adapted to local growing conditions.

THE DALIT FOOD SYSTEM

The food system of Dalit rural communities in the Zaheerabad region of South India includes 329 varieties of plants and animals, and unique patterns of food use. Sorghum (*jowar*), pearl millet (*bajra*), finger millet (*ragi*), and foxtail millet (*korra*) are coarse cereals that have been mainstays of agriculture, diet, and cultural systems in vast dryland belts spreading across the Deccan plateau and other arid parts of India. A wide range of leafy greens, edible “weeds,” and wild fruits add important nutrition. Agriculture is rainfed, and farming of these crops demands few external inputs such as irrigation and fertilizer.⁹⁷

HOW DOES THE LOCAL CONTEXT INFLUENCE HEALTH?

- Around 22% of India’s population lives below the national poverty line, and according to the latest United Nations Human Development Report (2019), around 27% are classed as being in “multidimensional poverty,” with 8.8% in extreme multidimensional poverty.^{98, 99}
- Poverty and deprivation have actually decreased significantly in recent years: from over 640 million people across India experiencing multidimensional poverty in 2005/2006 down to slightly more than 365.55 million by 2016/2017 — an impressive reduction of 271 million.¹⁰⁰
- India is the world’s second-largest food producer and yet is also home to the second-highest population of undernourished people in the world.
- Although food and employment security for poor people is provided by national laws, including the National Food Security Act, the poor people in the Scheduled Castes and Scheduled Tribes often face discrimination in obtaining food and employment, and require additional support.
- Dalit people are known to suffer severe caste-imposed discrimination that affects every aspect of life, and Dalit women and children are likely to be the most poorly nourished sub-groups in India.

WHAT POLICIES & PRACTICES ARE BEING USED TO CREATE CHANGE?

The approach of the Deccan Development Society shows how important it is to adapt government policies to local community needs, including health needs, providing valuable lessons that can potentially inform design of effective governmental strategies for improving health. Several levers of change that contributed to success are set out in the table that follows.

LEVERS OF CHANGE EMPLOYED BY THE DECCAN DEVELOPMENT SOCIETY

| | |
|----------------------------------|---|
| GOVERNANCE | <ul style="list-style-type: none"> • Each sangham formed a committee of about five women to design and implement activities on village fallow land. • A community-managed Alternative Public Distribution System (aPDS), based on coarse grains produced, stored, and distributed locally in 30 villages around Zaheerabad, was created and was a permitted adaptation of the government PDS. |
| FISCAL INFLUENCES | <ul style="list-style-type: none"> • DDS persuaded the government to create a Community Grain Fund (CGF) to provide loans on favourable terms, enabling farmers to invest in growing coarse grains for the aPDS. • Women deposit their excess grain in the CGF to repay for the loans they receive from the PDS. |
| KNOWLEDGE & EDUCATION | <ul style="list-style-type: none"> • Awareness campaigns focusing on traditional food systems, including multimedia promotions by a community media trust, cooking classes, events, and training for hostel, school, and childcare settings. • Local language materials support effective community outreach. |
| RESEARCH & INNOVATION | <ul style="list-style-type: none"> • The DDS documented 329 local varieties of crops along with information about how they are prepared. • Nutritional composition of these varieties was analyzed by the National Institute of Nutrition, many for the first time. |
| COLLABORATION | <ul style="list-style-type: none"> • Within villages, women collaborate via “sanghams” to manage community resources, including fallow land. • Deccan Development Society facilitates collaboration across villages, including to advocate for access to their “right to food.” |

INDIA'S NATIONAL FOOD SECURITY ACT & "RIGHT TO FOOD" PROVISIONS

India enacted the National Food Security Act in 2013 — one of the world's biggest food social safety nets. It aims to "provide for food and nutritional security ... by ensuring access to adequate quantities of quality food at affordable prices to people." The act entitles two-thirds of India's population to 5 kilograms of rice, wheat, or coarse cereals per person per month at highly subsidized prices. A public food-grain procurement and distribution system has been created, with grains procured from farmers at a minimum support price. The system has been criticized for inefficiency and excessive focus on grains at the expense of other more nutrient-dense foods. In 2005, the government adopted a similar act designed to legally guarantee minimum wage employment for Dalit women working in the informal economy, part of a wider approach toward a "right to food," which sought to prevent a key component of food insecurity: poverty.

ADDRESSING THE DETERMINANTS OF HEALTH



Ecological & animal health: DDS's approach focuses on locally grown, rainfed crops that require little fertilizer and pesticides, and agroforestry to sequester carbon.



Nutritious & culturally respectful diets: Dietary diversity and nutrient intake of community members have improved.



Economic opportunity: More local opportunities are created for people to generate income.



Gender equality: Female-led "sanghams" are largely responsible for decision-making and benefit from improved nutrition.



Citizen empowerment: The approach increases community involvement in land use and other decision-making.



Education & skills: More children were reported attending school as a result of the Alternative Public Distribution System.

RESULTS & IMPACTS ^{101, 102}

- Over the past 25 years, the DDS has supported over 2,700 women to reclaim their farmlands.
- In its first 10 years alone, the DDS generated over 1 million days of employment for women across 30 villages.
- The aPDS, based on coarse grains, resulted in higher energy, protein, and iron intakes for mothers in villages where it operates.

- Where mothers have access to land for food production and to work as labourers, they and their children have greater intake of many foods that protect against chronic energy, protein deficiency, and micronutrient deficiencies of vitamin A and iron. Sorghum, millet, wild fruits, and uncultivated greens are of particular importance in addressing these deficiencies.
- Under the aPDS, more food is produced and sold locally, and job opportunities are created for people who would otherwise be excluded from the mainstream economy.

ACKNOWLEDGEMENTS

This case study summarizes and draws from a more detailed case study included within the UN Food and Agriculture Organization's set of case studies, *Indigenous Peoples' Food Systems and Well-being*, with supplementary information from additional sources.

13) SUPPORTING BETTER LIVELIHOODS & NUTRITION THROUGH SCIENCE-BASED FISHERIES MANAGEMENT

In 2012, Oceana, an international non-profit “working to make oceans more abundant by instituting science-based fisheries management,” stepped up its campaign to persuade governments to implement science-based fisheries policies.¹⁰³ Their campaign catch-phrase “Save the Oceans: Feed the World” makes it easy to see why this is an important focus for their advocacy and practical support for on-the-ground projects.



“If properly tended and cared for, our oceans could provide a nutritious meal every day for an additional 425 million people (compared to a business-as-usual scenario).”¹⁰⁴

Many people already rely on the oceans for sustenance. Overfishing and mismanagement have threatened this, and threaten this hugely important source of nutrition for the future. Oceana’s own case studies show that countries such as Norway, Japan, the United States, and Canada have experienced significant recovery of their fisheries under science-based management strategies. And their book *Perfect Protein* makes a strong case for action, serving as a powerful campaign tool to raise awareness of this often-overlooked source of nutrition.

Tess Geers, a senior research manager from their science and strategy team, makes it clear that science-based fisheries policies, and even increased fish stocks, are not the end of the story.

“Even if we are successful in improving fish stocks, it’s clear to us that the people who need the fish don’t always get it — access to fisheries has to be considered as well.”

TESS GEERS, SENIOR RESEARCH MANAGER, OCEANA¹⁰⁵

Oceana’s local teams in Peru, Brazil, and the Philippines are now working to improve enforcement of sustainable fisheries policies and ensure access to fisheries for smaller and artisanal fishing fleets. They focus on discouraging illegal fishing practices from industrial scale operations that damage marine ecosystems. Each campaign is designed and developed by in-country offices in collaboration with local communities and agencies. In Peru, for example, they are campaigning to help Peru reach 10% protection of its Exclusive Economic Zone by 2020, in line with the Aichi Target 11 under the Convention on Biological Diversity.¹⁰⁶

Science-based fisheries management regulations, combined with effective enforcement and involvement of local communities in fishing and fishery management, will ensure that there is plenty of fish in the sea in the future *and* that it reaches people who need it.

HOW DOES THE LOCAL CONTEXT INFLUENCE HEALTH?

- Destructive fishing practices such as bottom trawling, which damages marine ecosystems and productivity of fisheries, were common in both Brazil and the Philippines when Oceana began their campaigns. In Peru over the last two decades, fishing effort has more than tripled and catches of all its main commercial species have significantly declined. Within the 5-mile nearshore “protected zone,” many artisan fishers were still using destructive practices, and large trawlers take advantage of lax enforcement.¹⁰⁷
- Even when policy and regulation is in place to protect small-scale and artisanal fishers access to fishing grounds, enforcement may be limited. For example, in the Tañon Strait in the Philippines, artisanal fishers’ right to the preferential use of a 15-kilometers-wide fishing grounds is guaranteed by the Constitution and the Fisheries Code, yet the encroachment of commercial fishing into this zone is a persistent problem. Other challenges include continued use of dynamite, cyanide, and fine-mesh nets, pollution, and unregulated coastal development, all of which can damage the marine ecosystem, which is essential for maintaining fish stocks and viable livelihoods for artisanal fishers.¹⁰⁸
- Bottom trawling has been a particular challenge — it is hugely destructive of marine life and habitats on the ocean floor, resulting in a reduction of the fishery’s productivity and threatening livelihoods of smaller-scale fishers.¹⁰⁹

WHAT POLICIES & PRACTICES ARE BEING USED TO CREATE CHANGE?

Oceana’s local teams design their campaigns and local activities, in partnership with local organizations, to target specific changes to regulation, enforcement, and community access. They adopt a multifaceted approach in each location. Several levers of change that commonly contribute to success and feature across multiple campaigns are set out in the table that follows.

LEVERS OF CHANGE EMPLOYED BY OCEANA

| | |
|----------------------------------|--|
| VISION & LEADERSHIP | <ul style="list-style-type: none"> • Oceana’s clear, positive vision and goal via their campaign “Save the Oceans, Feed the World” helps fisher communities and governments see the benefits of science-based fisheries management. |
| GOVERNANCE | <ul style="list-style-type: none"> • Regulation to grant preferential access to fishing grounds for small-scale and artisanal fishers can have a win-win effect because their practices are less damaging than many industrial fishing practices, and also it protects livelihoods, improving community access to food. • Enforcement of laws to protect fishing grounds has been a key activity across all three areas. |
| FISCAL INFLUENCES | <ul style="list-style-type: none"> • Oceana advocates for governments and non-state actors to provide financial support to fishers who want to make a transition to more sustainable fishing methods so fishers can maintain a decent livelihood. |
| KNOWLEDGE & EDUCATION | <ul style="list-style-type: none"> • Educating fishing communities, governments, and fishers about the benefits of management practices to rebuild fisheries is a key campaign tool to win backing from diverse local actors. |
| RESEARCH & INNOVATION | <ul style="list-style-type: none"> • Oceana uses research to create a case for action. For example, in Brazil their research showed local fishers that a bottom-trawling ban could result in a 700% increase in fish biomass for three commercially important species. • Innovative approaches, such as communities reporting illegal fishing via social media, can help improve enforcement action. |
| COLLABORATION | <ul style="list-style-type: none"> • In Tañon Straight, leadership of 100 fisher organizations, representing around 43,000 fishers from 42 municipalities, joined together to form a federation in 2018, enabling more coordinated action to protect their fishing grounds.¹¹⁰ • Collaboration between different government agencies, communities, and fishers can improve enforcement. |

OCEANA'S FIVE CRITICAL CHALLENGES TO IMPROVE OCEAN HEALTH

Oceana's take on the five critical challenges we need to address to improve our oceans and one critical solution include:

1. Overfishing;
2. Marine habitat destruction;
3. By-catch discards and waste;
4. Transparency; and
5. Pollution, including plastics.

Oceana focuses on these five challenges, often addressing several simultaneously during their local campaigns. Their big ask of governments? "We advocate for governments to legally mandate the rebuilding and recovery of fish stocks — without a legal mandate it won't happen, and people will miss out on more fish, more employment, and more money!" says Tess Geers of Oceana.¹¹¹

ADDRESSING THE DETERMINANTS OF HEALTH



Ecological & animal health: Oceana's campaigns aim to protect and restore marine ecosystem health to increase abundance of marine nutrition available.



Nutritious & culturally respectful diets: Enabling recovery and sustainable management of fish stocks increases the availability of nutrition from marine sources, and access for smaller/artisan fishers also improves access to nutrition for communities reliant on fish and seafood.



Economic opportunity: Increasing access to smaller/artisan fishers increases employment opportunities and improves livelihoods of fisher families.



Citizen empowerment: Local campaigns support fisher communities and federations of small-scale fishers to have a more powerful voice and active role in regulation.



Education & skills: Training in fishing practices and management approaches that can rebuild productivity of fisheries is critical to maintaining availability of seafood for nutrition in the long term.

RESULTS & IMPACTS

- Oceana successfully campaigned to remove exemptions and improve enforcement of the existing ban on bottom trawling in the Philippines and off the coast of Rio Grande do Sul.

- The collaborative enforcement action to prevent bottom trawling and other destructive fishing practices, which forms part of Oceana’s approach, has been shown to increase biodiversity in the marine ecosystem in scientific studies.
- An enforcement push by government agencies in the Philippines, which first investigated and verified information gathered from local communities via a social media reporting facility, resulted in apprehension of 3 commercial fishing vessels and 61 illegal fishers within the 15-kilometer Tañon Strait exclusion zone.¹¹²
- In Rio Grande do Sul, the campaign victory has helped to secure the subsistence and livelihood of around 18,000 people. The protected area is also home to around 30% of red-listed species of fish, sharks, and rays.¹¹³

“Local fisherman are already telling us that they are benefiting due to there being more shrimp in the water now — which is a higher value catch, and so helping increase their income.”

TESS GEERS, OCEANA¹¹⁴

ACKNOWLEDGEMENTS

We would like to thank Tess Geers, Senior Research Manager, Science and Strategy, at Oceana for sharing many insights during an interview for this case study, and colleagues at Oceana for additional resources they shared.

APPENDIX: THE KEY DETERMINANTS OF HEALTH

Figure 1 (see page 3) demonstrates how a healthy planet provides the foundation stones for healthy, diverse, and resilient ecosystems, which in turn provides the bedrock for all human health and well-being. As a result of stakeholder engagement and determinants identified by a wide range of other international organizations,¹¹⁵ we identified a number of other interconnected determinants that drive human health outcomes, a detailed description of which follows.



Ecological & animal health: This determinant underpins all other human health determinants. Healthy ecosystems and animal populations support human health and well-being: pollution, eco-toxicity, climate change, species extinction, and resource depletion all undermine the life-supporting systems that underpin production of food. Ensuring a stable climate, healthy soils, functioning ecosystems, and staying within the Earth's environmental limits is essential for meeting societies' nutritional needs, and is essential for human physical and mental health.



Safe food & water: All people and communities need access to safe food and water, free from contaminants and pathogens. People and communities are consuming food and water without diseases, unsafe additives deliberately added to food, or contaminants that have entered food unintentionally.



Nutritious & culturally respectful diets: All people and communities need access to enough affordable, highly nutritious, sustainable, culturally appropriate food to support health.



Economic opportunity: Decent wages, income, and social protection programs are critical to people's ability to gain access to sufficient, nutritious food.



Integrated government action: Governments need to have clear, transparent food and farming strategies and integrated programs across key departments that focus on the production and consumption of nutritious, healthy, and sustainable foods.



Gender equality: Men and women suffer from different types of diseases at different ages, and these can vary considerably between cultures/geographies. Household economic management, food provision, and food preparation are significantly influenced by gender roles and status.



Citizen empowerment: Empowerment ensures citizens have real agency in the change being created and are actively engaged in shaping and delivering food systems that meet their needs. It also facilitates scrutiny and accountability within food systems.



Healthy places to live & work: The quality of environments where people live and work is a key determinant of health and is significantly influenced by food systems. Level of access to healthy, nutritious foods, healthy drinking water, air quality, sanitation and hygiene, and exposure to hazardous substances in communities, not to mention additional occupational hazards such as risk of injuries and stress, all influence people's health.



Education & skills: Level of education and number of skills influence people's health in a number of ways as well as their economic opportunities. Knowledge of healthy eating practices and food skills also influence dietary choices.

The following key determinants of health were not identified in the case studies explored in this document:

- **Access to preventable health care:** Access to and use of services, throughout all stages of life, helps to prevent disease and ill health.
- **Cultural traditions & customs:** Traditions, beliefs, religion, and values are among the main factors influencing preference, mode of preparation, and nutritional status of food.
- **Social status & support networks:** Citizens within the higher social class groups tend to have healthier diets. Social status exacerbates food inequalities and a citizen's ability to influence the system. Support networks from families, social security support, and other means are also a significant influence on health. Greater support from families, friends, and communities is linked to improved health outcomes.
- **Discretionary time availability:** Availability of time outside formal work/duties influences food habits; for example, due to lack of time lower-paid workers opt for more unhealthy, ultra-processed foods.

FURTHER INFORMATION

For further information, please contact Patty Fong at patty@futureoffood.org.

The Global Alliance for the Future of Food, supported by Tasting the Future, is developing several assets to work in tandem with this set of case studies. These include:

1. *Food Systems Transformation — Promoting Human, Ecological, & Animal Health & Well-Being: A Shared Vision & Narrative*;
2. *Systemic Solutions for Healthy Food Systems: A Guide to Government Action*; and
3. A policy framework toolkit for use by the health sector (expected 2021).

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DISCLAIMER

This research was commissioned by the Global Alliance for the Future of Food for use by Global Alliance members and partners to stimulate discussion about critical issues related to food systems transformation and guide collective action. Any views expressed in this document do not necessarily represent the views of the Global Alliance or of any of our members.

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ABOUT THE GLOBAL ALLIANCE FOR THE FUTURE OF FOOD



The Global Alliance for the Future of Food is a strategic alliance of philanthropic foundations working together and with others to transform global food systems now and for future generations. We believe in the urgency of transforming global food systems, and in the power of working together and with others to effect positive change. Food systems reform requires new and better solutions at all scales through a systems-level approach and deep collaboration among philanthropy, researchers, grassroots movements, the private sector, farmers and food systems workers, Indigenous Peoples, government, and policymakers.

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