

# Taking action on nutrition:

Addressing the nutrition deficit  
in agricultural supply chains



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## Foreword

**Our future depends on our ability to create a food system that supports healthy people and a healthy planet. This includes assuring nutrition security across agricultural supply chains.**

As the momentum builds for a rapid deep and systemic change of the food and agriculture system, we need to remember that at the heart of this transformation are people. The people who farm are often food insecure for parts of the year and lack access to a nutritious diet.

Whilst this is a wider challenge requiring multiple stakeholders, Cargill, Kellogg, Nestlé, Olam, Symrise and Unilever are working toward addressing the food and nutrition insecurity across their supply chains and call on other business leaders to take action as well. There are many immediate interventions that businesses can take to begin to improve food and nutrition security and increase the consumption of healthy foods for farmers and workers in and beyond their supply chains, building on existing knowledge and best practice case studies.

To ensure viable rural communities throughout the global food chain we must change the current trajectory toward healthier nutrition in the farming communities. This approach is in line with the emerging science from the EAT Lancet Commission, IPBES, WRI and the Food and Land Use Commission reports which all prioritize the actions which must occur to improve nutrition across agricultural value chains.

Over the next two years there are a series of global moments, including the Global Nutrition Summit in 2020 and World Food Systems Summit in 2021, in which new levels of ambition will be set by governments, business and civil society to address the challenge of food and nutrition security at a systemic level. Leadership action now to address nutrition secure supply chains will be critical to help ensure we achieve our vision of healthy people and a healthy planet.



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## The urgent case for action

Food insecurity remains a significant international problem, with developing countries shouldering most of the burden. Despite international commitment, hunger is on the rise: in 2018 an estimated 820 million people did not have enough to eat.<sup>1</sup> Almost a quarter of the world's population, about two billion, do not have regular access to safe, nutritious and sufficient food.<sup>2</sup>

Food insecurity and malnutrition are pervasive in rural communities and the burden on society is considerable. Around 60% of the poorest people in the world depend on farming practices for their livelihoods.<sup>3</sup> Most depend on the food they grow for their daily diets, which are usually monotonous and lack sufficient nutrients. For instance, populations in sub-Saharan Africa and South Asia face deficits of 300-500 kCal per day.<sup>4</sup> The economic costs associated with malnutrition are immense: estimates show a decline of up to 11% in GDP in Africa and Asia, where most food-insecure people live, due to losses in economic productivity. Adults who were malnourished as children earn at least 20% less on average than those who weren't.<sup>5</sup> Malnutrition has an effect on every life stage, with stunting in early childhood – between conception and a child's second birthday – and has lifelong consequences for a child's development.<sup>6</sup> With one in four children stunted, this will create a lifetime burden for these societies.

These rural communities will be at the vanguard of building the biodiverse and sustainable food systems of the future. The quality and diversity of food produced directly affect access to those vitamins and minerals that are essential to health and well-being – of both local producers and global consumers. At present, just four crops – wheat, rice, corn and potatoes – provide 60% of global food energy intake<sup>7</sup> – posing a risk to human and planetary health. With the world's population expected to grow to more than 9 billion in 2050, the food system will need to be fit for purpose to provide healthy diets within planetary boundaries. Working together with the 500 million smallholder farmers will be essential to attaining and maintaining food security. The world relies on millions of farmers to ensure access to good ingredients, products and diets. Supporting food and nutrition security for rural agricultural communities while enabling the economic opportunities for them to more fully and fairly participate in the food system will benefit all, and is a step in the right direction for food system transformation.

Food and agriculture sector companies can play a role in addressing food insecurity and malnutrition in rural communities by investing in supply chains and food innovation to enhance the availability of food products that are more nutritious and accessible, for both consumers and the farmers that grow food.

### Box 1: Definition of food insecurity

The United Nations Food and Agricultural Organization (FAO) defines food insecurity as a situation where “people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life.”<sup>8</sup>

## The benefits of working on nutrition security

**Ensuring supply.** The food and agriculture industry often has a unique, close relationship with farmers, their families and farm workers, which can offer businesses an opportunity to simultaneously support both farmer communities and business goals. When business supports issues that communities have identified as important, such as good nutrition, those communities are more likely to support the business. Quality and productivity vary widely among smallholder farmers, depending on their ability to invest in production or their knowledge of farming practices. By using the close relationships to help invest in what farmers need, such as credit or training, it is possible to increase productivity and ensure quality products. This will in turn help to safeguard supply.

**Contributing to resilient communities.** Access to safe, nutritious, affordable and diversified food, as well as to good health services, contributes to a positive productivity and prosperity cycle for farming families and communities. In the face of shocks, meeting basic needs, including good nutrition, also enables communities to adapt to the changes they may face. Without interventions, communities in supply chains are likely to continue to face high levels of malnutrition and, in turn, remain highly susceptible to disease. Decades of research has documented that poor health and nutrition result in a loss of days worked as well as reduced worker capacity, output, efficiency and, ultimately, productivity and farmer income.<sup>9</sup>

**Increasing dietary diversity.** About 70-80% of food grown comes from smallholder farms. By increasing the variety of crops grown, it is possible to ensure a diverse supply for both the farmer and other consumers.

**Consumer trust and expectations.** Consumers are likely to trust and like brands that are making a difference on the ground. Research conducted by Futerra, a change agency, found that 88% of people want brands to help step up sustainable lifestyles.<sup>10</sup> Research conducted by Unilever shows that over one-third of consumers are now choosing to buy brands that they believe to be sustainable.<sup>11</sup> Consumer awareness of and interest in the source of their food is increasing, as is the desire for ethical and sustainable approaches at every step along the supply chain.

## Business action to achieve nutrition security

Several companies are already working to achieve nutrition security in the communities in which they operate through partnerships, participatory approaches and inclusive methods. Sharing best practices and learnings will enable more companies to replicate and scale up ongoing work. Companies can tailor interventions to three different categories: (1) farm level, (2) individual level and (3) community level.

### Business action on farms

**Crop diversification.** Subsistence farmers growing only one or two crops are likely to lack a varied and nutritious diet.<sup>12</sup> Helping smallholder farmers diversify their crops will help broaden their diets and that of their families.<sup>13</sup> This diversification can also help increase incomes for farming families, which means they are able to buy more diverse and nutritious food and can make contributions to the soil health and fertility needed to sustain farming into the future. For instance, Olam trains coffee farmers on intercropping their farms with food crops like banana, avocado, durian and other high-value crops like black pepper so that they can increase food production and incomes without requiring additional land.<sup>14</sup> Such models will also help to diversify local food markets, ensuring that more people have access to diverse foods.<sup>15</sup>

**Improving access to markets.** Providing good access to markets will be key to ensuring that smallholders are able to sell their supply at a good price. When markets are poorly linked and there is excess supply, farmers may receive lower prices. For example, market access has typically been a major challenge for rice farmers in Nigeria, with the average distance to buyers and markets at 100 km. Since 2016, Olam has reduced this distance to market to 15 km for some 22,000 rice farmers in the country thanks to a decentralized aggregation and procurement model. Bringing the market closer to these farmers removes middlemen from the supply chain and puts more money directly into farmer bank accounts. Between 2015 and 2018, these farmers' profits tripled, resulting in major improvements in household purchasing power. Additionally, increasing access to markets with a diverse variety of goods may open opportunities to improve profits and increase farmers' use of inputs that can improve yields.

**Agricultural extension services.** Investing in farmer training to increase efficiency and productivity is a way to increase income. Through one-on-one coaching, Cargill provides intensive training to smallholder farmers in the cocoa supply chain.<sup>16</sup> Due to this coaching, adoption of Good Agricultural Practices has increased from 14% to 28%. Kellogg has partnered with TechnoServe to improve smallholder farmer livelihoods and resilience in the State of Madhya Pradesh, India, by training farmers producing field crops, including maize, on three key areas of climate smart agriculture. This has led to higher family intake of organic and nutrient-filled vegetables and created an additional source of income.

**Reduce food loss and waste.** Rural communities lose tremendous amounts of nutrients every day through food loss and waste. Over half of all fruits and vegetables produced globally are lost or wasted.<sup>17</sup> For example, agriculture today is producing 22% more vitamin A than the global population requires, but after loss and waste, the amount of vitamin A that is eventually available for consumption is actually 11% less than required.<sup>18</sup> In developing countries, most of the food is lost during harvesting, production, processing and transport due to poor infrastructure, equipment and handling processes. By investing in cold chain technology or good processing facilities, smallholder farmers can improve access

to important nutrients and recover lost income. Nestlé, after conducting an analysis of its milk supply chain in Pakistan, found that around 40% of the milk losses were happening at the farm level. The company invested in storage and cooling facilities for the farms and educated the farmers on best practices and approaches to increase milk production and reduce waste.

### Creating resilient crops

As part of the Kellogg's Origins Program – a collaborative effort between farmers, millers and external research organizations worldwide to promote climate-smart agriculture through productivity, resilience and adaption, and greenhouse gas mitigation – Kellogg and the Thailand Bureau of Rice Research & Development identified farms and smallholder farmers in central Thailand to partner with to develop a medium grain rice crop.

Through conventional breeding practices and two years of testing, the program developed a non-genetically modified rice variety that delivers the right taste, texture and nutritional content and also provides high yields and is pest resistant. Farmers harvested the first crop of Thailand Medium Grain Rice in 2015.

By partnering with the United Nations Environment Program (UNEP), Charoen Pokphand CP Thailand and the International Rice Research Institute (IRRI), farmers received access to best practices in sustainable agriculture – from seed production to rice growing. For example, through demonstration farms, the farmers were able to reduce the amount and frequency of agricultural chemicals applied and learned new techniques for fertilizer applications and water usage efficiencies.

Through the program, Kellogg has directly impacted over 1,000 smallholder farmers, with a goal to reach 1,500, 60% of whom are women. The market's expansion has resulted in increased incomes, helping to improve smallholder farmers' livelihoods.



### Improved nutrition in a three-step approach

Nestlé relies upon people living and working in rural communities to produce the ingredients the company uses. It developed the Rural Development Framework (RDF) to guide work with farmers through Farmer Connect programs, establishing baselines in 18 markets to date. One of the standout findings was the extent of the poor nutrition of farmers and communities. In 2016, Nestlé made a public commitment to improve the nutrition status of farmers and their families: By 2020 – Improve food availability and dietary diversity in five priority sourcing locations based upon the results of the RDF baselines.<sup>19</sup>

The company set up an intervention pilot project with coffee farming families around Nairobi as part of this commitment. A deeper baseline in 2017 provided a more detailed view of diets and food access. The results showed that only 58% of farming families had food throughout the year, with low dietary diversity as expected.

Based on this, the company has developed a three-stage intervention to test potential approaches. The first stage focused on food access, incorporating kitchen garden training and support with nutrition education, and the provision of indigenous, nutrient dense vegetable seeds such as amaranth and spider plant (by end 2018, the company had trained 460 farmers). The second stage focused on food choice through healthy cooking demonstrations for farming couples (by end of 2018, the company had trained 348 farmers). Nestlé will hold the third stage in 2020, linking to local markets for excess produce and diversifying income, supported by market surveys to understand the role of fresh food in dietary choices. All of this has happened against the backdrop of the NESCAFE Plan aimed at improving farmer incomes and livelihoods through increased productivity and the FOSEK project, a collaboration with Solidaridad and other companies to amplify impact in Kenya and Ethiopia. On-the-ground support partners include Coffee Management Services (CMS) and Simlaw, a local seed supplier.





## Business action on individual level

**Income diversification.** Smallholder farmers often rely on the cultivation of just one crop, which makes them extremely susceptible to shocks such as failed harvests. With a changing climate, these shocks will become more severe and frequent. Finding additional sources of income for the most vulnerable will help to keep incomes stable in times of need. The ASPEN Project, in collaboration with Unilever, Cargill and the United Kingdom's Department for International Development (DfID), is exploring how cocoa farmers in Côte d'Ivoire can diversify their incomes by acting as sales agents for products like soap, detergent and toothpaste in their local communities. In 2018, the project trained 56 sales agents and helpers and offered business coaching to support them in setting up small business ventures. Some 40% of participants were women farmers.

**Improving nutritional quality of workplace meals.** A key population in agricultural and food supply chains is the local workforces on large farms, processing facilities and factories. With a significant amount of time spent at work, canteens on worksites present a major opportunity to improve nutrition. Providing nutritious and balanced meals to workers can and should make an important contribution to meeting daily nutrient intake requirements. They are also an opportunity to introduce less commonly consumed nutritious local foods, with a view to creating more diverse diets overall.

**Scale up food fortification efforts.** There are opportunities for the food industry to support increased demand for fortified foods and to provide support for farmers as they adopt biofortified materials. HarvestPlus tackles hidden hunger on a global scale by integrating vitamins and minerals into everyday food crops using techniques that do not genetically modify the crops. Increasing micronutrients in staples such as wheat, maize, beans, sweet potatoes, cassava, pearl millet, lentils, cowpeas, rice and sorghum can be an effective avenue to improve the micronutrient status of foods in many countries, thereby improving nutrition for millions of households worldwide. There are similar opportunities to address micronutrient deficiencies through the post-harvest fortification of major staples, such as wheat flour and rice, or of important condiments like salt or oil. The food industry can supply these fortified foods to consumers in emerging markets and advocate for conducive policy environments that will enable more nutritious, fortified options to reach those at the bottom of the pyramid. Food fortification is one of the strategies with the highest value for money when it comes to improving lives.

**Nutrition and health education, including cooking skills.** Evidence has shown that while improving income or diversifying crops on smallholder farms is important, it is not enough to improve diet diversification due to a lack of understanding. People are not always aware of the nutritional benefits of a diverse diet or of locally available nutritious foods, especially those that can be key complementary foods for young children. In some cases, longstanding food customs may also limit the consumption of nutrient-rich foods. For example, in some parts of francophone West Africa, eggs are rarely consumed. Delivering nutrition education is crucial to motivating healthy eating habits and business can also pair this with messages aimed at adopting a healthy lifestyle, including developing better hygiene practices or increasing physical activity. Business can deliver nutrition education and behavior change communication through multiple venues and activities, including information campaigns, hands-on learning for families and nutrition education in schools – which can be particularly important in shaping good food choices at a time when children are forming many lifelong habits. Moreover, while women's knowledge of nutrition is particularly important given their common role in food preparation and care, it is important that all family members benefit from nutrition education, especially those who make

purchasing decisions and given customs that dictate who has access to greater food portions and to more nutritious food.

### Optimizing mid-day meals for coffee farm workers

In the southern highlands of Tanzania, Olam operates a coffee farm where up to 5,000 community members work during peak season. In this region, stunting and anemia rates remain particularly high, indicating that much of the workforce was likely stunted as children and is likely to continue to remain at risk of malnutrition as adults. Given these concerns, providing access to healthy food at work is a unique opportunity to improve nutrient intake and the health of this population. Research has widely documented the importance of nutritious food at work, with poor diets on the job costing countries around the world up to 20% in lost productivity.<sup>20</sup>

In 2019, Olam carried out a nutritional analysis of the free mid-day meal provided to all workers on the farm. For some, this may be their main meal of the day, so ensuring it is balanced and good quality is crucial to their health, productivity and well-being. While making significant contributions to daily caloric requirements, the meal was providing less than the target quantity of crucial micronutrients like vitamin B12, pantothenic acid, vitamin C and iron, among others. Based on this analysis, Olam plans to roll out new menus for 2020 that provide more cost-effective and nutritious meals. Specific changes include additional vegetables, periodically including food sourced from animals, and reduced staple portions to more appropriately meet workers' nutrient requirements. This initiative will also involve a workforce campaign to raise awareness of the value of improved nutrition and associated benefits that, when paired with the meal improvements, should translate into reduced out-of-pocket costs for workers to access a complete and nutritious diet.



### Knowledge sharing with local farming communities

For many years, Symrise has worked directly with vanilla farmers in northeastern Madagascar. The aim is to safely source natural, high-quality vanilla, providing full traceability of the vanilla beans and their related flavors. Symrise currently works closely with some 7,000 smallholder farmers in 84 villages and has a permanent presence on the island, which means it can study their working and living conditions in detail.

Improving farmers' living conditions is an integral part of Symrise's approach to helping them become more resilient. A new Symrise project aims to generate insights on the best cultivation conditions for vanilla in specifically designed fields in northern Madagascar. The results will help increase yields and ensure consistent premium quality. As an integral part of Symrise's work and partnership approach, the organization will share the expertise gained from the tests with local partner farmers, which will lead to increased vanilla yields.

The vanilla fields lie close to the Symrise factory in Benavony. As part of the project, researchers combine different growth environments. Some cover a wide range of agroforestry systems. Others incorporate a shady greenhouse area with meticulously controlled parameters like temperature, light and humidity. The results of the project will allow Symrise to understand how to further improve vanilla yields and quality. The company also wants to understand how farmers can efficiently apply this knowledge to their vanilla cultivation and thereby improve their standard of living. For this, Symrise is working with the farmers in its supply chain and their families such that they are able to thrive and produce the best beans.



## Business action in the communities

**Improve health environments.** Looking at the wider issue, interventions focused on enabling communities to live healthier lives, such as access to clean water and adequate sanitation and hygiene facilities, is important. Diarrhea due to poor hygiene practices inhibits a good dietary intake. Similarly, food safety is a prerequisite for good nutrition. For instance, Symrise and Unilever and GIZ, the German Development agency, provide access to healthcare for their vanilla farming partners in Madagascar, thus ensuring that farming families have an escape from the poverty traps created by health crises.

**Supplying diversified foods directly via a food bank type partner.** When available, being able to provide nutritious and diverse foods to populations in need by using a food bank type partner is positive for workers. Nestlé Mexico embedded its interventions as part of the NESCAFE plan activation. The approach is to partner with the Bancos de Alimentos de México, national food bank initiative, extending activities beyond food distribution into coffee bean growing communities and actively improving the dietary intake of farming families. The food bank also retrieves fresh agricultural produce from fields that would otherwise go to waste, which improves the diversity of the items made available to these communities. This approach reached over 14400 individuals from 86 communities in 2018.

**Working together with communities.** The identification of specific nutrition challenges and the co-creation of solutions with local communities are essential for interventions to be effective and sustainable. One way of doing this is through participatory focus groups, such as those conducted by Olam in Cote d'Ivoire whereby cashew-growing communities undertook problem-tree analyses to identify the local causes and consequences of food insecurity, as well as proposed their own solutions to address them. Interventions must be desired by communities to be effective and sustainable; therefore, such interventions need to reflect community needs, values and nuances.



### CARE decade of impact

Cargill's global partnership with CARE, a global humanitarian organization that provides long-term solutions to poverty around the globe, goes back more than 50 years and has focused on tackling long-term approaches to some of the world's most pressing issues – low agricultural productivity, poor nutritional status, lack of access to formal markets, and limited economic opportunities. In 2018, Cargill and CARE marked their 10 years of collaboration on the Rural Development Initiative, which has spanned 10 countries and benefited over 418,000 people directly and 1,786,000 indirectly through 19 projects, benefitting farmers and communities in Cargill's operating communities and supply chains.

This includes engagement under the Nourishing the Future program in Central America which has reached schools in Guatemala, Honduras and Nicaragua to promote nutrition, train teachers and students on nutrition practices, and reached the broader community through activities such as food demonstrations, games, community theatre events, and school and community gardens. By the end of the project, families reported healthier diets, with household dietary diversity scores increasing by over 16% in Guatemala, 45% in Honduras and 20% in Nicaragua.



### The Seeds of Prosperity Program

Unilever has partnered with the Global Alliance for Improved Nutrition (GAIN) and the Sustainable Trade Initiative (IDH) on the Seeds of Prosperity program to tackle the hygiene and nutrition challenges faced by tea farming communities in Unilever's supply chain.

Around half a billion people are smallholder farmers and they rely on small family plots of land for both their food production and income. As these farmers often sell their most nutritious foods and eat a monotonous diet, they and their families are more likely to suffer from vital vitamin and mineral deficiencies. This can cause significant health problems, from limiting physical development to reducing immunity. Poor hygiene is also a major challenge. Though diarrhea is the second biggest killer of children under five years old and handwashing with soap can significantly reduce the risk, many tea farming communities are not aware of the link between hygiene and health, so it is necessary to create interventions to encourage it. Malnutrition and poor hygiene also have a knock-on effect on productivity, with research estimating that national economies lose on average 10% of GDP annually due to malnutrition alone.<sup>21</sup>

The program has trained workers in the importance of diverse diets and how to eat a more varied diet. It has also trained them in the importance of handwashing with soap, using the behavior change program developed by Lifebuoy, Unilever's leading hygiene soap. These workers then cascade this training to members of their community to bring about wider change.

Seeds of Prosperity began as a pilot project in India and the partners have implemented it in tea supply chains in Kenya and Tanzania. The results have been positive, with significant improvements in nutrition and hygiene practices in most farmer groups. Many of those who took part reported they were consuming a more diverse range of food groups and washing their hands more often. In Tamil Nadu, the proportion of women meeting the recommended minimum dietary diversity (at least five food groups) has increased by around 20%. Workers have found the program valuable, with attendance rates of over 90%. Many said they felt more loyal to and had more trust in their employer following the training.



To date, the project has reached 300,000 people. Given the successful results, the partners are now working on scaling the project further to bring about transformational change across the tea sector.

## Opportunities for partnership

Several leading companies are already taking action to combat malnutrition in agricultural supply chains, but to achieve transformational change at scale, multi-stakeholder partnerships are essential. Examples of such partnerships include one in Madagascar where food businesses, governments and international NGOs are working together to combat malnutrition in farming communities. The Malagasy people face severe poverty, food insecurity and climate crisis challenges, including devastating cyclones that hit the island every two to three years. With food insecurity as a major obstacle in rural areas of the country, the population can typically endure a “lean season” lasting anywhere from four to five months of the year and during which they have only limited access to a healthy and diverse diet.

Symrise, Unilever, Kellogg, Save the Children and GIZ, the German Development Agency, are collaborating in Madagascar’s vanilla sector to educate farmers and farming communities on issues such as food insecurity, dietary diversity and crop diversification, including creating alternative cash crop markets. The Save the Children “essentials package” has encouraged better dietary diversity among women in the community and Unilever-supported educational activities based on the WASH agenda, are helping to address the challenges of undernutrition, such as stunting and poor bone development. Operating in 36 villages and soon to expand to 74 communities, reaching 49,950 people and benefiting 18,000 boys and girls, the holistic approach is encouraging healthier communities and reducing food insecurity. The project has had many facets – initially addressing food insecurity through interest-free rice credits complemented by educational initiatives aimed at improving household economic management led by the GIZ Farmer Business School program. In 2019, Kellogg partnered with Symrise to build farmer education networks to educate them on climate-smart agriculture practices and access to financing and financial training.

## Call to action

The companies that form the food and agriculture industry are at the forefront of serving good, healthy nutrition to consumers. Business has the capacity to make a positive impact on people's nutrition throughout the entire food system value chain. We need more businesses to join to help scale this work and to achieve a world free of hunger and where farming communities are resilient and healthy.

### Actions for businesses:

1. **Assess materiality and risk.** All companies working in agricultural supply chains should investigate and analyze the extent of the problem in their supply chains.
2. **Collaborate across the value chain.** Companies must effectively design solutions for the local context, which requires partnership and collaboration. Local tailoring of interventions is more effective than a one-size-fits-all approach. The Nutrition Connect platform hosted by GAIN can help with sharing learnings.
3. **Raise awareness and frame within the global agenda.** Use case studies and white papers such as this to build understanding across the sector of the challenges that rural agricultural communities face in adequately accessing nutritious diets and the action that is both needed and possible to address these challenges.



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## Acknowledgements

This paper looks at interventions that businesses can take to improve food and nutrition security and increase the consumption of healthy foods for farming communities in their supply chains and beyond. It builds on existing knowledge and best practice case studies. Changing direction in favor of healthier nutrition in the farming communities that serve collective supply chains is not simply a desirable outcome; it is a necessary and urgent challenge to ensure future farming community viability and healthier growing environments throughout the global food chain for both people and planet. outcome; it is a necessary and urgent challenge to ensure future farming community viability and healthier growing environments throughout the global food chain for both people and planet.

The World Business Council for Sustainable Development (WBCSD), through the Food Reform for Health and Sustainability (FReSH) project in collaboration with Cargill, Kellogg, Nestlé, Olam, Symrise and Unilever, is working on food and nutrition security in agricultural supply chains. The FReSH project is a collaborative effort by 36 companies, led by WBCSD, to ensure healthy and enjoyable diets for all, produced responsibly, within planetary boundaries by 2030.

This White Paper has been co-authored by the following organizations:



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