



30 Years  
to Feed  
*10 Billion  
People*



Over the past three years, the number of people suffering hunger or malnutrition has risen by 150 million people, the result of conflict, climate change and the COVID-19 pandemic<sup>1</sup>.

— Parag Bidarkar, Regional Solution Sales, APAC, Treasury & Trade Solutions, Citi

40%

of the world's population is unable to afford a healthy diet<sup>3</sup>

With 3.1 billion people – nearly 40% of the world's 8 billion-strong population<sup>2</sup> – unable to afford a healthy diet<sup>3</sup>, a food security crisis is already upon us. The world's population is projected to reach 9.8 billion by 2050, and with a growing climate crisis and declining biodiversity, it will only get worse unless radical solutions are found to feed the world whilst reversing the damage to our planet. Governments, farmers, corporations, individuals – and banks, all have a role to play.

### Why isn't there enough to eat?

'Zero hunger' is the second of the United Nations Sustainable Development Goals<sup>4</sup> after 'zero poverty'. With only seven years to meet the 2030 Agenda for Sustainable Development ambitions, the world has failed, with poverty and lack of food security rising rather than falling. Lack of food security (i.e. the inability for people to afford a healthy diet) is not – yet – a problem of lack of food: the world already produces enough. But supply chains are inefficient, distribution is imbalanced, and one third of food is lost or wasted between farm and table<sup>5</sup>. Soil health and biodiversity is declining, leading to less nutritious food and less productive land, while agricultural land is disproportionately used for livestock and feed. The connected effects of climate change, deforestation and pollution exacerbate the problems further.



### Food to nurture people and planet

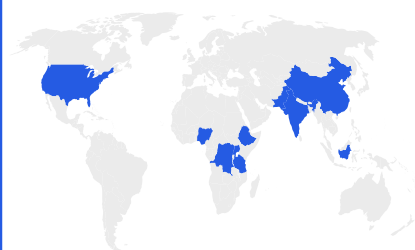
Agricultural systems must change if we are to feed the 10 billion people that will live on this planet by 2050. We need to produce **more food** and make more efficient use of land, focusing not

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just on calories, but nutrition. Today, 60% of dietary energy is derived from rice, maize and wheat alone. The lack of plant variety and imbalanced diets contributes significantly to rates of malnutrition. Nutrition levels of these staple crops are likely to sink further as a result of climate change, with higher CO<sup>2</sup> levels leading to falling zinc, iron and protein levels. We need to **prevent further damage to ecosystems** around the world and restore soil health and biodiversity. And we need to **target food security** solutions in countries where the need is, and will continue to be greatest.

While today, China is the world's most populous country, it will shortly be surpassed by India, while Nigeria is likely to overtake the United States to become the third. Together with China, India and Nigeria, over half the world's population growth is likely to be concentrated in only seven countries: the Democratic Republic of the Congo, Pakistan, Ethiopia, Tanzania, United States of America, Uganda and Indonesia<sup>6</sup>. Many of these countries already experience disproportionately high levels of food insecurity and effects of climate change, emphasising the need for prompt, targeted and radical action.

### Concentration of world's population growth



Source: WHO, ibid

<sup>1</sup> [www.who.int/news/item/06-07-2022-un-report--global-hunger-numbers-rose-to-as-many-as-828-million-in-2021](https://www.who.int/news/item/06-07-2022-un-report--global-hunger-numbers-rose-to-as-many-as-828-million-in-2021) <sup>2</sup> [worldpopulationreview.com](https://worldpopulationreview.com)

<sup>3</sup> WHO, ibid <sup>4</sup> [sdgs.un.org/goals](https://sdgs.un.org/goals) <sup>5</sup> [www.unep.org/news-and-stories/story/how-feed-10-billion-people](https://www.unep.org/news-and-stories/story/how-feed-10-billion-people) <sup>6</sup> WHO, ibid



## Field to fork: supporting sustainable supply chains

Solving the world's food and environmental crises cannot be the responsibility of any single industry. Instead, we – collectively – need to look at the entire food supply chain from field to fork, understand the relationships between different components of food production and distribution, and evaluate the longer-term impact of decisions.

Both traditional and innovative food production systems have a crucial role to play. For example, farmers can help reverse biodiversity loss and reduce the use of harmful chemicals that pollute rivers and damage public health through sustainable, regenerative farming methods. To do so takes investment and education, which is rarely accessible to small grass-roots producers.

However, the ultimate buyers of food are often multinational corporations with far easier access to cost-effective financing than the farmers that supply them. Buyers, together with their banks, can help support farmers and the wider supply chain through sustainable, often multi-tier supply chain financing, and other targeted, innovative forms of financing. These grass-roots producers often lack access to bank accounts and may be geographically remote, so financing needs to be accessible through mobile apps and digital wallets. NGOs, development agencies and

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co-operatives are also instrumental in supporting community producers through microfinance, education and agricultural inputs.

## Financing innovation for better food outcomes

Traditional farming alone, even if conducted in a more sustainable way, cannot solve the food security crisis, particularly as the effects of climate change, pollution and loss of biodiversity reduce the land mass available for efficient food production. As a result, scientists, entrepreneurs, investors and corporations are also looking at entirely new ways to diversify food production and increase nutrition to complement more familiar approaches to resolving the food security crisis.

Some are experimenting with alternative proteins, such as soy, rapeseed, pea, chickpea or lupin derivatives, amongst others to create meat replacements. Significant

funding is being targeted towards mycoprotein (fungal biomass), edible insect products and cultured meat using tissue cell technology. These are particularly attractive in western countries where meat and dairy consumption is typically higher than eastern and southern regions, providing increasingly ecologically conscious consumers with an alternative to conventional meat products. In emerging markets too, where meat consumption is lower, these products have the potential to improve nutrition and protein intake without increasing the amount of land mass used for livestock and feed<sup>7</sup>.

Others are looking at ways to avoid the need to expand agricultural land by effectively building fields in the sky. Vertical farming is becoming an increasingly attractive way to grow salad crops, herbs and soft fruits, particularly in urban environments where land is at a premium but food demand for fresh produce is high. Vertical farms have sprung up on the edge of many Asian and North American cities, often to provide local restaurants. However, the world's largest vertical farm to date has recently been built in a rural location in the UK by fresh food provider Jones Food Company. The space is equivalent to 96 tennis courts, uses 94% less water than traditional production and 100% green energy<sup>8</sup>. Vertical farms have the potential to create a valuable alternative source of fresh, nutritious produce to support cities and communities; however, such projects are capital-intensive and less suited to countries which lack reliable access to water, energy and transport infrastructure.

## Financing inequality

We also need to think creatively about the use of financing to help support the shift from carbon-intensive, environmentally destructive food supply chains to more sustainable and equitable production and distribution that nurtures our people and planet. Supply chain financing and innovative trade and working capital solutions help to incentivise and make possible sustainable business practices throughout supply chains. Transition financing to support low-carbon business is flourishing.

However, access to financing is not equitable, which damages governments', corporations' and communities' ability to achieve the UN 2030 Sustainability Agenda and meeting critical Sustainability Development Goals, such as 'zero

hunger'. This applies most notably in emerging markets where negative environmental and social impacts are greatest and the shift to sustainable food production most difficult; however, these are also the markets in which financing is less accessible. Indeed, the Organisation for Economic Co-operation and Development (OECD) estimates a \$3.7 trillion funding gap<sup>9</sup> between the annual financing needed to meet the 2030 Sustainability Agenda and current investment levels, a problem exacerbated by the pandemic.

At Citi, we recognise our social and environmental obligations as a good global citizen and trusted partner to the public, private and community organisations that are helping to lift people out of poverty, and enable them to access and afford a healthy and nutritious diet. That's why we have committed \$1 trillion in sustainable finance by 2030 across both environmental and social finance. In 2020 and 2021 alone, we financed and facilitated \$222 billion in sustainable finance activity<sup>10</sup>.

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finance by 2030**

It is not just the amount of financing that is so important, but also how it is targeted, both by activity and geography. We use rigorous environmental and social metrics to measure and monitor sustainability to ensure that financing supports the positive impacts on which people



and planet rely. Through our network, solutions and expertise across 95 countries globally, we understand both the distinct interconnected environmental, social and food security challenges that exist in each country and the complexity of global supply chains.

**Armed with these insights and global relationships, we create the tailored solutions that help to feed families and nations, and provide a secure supply of nutritious food for future generations.**

7. [icg.citi.com/rcs/icgPublic/storage/public/Alternative-protein-final.pdf](https://icg.citi.com/rcs/icgPublic/storage/public/Alternative-protein-final.pdf) 8. [www.timeout.com/news/the-worlds-largest-vertical-farm-is-being-built-in-the-uk-060922](https://www.timeout.com/news/the-worlds-largest-vertical-farm-is-being-built-in-the-uk-060922) 9. [www.unpri.org/sustainable-development-goals/closing-the-funding-gap-the-case-for-esg-incorporation-and-sustainability-outcomes-in-emerging-markets/9430.article#fn\\_1](https://www.unpri.org/sustainable-development-goals/closing-the-funding-gap-the-case-for-esg-incorporation-and-sustainability-outcomes-in-emerging-markets/9430.article#fn_1) 10. [www.citigroup.com/citi/about/esg](https://www.citigroup.com/citi/about/esg)

## Further reading & viewing



**Video:** [Food Security.](#)

**Article:** [Food Security: Tackling the Current Crisis and Building Future Resilience.](#)



**Video:** [Food and Climate Change.](#)

**Article:** [Food and Climate Change: Creating Sustainable Food Systems for a Net Zero Future.](#)



**Article:** [Alternative Protein.](#)



**Article:** [Meat meets Tech.](#)

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