

# Alternative proteins provide a sustainable, secure, and prosperous path to the future

Investing in improving the quality, affordability, and accessibility of alternative proteins should be a top priority for policymakers.

## The Paris Agreement's climate target is impossible without a protein transition

Global protein production must change to prevent the worst effects of a warming climate. The current system of industrial animal agriculture is responsible for up to 20 percent of annual greenhouse gas emissions, more than the entire transportation sector, and demand for meat is set to double by 2050 as the global population grows.<sup>1,2</sup> Even if all fossil fuel emissions stopped immediately, animal agriculture alone would push the planet past 1.5 °C of warming.<sup>3</sup>

Alternative proteins reduce greenhouse gas emissions by up to 97 percent by creating the characteristics of animal products using plants, fermentation, or animal cell cultivation.<sup>4,5</sup> Pastures and fields of feed crops currently occupy nearly a third of Earth's land, so in addition to reducing emissions, a transition to alternative proteins would also unlock hundreds of millions of square kilometers of land for carbon sequestration, with potential sequestration as high as 26 Gt/year,<sup>6</sup> which is roughly half the annual human production of CO<sub>2</sub>-eq.

## Alternative proteins are a scalable, market-based solution to agricultural emissions

Like renewable energy and electric vehicles, alternative proteins are a market-based solution. Just as the goal of renewable energy and electric vehicles is to eventually produce energy and vehicles that win in the marketplace, the goal of alternative proteins is to create products that taste the same or better than conventional meat and cost less. With more research and development to improve the taste and price, alternative proteins could soon be adopted by a broad base of consumers.

## Alternative proteins offer public health and food security benefits

Antibiotic resistance is a serious medical threat that already leads to 1.3 million deaths per year.<sup>7</sup> With 70 percent of all antibiotics given to farm animals, industrial animal agriculture substantially contributes to this growing phenomenon.<sup>8</sup> Further, according to the United Nations Environment Programme, two of the most likely causes of the next pandemic are increased global meat consumption and the

up to **20%**

*of greenhouse gas emissions come from animal agriculture*

up to **97%**

*reduction in GHG emissions by switching to alternative proteins*

**\$1.1 trillion**

*projected value of the alternative protein industry by 2050*

**9.8 million**

*jobs created in the alternative protein industry by 2050*

industrial method of meat production, both of which increase the likelihood of zoonotic diseases spreading to humans.<sup>9</sup> Because they do not require antibiotics or involve live animals, alternative proteins eliminate protein production's contribution to antibiotic resistance and zoonotic disease risk. Further, by minimising animal agriculture's land footprint, alternative proteins can help protect fragile ecosystems from deforestation and repurpose existing cultivated land for human crop consumption. As the global population grows, reducing pandemic risk and ensuring adequate food supply will be matters of critical concern.

### Economists and executives see alternative proteins as the food of the future

According to a study funded by the UK's Foreign, Commonwealth & Development Office and the ClimateWorks Foundation, alternative proteins could support 9.8 million new jobs and bring US\$1.1 trillion to the global economy by 2050.<sup>10</sup> The industry has taken note: all five of the world's largest meat corporations are developing or investing in alternative proteins.<sup>11</sup> With the major corporate players open to investing their resources into developing the field and a plethora of permanent jobs available

to ease the economic transition, alternative proteins face a markedly easier path to global implementation than many other climate fixes.

### The international race to become the alternative protein powerhouse is on

Just as renewable energy has become cheap and abundant due to research and development in many different countries, advances in alternative proteins in one country can quickly be adopted globally.<sup>12</sup> However, emerging industries tend to coalesce around research hubs, with scientists, entrepreneurs, and investors gathering around centers of shared activity. Just as Silicon Valley sprang up around the original ARPANET hub at Stanford University, the alternative protein industry's economic potential will most benefit the governments that provide it with public research funding, knowledge centers, infrastructure, and regulatory support.

Governments in Israel, Japan, Germany, India, Singapore, Canada, and the Netherlands have invested in alternative protein R&D, recognising the opportunity to lead in a burgeoning field, and China has been quietly allocating significant funding to help the sector scale up since at least 2020.<sup>13, 14</sup>

*“We are also looking at novel foods such as alternative proteins, which can be game changers for high-yield food production. We hope that these new methods can contribute to greater food security.”*

Grace Fu, Minister for Sustainability and the Environment, Republic of Singapore, during her address to the virtual UN Food Systems Summit in 2021<sup>16</sup>

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