Global Innovation Needs Assessment: *Food System Methane*

ClimateWorks Foundation & Global Methane Hub, April 2023

Topline summary for alternative proteins

- **Executive summary:** In April 2023, ClimateWorks Foundation and the Methane Hub released a Global Innovation Needs Assessment for food system methane reduction. The report "quantifies the economic, social, and environmental benefits of low-methane innovation in food systems and identifies the levels of investment – from research and development to commercialization – needed to enable these benefits." The report calls for significant increases in government funding for methane reduction efforts, focusing on livestock systems (which include alternative proteins), food loss/waste reduction, and rice production.
- **The alternative proteins theory of change:** "R&D investment and deployment at scale reduces alternative protein production costs over time. Cost reduction potential is proxied by existing examples in comparable industries. Further, alternative proteins improve in nutrition and taste parity compared to conventional proteins over time, also based on existing examples. Changes in relative cost, nutrition, and taste parity induce a consumer diet shift from conventional towards alternative proteins, creating cost-effective emissions abatement opportunities."
- **Methane mitigation:** Alternative proteins could mitigate 645 Mt CO2e/year by 2030 and 1.85 Gt/year by 2050. This is about 45 percent of methane mitigation potential across all livestock-focused mitigation solutions in 2030 and 44 percent in 2050.
- **Reduced land use:** "Shifting diets to alternative proteins in some parts of the world could reduce the amount of agricultural land needed by 322 million hectares," representing more than 90 percent of land use benefits across all methane reduction interventions. This freed-up land would create a land-related CO2 benefit of another 947 Mt CO2e/year (which is not included in the direct emissions mitigation calculations).
- **Jobs:** "In the medium- to long-term, the scaling up of investment in alternative proteins required to facilitate a diet shift away from ruminant livestock products generates up to 83 million jobs by 2050." This is two-thirds of all jobs created by methane innovation.
- **Economic growth:** "Total value generation follows a similar pattern to job support, scaling from roughly $160 billion in 2030 to over $700 billion by 2050." "Value addition is dominated by alternative proteins, representing 98 percent of total value generation by 2050."
- **The global south:** "This reflects the significant necessary investment in developing alternative protein production capacity to the scale required to contribute to a 1.5°C transition while ensuring caloric requirements of a growing population are met. Innovations can have synergies with sustainable development goals in low- and middle-income regions while driving sustainable value creation in developed countries."
- **Substantial government investment is required for alternative proteins to reach price and taste parity:** "In this study, a diet shift is applied as an increasing share of conventional protein consumption over time. The shift occurs when alternative proteins reach nutrition- and price-parity with conventional protein."
- **Assumption:** Investment in reaching price and taste parity for alternative proteins allows them to capture 50 percent market share by 2050.
- **Government Funding will be required for success:** Although this report does not offer a precise spending number for alternative proteins, a previous GINA from ClimateWorks Foundation and the UK's Foreign, Commonwealth & Development Office focuses on alternative proteins and puts that number at $10.1 billion. That includes $4.4 billion for research and development and $5.7 billion for private-sector research, manufacturing, and infrastructure development incentives.