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Reducing climate change impacts and inequality of the global food system through diet shifts

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How much and what we eat and where it is produced can create huge differences in greenhouse gas emissions. Bridging food consumption with detailed household-expenditure data, this study estimates dietary emissions from 13 food categories consumed by 201 expenditure groups in 139 countries, and further models the emission mitigation potential of worldwide adoption of the *EAT-Lancet* planetary health diet. We find that the consumption of groups with higher expenditures generally creates larger dietary emissions due to excessive red meat and dairy intake. As countries develop, the disparities in both emission volumes and patterns among expenditure groups tend to decrease. Global dietary emissions would fall by 17% if all countries adopted the planetary health diet, primarily attributed to decreased red meat and grains, despite a substantial increase in emissions related to increased consumption of legumes and nuts. The wealthiest populations in developed and rapidly developing countries have greater potential to reduce emissions through diet shifts, while the bottom and lower-middle populations from developing countries would cause a considerable emission increase to reach the planetary health diet. Our findings highlight the opportunities and challenges to combat climate change and reduce food inequality through shifting to healthier diets.