

# Bigger people will need more food

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Food demand is growing as people get bigger. Feeding a population of 9 billion in 2050 will require much more food than previously calculated.

“It will be harder to feed 9 billion people in 2050 than it would be today,” says Gibran Vita, a PhD candidate at NTNU ‘s Industrial Ecology Programme.

According to WWF, the [world’s greatest environmental problem](#) [6] is the destruction of wildlife and plant habitat. A large part of the devastation is due to the demands of an ever-increasing human population. On the other hand, “Zero Hunger” is the second UN Sustainable Development Goal and its challenge is to meet a global growing food demand.

The number of people could level off at around nine billion in a few years, compared to [just over 7.6 billion](#) [7] now.

But an average person in the future will require more food than today. Changes in eating habits, attitudes towards food waste, increases in height and body mass, and demographic transitions are some of the reasons.

## People are changing

Professor Daniel B. Müller and colleagues Felipe Vásquez and Vita analysed changes in the populations of 186 countries between 1975 and 2014.

“We studied the effects of two phenomena. One is that people on average have become taller and heavier. The second is that the average population is getting older,” said Vita.

The first phenomenon contributes to increased food demand. The second counteracts the former one.

An average adult in 2014 was 14 per cent heavier, about 1.3 per cent taller, 6.2 per cent older, and needed 6.1 per cent more energy than in 1975. Researchers expect this trend to continue for most countries.

“An average global adult consumed 2465 kilocalories per day in 1975. In 2014, the average adult consumed 2615 kilocalories,” says Vita.

Globally, human consumption increased by 129 per cent during this time span. Population growth was responsible for 116 per cent, while increased weight and height accounted for 15 per cent. Older people need a little less food, but an ageing population results in only two per cent less consumption.

“The additional 13 per cent corresponds to the needs of 286 million people,” Vásquez says.

This in turn corresponds approximately to the food needs of Indonesia and Scandinavia combined.

## Major differences

Considerable variations exist between countries. Weight gain per person from 1975 to 2014 ranged from 6 to 33 per cent, and the increased energy requirement ranged from 0.9 to 16 per cent.

An average person from Tonga weighs 93 kilos. An average Vietnamese weighs 52 kilos. This means that Tonga people need 800 more kilocalories each day – or about four bowls of oatmeal.

Some countries are changing quickly. On Saint Lucia in the Caribbean, the average weight rose from 62 kilos in 1975 to 82 kilos 40 years later.

The lowest and highest changes are found in Asia and Africa, reflecting the disparities between the countries of these continents.

#### **Not previously calculated**

“Previous studies haven’t taken the increased demands of larger individuals and aged societies into account when calculating the future food needs of a growing population,” said Vásquez.

Most studies estimate that an average adult’s food needs remain constant over time and fairly similar across nations. But that’s not how it is.

“These assumptions can lead to errors in assessing how much food we’ll actually need to meet future demand,” Vásquez says.

This study provides relevant information for the UN’s Food and Agriculture Organization (FAO), which is a leader in the struggle to ensure food security for all.

Vásquez and Vita say that we have to look at more than just the number of people in an area to understand the mechanisms behind their consumption. This requires a multidisciplinary approach that considers both social and physiological factors.

This study’s analysis involved bio-demography, a hybrid of biology and demography. The researchers adapted a model for dynamic systems that is often used in industrial ecology to study resource stocks and flows.

*Source: MDPI. [Food Security for an Aging and Heavier Population](#) [8]. Felipe Vásquez, Gibran Vita and Daniel B. Müller. Industrial Ecology Programme, Department of Energy and Process Engineering, Norwegian University of Science and Technology (NTNU).*

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