

From food insufficiency towards trade dependency: a historical analysis of global food availability

“ The share of population with sufficient food supply has almost doubled

Feeding the world's population is a challenge that is only going to deepen in the future, as growing population and changing diets are expected to increase the already high demand for food [1]. However, in order to tackle future challenges, we must first understand the past.

Objectives and methods

In this study we present a historical analysis of global food availability, one of the key elements of food security. We use publicly available FAO data [2] to calculate national level dietary energy supply and production for nine time steps during 1965–2005. Based on this, we classify countries in terms of their food availability, food self-sufficiency and food trade.

“ Population living in high net food importing countries has more than tripled since 1965

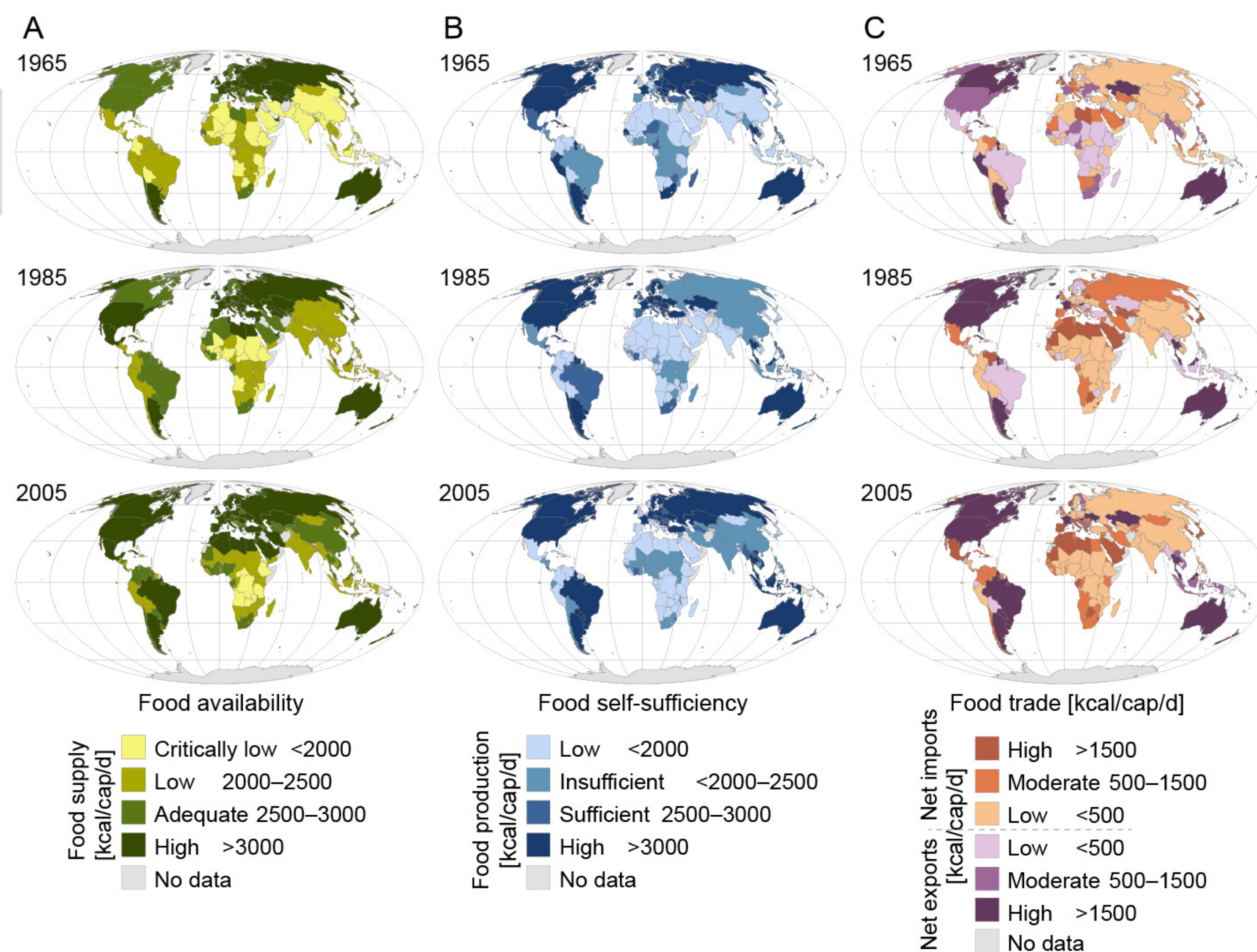


Figure 2. Food availability (A), food self-sufficiency (B) and food trade (C) mapped for three time steps.

Results

Food availability has increased significantly both in absolute and relative terms. The percentage of population living in countries with sufficient food supply (>2500 kcal/cap/d) has almost doubled from 33% in 1965 to 61% in 2005 (Fig 1A).

The share of population with insufficient food supply (<2500 kcal/cap/d) has nearly halved, and the population living with less than 2000 kcal/cap/d, has decreased from 52% to 3%. Largest improvements are seen in the MENA region, Latin America, China and Southeast Asia (Fig 2A).

While food supply has increased globally, food self-sufficiency (domestic production >2500 kcal/cap/d) has not changed significantly (Fig 1B and 2B). In the beginning of the study period insufficient domestic production meant insufficient food supply, but in recent years the deficit has been increasingly compensated by rising food imports. The population living in countries with very high net imports (>1500 kcal/cap/d) has more than tripled from 3 % (0.1 billion) to 10 % (0.6 billion), which in absolute terms equals a 7-fold increase (Fig 1C). Trade dependency has notably increased in the MENA region, Southern Africa, Central America and Southern Europe (Fig 2C).

Discussion and conclusions

Within the past 50 years, the world has moved from food insufficiency towards an increasing dependency on food trade. Although this has improved food availability significantly, a large share of global population is still living with insufficient food supply. At global scale food supply would be sufficient to feed the entire population, thus improving food security will require efforts for a more equal distribution of

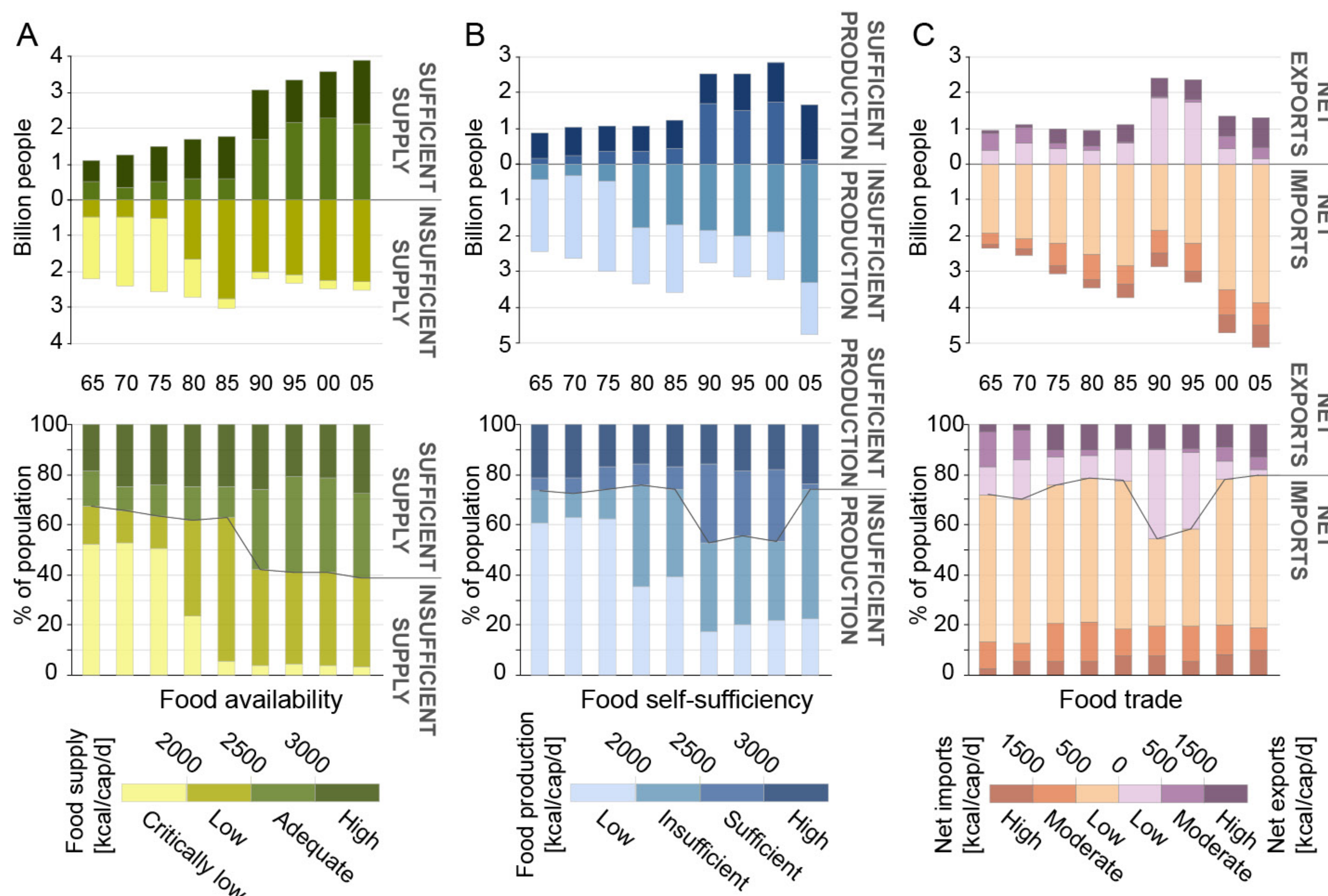


Figure 1. Global population in different food availability (A), food self-sufficiency (B) and food trade (C) categories. Upper figures express the population in absolute numbers and lower figures in relative numbers.

References

1. Foley J A et al 2011 Solutions for a cultivated planet. *Nature* 478 337–42.
2. FAO 2012 FAOSTAT - FAO database for food and agriculture.

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