



## Recent Rising Food Prices Have Resulted in Severe Declines in Mineral and Vitamin Intakes of the Poor

Howarth Bouis (IFPRI – HarvestPlus)

In terms of energy intakes, the diets of the poor in developing countries are dominated by consumption of food staples, as shown in the example of Bangladesh in Figure 1. However, minerals and vitamins are concentrated in more expensive non-staple plant and animal foods. Minerals and vitamins in animal foods are highly bioavailable.

Expenditures on non-staple foods by poor consumers comprise 40–60% of total expenditures for food. Because of poor dietary quality (low intakes of non-staple plant and animal foods), intakes of vitamins and minerals are too low, resulting in high prevalence rates of micronutrient deficiencies.

Because of the Green Revolution, which resulted in rapid increases in cereal yields that grew faster than population (see Figure 2), cereal prices fell markedly from the early 1970s to the mid-1990s but have risen again as productivity increases have slowed. However, non-staple food prices have been rising steadily throughout this period (Figures 3 and 4).

The poor in developing countries cope with rising food prices in two primary ways: (i) by reducing the amount of expensive meats, dairy, fruit, vegetables, and pulses (non-staple foods) consumed, resulting in large declines in mineral and vitamin intakes; (ii) by reducing expenditures on non-food items, such as education, housing, and medical care. This is shown in Figure 5 for Bangladesh, based on the data shown in Figure 1.

Demand for food staples (e.g., rice, wheat, maize, depending on the geographical region and culture) is highly inelastic. That is, in the case of Bangladesh, the poor continue eating about the same amount of rice to keep from going hungry. They must spend more on rice due to rising prices and so must spend less on even more expensive, non-staple foods.

For Bangladesh, a 50% increase in all food prices across the board (holding income constant) will result in a 30% decline in iron intakes. This, in turn, will result in an increase in the prevalence rate of iron deficiency among women and children. Modest decreases in present intakes of minerals and vitamins will drive these prevalence rates significantly higher, with severe consequences on the nutritional status of the poor and public health (Figure 6).

Dietary sources of minerals and vitamins have become more expensive over time. By putting more minerals and vitamins in staple foods **at no extra cost to consumers**, biofortification helps to mitigate the harmful effects of rising food prices on dietary quality. A much larger challenge is to increase the productivity of a long list of non-staple plant foods and animal products.

1. Bouis, HE; Eozenou, P; Rahman, A. 2011. Food prices, household income, and resource allocation: Socioeconomic perspectives on their effects on dietary quality and nutritional status. *Food and Nutrition Bulletin* 32(1):S14–S23.
2. Block, SA; et al. 2004. Macro shocks and micro outcomes: Child nutrition during Indonesia's crisis. *Economics and Human Biology* 2:21–44.

Figure 1

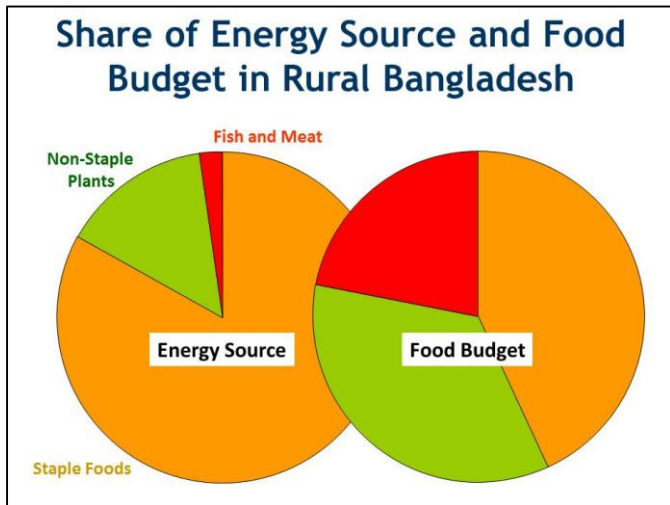


Figure 2

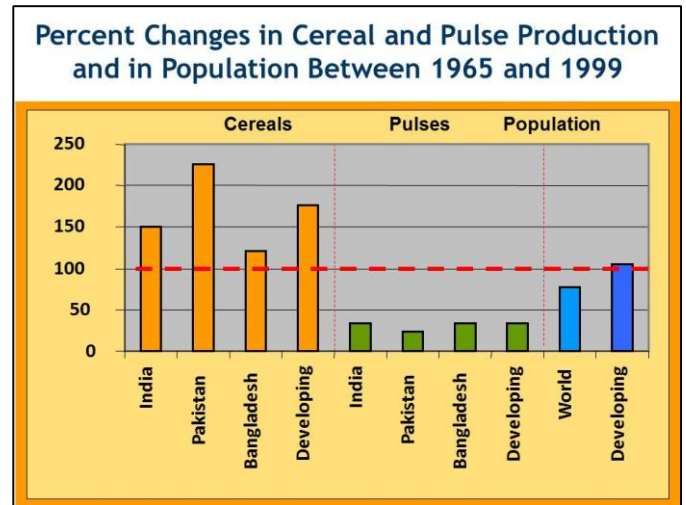


Figure 3

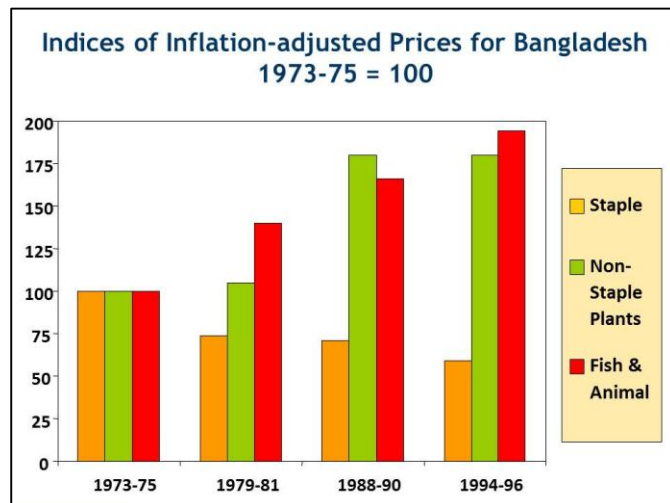


Figure 4

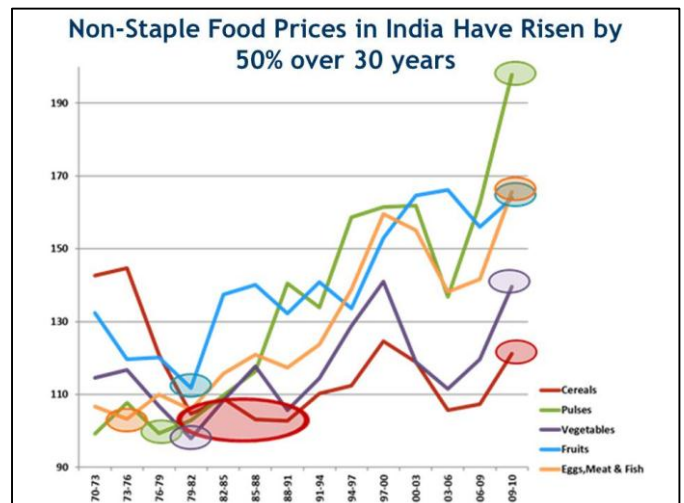


Figure 5

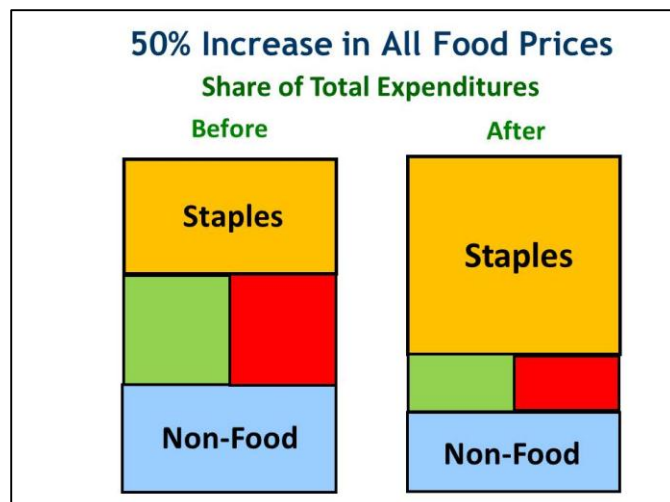


Figure 6

