UNEP

THE ENVIRONMENTAL FOOD CRISIS

THE ENVIRONMENT'S ROLE IN AVERTING FUTURE FOOD CRISES

A UNEP RAPID RESPONSE ASSESSMENT

PREFACE

In 2008 food prices surged plunging millions back into hunger and triggering riots from Egypt to Haiti and Cameroon to Bangladesh. Whereas fuel prices, which also surged, have fallen back sharply food prices remain problematic with wheat, corn and soya still higher than they were 12-18 months ago.

In order to understand the factors underpinning the food crisis and to assess trends, UNEP commissioned a Rapid Response team of internal and international experts. Their conclusions are presented in this report launched during UNEP's 25th Governing Council/Global Ministerial Environment Forum.

Several factors have been at work including speculation in commodity markets, droughts and low stocks. The contribution of growing non-food crops such as biofuels is also discussed. Importantly the report also looks to the future. Was 2008 an aberration or a year foreshadowing major new trends in food prices and if so, how should the international community respond?

The experts argue that, unless more sustainable and intelligent management of production and consumption are undertaken food prices could indeed become more volatile and expensive in a world of six billion rising to over nine billion by 2050 as a result of escalating environmental degradation. Up to 25% of the world food production may become 'lost' during this century as a result of climate change, water scarcity, invasive pests and land degradation.

Simply cranking up the fertilizer and pesticide-led production methods of the 20th Century is unlikely to address the challenge. It will increasingly undermine the critical natural inputs and nature-based services for agriculture such as healthy and productive soils; the water and nutrient recycling of forests to pollinators such as bees and bats.

The report makes seven significant recommendations. These include real opportunities for boosting aquaculture and fish farming without intensifying damage to the marine environment alongside ones highlighting the opportunities for minimizing and utilizing food wastes along the supply chain right up to consumers.

In response to the food, fuel and financial crises of 2008 UNEP launched its Global Green New Deal and Green Economy initiatives: food is very much part of the imperative for transformational economic, social and environmental change. We need a green revolution but one with a capital G if we are to balance the need for food with the need to manage the ecosystems that underpin sustainable agriculture in the first place.

This report will make an important contribution to the debate but equally it needs to trigger more rational, creative, innovative and courageous action and investment to steer 21st Century agriculture onto a sustainable Green Economy path.

Achim Steiner
UN Under-Secretary General and Executive Director, UNEP

SEVEN OPTIONS FOR IMPROVING FOOD SECURITY

Increasing food energy efficiency provides a critical path for significant growth in food supply without compromising environmental sustainability. Seven options are proposed for the short-, mid- and long-term.

OPTIONS WITH SHORT-TERM EFFECTS

1. To decrease the risk of highly volatile prices, price regulation on commodities and larger cereal stocks should be created to buffer the tight markets of food commodities and the subsequent risks of speculation in markets. This includes reorganizing the food market infrastructure and institutions to regulate food prices and provide food safety nets aimed at alleviating the impacts of rising food prices and food shortage, including both direct and indirect transfers, such as a global fund to support micro-finance to boost small-scale farmer productivity.

2. Encourage removal of subsidies and blending ratios of first generation biofuels, which would promote a shift to higher generation biofuels based on waste (if this does not compete with animal feed), thereby avoiding the capture of cropland by biofuels. This includes removal of subsidies on agricultural commodities and inputs that are exacerbating the developing food crisis, and investing in shifting to sustainable food systems and food energy efficiency.

OPTIONS WITH MID-TERM EFFECTS

3. Reduce the use of cereals and food fish in animal feed and develop alternatives to animal and fish feed. This can be done in a "green" economy by increasing food energy efficiency using fish discards, capture and recycling of post-harvest losses and waste and development of new technology, thereby increasing food energy efficiency by 30–50% at current production levels. It also involves re-allocating fish currently used for aquaculture feed directly to human consumption, where feasible.

4. Support farmers in developing diversified and resilient eco-agriculture systems that provide critical ecosystem services (water supply and regulation, habitat for wild plants and animals, genetic diversity, pollination, pest control, climate regulation), as well as adequate food to meet local and consumer needs. This includes managing extreme rainfall and using inter-cropping to minimize dependency on external inputs like artificial fertilizers, pesticides and blue irrigation water and the development, implementation and support of green technology also for small-scale farmers.

5. Increased trade and improved market access can be achieved by improving infrastructure and reducing trade barriers. However, this does not imply a completely free market approach, as price regulation and government subsidies are crucial safety nets and investments in production. Increased market access must also incorporate a reduction of armed conflict and corruption, which has a major impact on trade and food security.

OPTIONS WITH LONG-TERM EFFECTS

6. Limit global warming, including the promotion of climate-friendly agricultural production systems and land-use policies at a scale to help mitigate climate change.

7. Raise awareness of the pressures of increasing population growth and consumption patterns on sustainable ecosystem functioning.

WORLD FOOD DEMAND AND NEED

The growth in food demand and need is the result of the combined effects of world population growth to over 9 billion by 2050, rising incomes and dietary changes towards higher meat intake. Meat production is particularly demanding in terms of energy, cereal and water. Today, nearly half of the world's cereals are being used for animal feed.

POPULATION GROWTH AND INCOME

Each day 200,000 more people are added to the world food demand. The world's human population has increased near fourfold in the past 100 years (UN population Division, 2007); it is projected to increase from 6.7 billion (2006) to 9.2 billion by 2050, as shown in Figure 4 (UN Population Division, 2007). It took only 12 years for the last billion to be added, a net increase of nearly 230,000 new people each day, who will need housing, food and other natural resources. The largest population increase is projected to occur in Asia, particularly in China, India and Southeast Asia, accounting for about 60% and more of the world's population by 2050 (UN Population Division, 2007). The rate of population growth, however, is still relatively high in Central America, and highest in Central and part of Western Africa. In relative numbers, Africa will experience the most rapid growth, over 70% faster than in Asia (annual growth of 2.4% versus 1.4% in Asia, compared to the global average of 1.3% and only 0.3% in many industrialized countries) (UN Population Division, 2007). In sub-Saharan Africa, the population is projected to increase from about 770 million to nearly 1.7 billion by 2050.

New estimates released by the World Bank in August 2008 show that in the developing world, the number of people living in extreme poverty may be higher than previously thought. With a threshold of extreme poverty set at US$1.25 a day (2005 prices), there were 1.4 billion people living in extreme poverty in 2005. Each year, nearly 10 million die of hunger and hunger-related diseases. While the proportion of underweight children below five years old decreased – from 33% in 1990 to 26% in 2006 – the number of children in developing countries who were underweight still exceeded 140 mil-

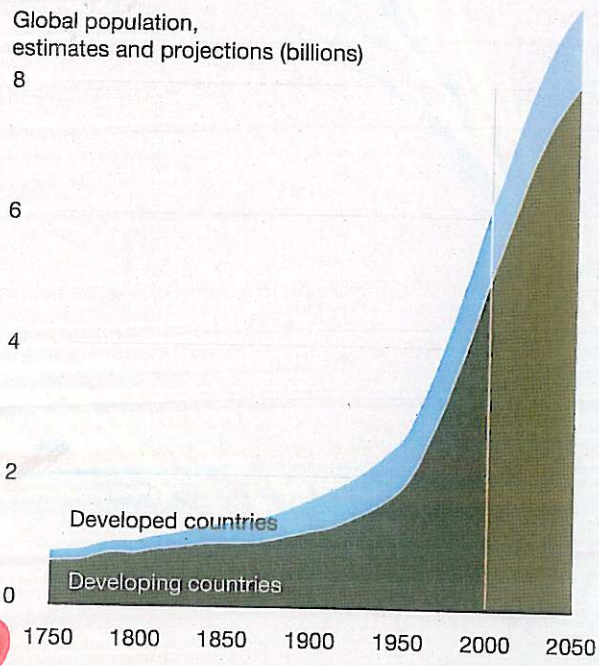

Figure 4: Human population growth in developed and developing countries (Mid range projection) (UN Population Division). Continued population growth remains one of the biggest challenges to world food security and environmental sustainability. (Source: UN Population Division, 2007).