

The state of food insecurity

FAO, UN 2004 The State of Food Insecurity in the World

- **852 million undernourished (2000-2002):**
 - 815 developing countries
 - 28 million countries in transition
 - 9 million industrialized countries

- **Over 5 million children die every year from malnutrition or malnutrition-related disease**
 - **Between 9 and 10 children every minute**

Increasing hunger (BBC website: Planet under pressure)

At the moment we are not on course to achieve the Millennium Development Goal of halving world hunger by 2015.

Although the proportion of hungry people is coming down, population increase means the actual number continues to rise. In the 1990s global poverty fell by 20%, but the number of hungry people rose by 18 million. In 2003, 842 million people did not have enough to eat, a third of them in sub-Saharan Africa, according to the UN's Food and Agriculture Organisation.

Food production has more than kept up with population growth
Hunger and malnutrition killed 10 million people a year, 25,000 a day - one life extinguished every five seconds.

The world does produce enough to feed everyone. But the food is often in the wrong place, or unaffordable, or can't be stored long enough. So making sure everyone has enough to eat is more about politics than science.

But whether we can go on eating the sort of diet we've grown used to in developed countries is far from clear.

Much of it travels a long way to reach us, with the transport costs adding hugely to the "embodied energy" it contains. There's a lot to be said for eating local, seasonal food where we can.

And meat usually demands far more than grain - water, land, grain itself (34% of world grain supplies are fed to livestock reared for meat). Yet, worldwide, the richer we grow the more we turn to meat.

More of us are eating more and better than ever before.

World cereal consumption has more than doubled since 1970, and meat consumption has tripled since 1961.

The global fish catch grew more than six times from 1950 to 1997.

None of this happened by magic, though, but only by giving Nature a massive helping hand.

The World Resources Institute said in 1999 that half of all the commercial fertiliser ever produced had been applied since 1984.

So one question is whether the world can go on increasing its harvests at this rate - or even faster, to cater as well for the extra 75 million people born annually.

Graph slide, #22

Earth's resources largely unchanged, demands growing

Illustrates the huge increases in:

IFPRI report 2002: numbers of people, population at
december 25 2004: nearly 6.5 billion

1800: 1 billion

1950: 2.5 billion

2004: 6.5 billion

forecast to grow to 10 billion, then level off

future growth: developing world, i.e. poor regions
of Africa, Asia, and Latin America; developed world will remain
near what it is today

in last few decades population has increased by
about $\frac{3}{4}$ billion per decade

this means: less arable land and water resources per capita;
pressure on natural resources, increased soil erosion, deforestation,
reduced biodiversity, increased pollution (increased CO₂
emissions fourfold since 1950s, earth's capacity to absorb CO₂
stayed about the same)

strained economies: high unemployment, low wages,
increased poverty levels, increased malnutrition and hunger;
inability by governments to invest in education, health etc. as
people are fed

depopulation of rural as people leave for urban areas
in developing world was 25% IN 1975, 40%
today, forecast to grow to 60% by 2030, so that UN forecasts that
all developing world population growth
will be urban

water, fertiliser and paper uses hugely increased rates

depletion of rain forest, fishery resources

increased levels of CO₂ and pollution levels

All these factors influence the world's capacity to feed its people

WORLD CALORIE CONSUMPTION

Food production has more than kept pace with population growth. The chart shows the number of people living in countries with different levels of calories available per person per day. Anything below 2,200 a calories per day is considered extremely low. The proportion of people living at this level has declined in recent decades.

The proportion of malnourished people fell in the three decades to the mid-1990s from 37% to 18%. But we may not be able to go on at this rate.

For a start, much of the world's best cropland is already in use, and farmers are having to turn to increasingly marginal land. And the good land is often taking a battering - soil degradation has already reduced global agricultural productivity by 13% in the last half-century.

Many of the pesticides on which the crop increases have depended are losing their effectiveness, as the pests acquire more resistance. A key constraint is water. The 17% of cropland that is irrigated produces an estimated 30-40% of all crops, but in many countries there will be progressively less water available for agriculture. Many of these are poor countries, where irrigation can boost crop yields by up to 400%. There are ways to improve irrigation and to use water more effectively, but it's not clear these can bridge the gap.

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LAND IN USE FOR AGRICULTURE

Globally, about 36% of the land thought suitable for some type of crop production is in use. The remaining land is unevenly spread between regions and is often valuable to wildlife, already occupied by human settlements or has some soil constraints. Land degradation is considered a serious problem, although measuring its extent is difficult.

Water shortage:

Agriculture already accounts for about 70% of global freshwater withdrawals and is usually seen as the main factor behind the increasing global scarcity of freshwater. Again, water availability varies between regions.

Per Lester Brown:

water use in last 50 years tripled, availability of water stayed the same, although we have better ways of using water in some cases

WORLD FERTILIZER USE

Fertilizer consumption has soared in recent decades, with a third of the rise in global cereal production during the 1970s and 1980s attributed to increased use. Nitrogen pollution is becoming a serious issue in many places, contributing to coastal "dead zones" where algae blooms choke out the oxygen needed by sea life.

The amount of nitrogen available for uptake by plants is much higher than the natural level, and has more than doubled since the 1940s.

The excess comes from fertilisers running off farmland, from livestock manure, and from other human activities. It is changing the composition of species in ecosystems, reducing soil fertility, depleting the ozone layer, intensifying climate change, and creating dead zones in the Gulf of Mexico and other near-coastal seas.

WORLD HUNGER SPOTS

The sheer amount of the Earth we need to produce our food is having an enormous impact.

Globally, we have taken over about 26% of the planet's land area (roughly 3.3 billion hectares) for cropland and pasture, replacing a third of temperate and tropical forests and a quarter of natural grasslands.

Another 0.5 billion ha has gone for urban and built-up areas.

Habitat loss from the conversion of natural ecosystems is the main reason why other species are being pushed closer to the brink of extinction.

Together creating a crisis of

Food security

Environmental degradation and change