World agriculture 2030: Main findings

World population will grow from around 6 billion people today to 8.3 billion people in 2030. Population growth will be growing at an average of 1.1 percent a year up to 2030, compared to 1.7 percent annually over the past 30 years. At the same time, an ever increasing share of the world's population is well-fed. As a result, the growth in world demand for agricultural products is expected to slow further, from an average 2.2 percent annually over the past 30 years to 1.5 percent per year until 2030. In developing countries, the slowdown will be more dramatic, from 3.7 percent for the past 30 years to an average of 2 percent until 2030.

However, the developing countries with low to medium levels of consumption, accounting for about half of the population in developing countries, would see demand growth slowing only from 2.9 to 2.5 percent per year, and per caput consumption increasing.

The world population will be increasingly well-fed by 2030, with 3050 kilocalories (kcal) available per person, compared to 2360 kcal per person per day in the mid-1960s and 2800 kcal today. This change reflects above all the rising consumption in many developing countries whose average will be close to 3000 kcal in 2030.

The number of hungry people in developing countries is expected to decline from 777 million today to about 440 million in 2030. This means, that the target of the World Food Summit in 1996, to reduce the number of hungry by half from its level in 1990-92 (815 million) by 2015, will not even be met by 2030. Sub-Saharan Africa is cause for serious concern, because the number of chronically undernourished people will only decrease from 194 to 183 million.

Patterns of food consumption are becoming more similar throughout the world, shifting towards higher-quality and more expensive foods such as meat and dairy products. Meat consumption in developing countries, for example, has risen from only 10 kg per person annually in 1964-66 to 26 kg in 1997-99. It is projected to rise to 37 kg per person per year in 2030. Milk and dairy products have also seen rapid growth, from 28 kg per person per year in 1964-66, to 45 kg now, and could rise to 66 kg in 2030. FAO expects increases in meat and dairy consumption to be less dramatic than in the past.

Cereals are still by far the world's most important sources of food, both for direct human consumption and meat production. An extra billion tonnes of cereals will be needed by 2030.

The developing countries will become increasingly dependent on cereal, meat and milk imports, their production will not keep pace with demand. By 2030 they could be producing only 86 percent of their own cereal needs, with net imports rising from currently 103 million tonnes to 265 million tonnes by 2030. Traditional grain exporters such as the US, the EU, Canada, Australia and Argentina, and the transition countries as emerging exporters, are expected to produce the surpluses needed to fill this gap. "If real food prices do not rise, and exports of industry products and services grow as previously, then most countries will be able to afford to import cereals to meet their needs. However, the poorest countries tend to be the least able to pay for imports."

The use of cereals as animal feed does not contribute to hunger and undernutrition. Globally, some 660 million tonnes of cereals are used as livestock feed each year. This represents just over a third of total world cereal use. If these cereals were not used as feed, they would probably not be produced at all, so would not be available as food in many cases, according to the report. More likely, the lack of demand for cereals for livestock production would lead to lower crop production.

Much of future food production growth will come from higher productivity. In developing countries, almost 70 percent of the increase in crop production will come from higher yields, around 20percentfrom an expansion of arable land and around 10 percent from multiple cropping and shorter fallow periods.

The expansion of farmland for food production will be slower than in the past. In the next 30 years, developing countries will need an additional 120 million ha for crops, this means, less new land will be opened up than in the past. The expansion will mainly take place in sub-Saharan Africa and Latin America. A considerable part of this extra land will probably come from forest clearance. In other developing regions, almost all suitable land is already in use. Some countries and communities will face problems related to land scarcity.

During the 1990s, the world lost a forest area of 9.4 million ha per year, about three times the size of Belgium. However, the rate of deforestation was slower than in the 1980s, and, globally, deforestation will probably continue to slow down in future, although much of the cropland expansion will have to come from forests and world consumption of industrial roundwood is expected to rise by 60 percent over current levels.

Irrigation is crucial to the world's food supplies. The developing countries are likely to expand their irrigated area from 202 million ha today to 242 million ha by 2030.

At global level there is enough water available, but some regions will face serious water shortages. A 14 percent increase in water withdrawals for irrigation is expected for developing countries by 2030. One in five developing countries will be suffering water scarcity. Two countries, Libyan Arab Jamahiriya and Saudi-Arabia, are already using more water for irrigation than their annual renewable resources, by drawing on fossil groundwater. In large areas of India and China, ground-water levels are falling by 1 to 3 metres per year. These regions will need to use water more efficiently. Agriculture is responsible for about 70 percent of all fresh water withdrawn for human use. Saving water in agriculture means that more water is available for other sectors.

Modern biotechnology offers promise as a means to improving food security. If the environmental threats from biotechnology are addressed, and if the technology is affordable by and geared towards the needs of the poor and undernourished, genetically modified crop varieties could help to sustain farming in marginal areas and to restore degraded lands to production. To address the concerns of consumers FAO called for improved testing and safety protocols for genetically modified organisms.

Other promising technologies have emerged that combine increased production with improved environmental protection. These include no-till/conservation agriculture and integrated pest or nutrient management. Locally, organic agriculture could become a realistic alternative to traditional agriculture over the next 30 years.

Future demand for livestock and dairy products can be met, but the consequences of increased production must be addressed. Production will shift away from extensive grazing systems towards more intensive and industrial methods. "This could pose a threat to the estimated 675 million rural poor whose livelihoods depend on livestock. Without special measures, the poor will find it harder to compete and may become marginalized, descending into still deeper poverty. If the policy environment is right, the future growth in demand for livestock products could provide an opportunity for poor families to generate additional income and employment." Environmental and health problems of industrial meat production (waste disposal, pollution, the spread of animal diseases, overuse of antibiotics) also need to be addressed.

Climate change could increase the dependency of some developing countries on food imports. The overall effect of climate change on global food production by 2030 is likely to be small. Production will probably be boosted in developed countries. Hardesthit willbe small-scale farmers in areas affected by drought, flooding, salt water intrusion or sea surges. Some countries, mainly in Africa, are likely to become more vulnerable to food insecurity.

With many marine stocks now fully exploited or overexploited, future fish supplies are likely to be constrained by resource limits. The share of capture fisheries in world production will continue to decline, and the contribution of aquaculture to world fish production will continue to grow. The capacity of the global fishing fleet should be brought to a level at which fish stocks can be harvested sustainably, FAO said. "Past policies have promoted the build-up of excess capacity and incited fishermen to increase the catch beyond sustainable levels. Policy makers must act to reverse this situation."

The summary report is a shorter version of the results of the technical FAO study "World agriculture: towards 2015/2030" which will be published at a later stage. The report presents the latest FAO assessment of long-term developments in world food, nutrition and agriculture. FAO issued similar studies on global agriculture in 1995, 1988, 1981 and 1970. The projections cover about 140 countries and 32 crop and livestock commodities.