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Natural resources

KEY FACTS

- From 2 000 to 5 000 litres of water are needed to produce the food consumed daily by one person.
- Between 2000 and 2004, some 262 million people were affected by climate-related disasters. Of these, 98 percent lived in developing countries.
- With the world population expected to reach 8.2 billion by 2030, the planet will have to feed an additional 1.5 billion people, 90 percent of whom will be living in developing countries.
- Twenty percent of the world's population lives in river basin areas at risk of frequent flooding.
- More than 1.2 billion people live in areas of severe water scarcity. About 1.6 billion people live in water-scarce basins where human capacity or financial resources are insufficient to develop adequate water resources.
- An estimated 250 million people already have been affected by desertification, and nearly one billion more are at risk.

The challenges of scarcity and climate change

Natural resources – land, water and genetic material – are essential to food production, rural development and sustainable livelihoods. Unfortunately, conflicts over these resources, long a feature of human history, are likely to increase in many regions because of rising demand for food, fibre and energy, as well as the loss and degradation of productive land. Conflicts will be further exacerbated by changing growing conditions, increased water scarcity, loss of biodiversity, extreme weather events and other effects of climate change. If productive agriculture is to be safeguarded, these challenges will have to be addressed.

Safeguarding land resources

FAO is promoting sustainable land resources management that increases production, makes efficient use of resources and sustains ecosystem services. FAO supports national, regional and global land resource assessments and databases so that policies and decisions can be based on a better understanding of land status, potentials and trends, constraints and opportunities. A new global soil partnership will enhance recognition of the central role of soil resources for food security and ensure coordination among multiple networks and partners.

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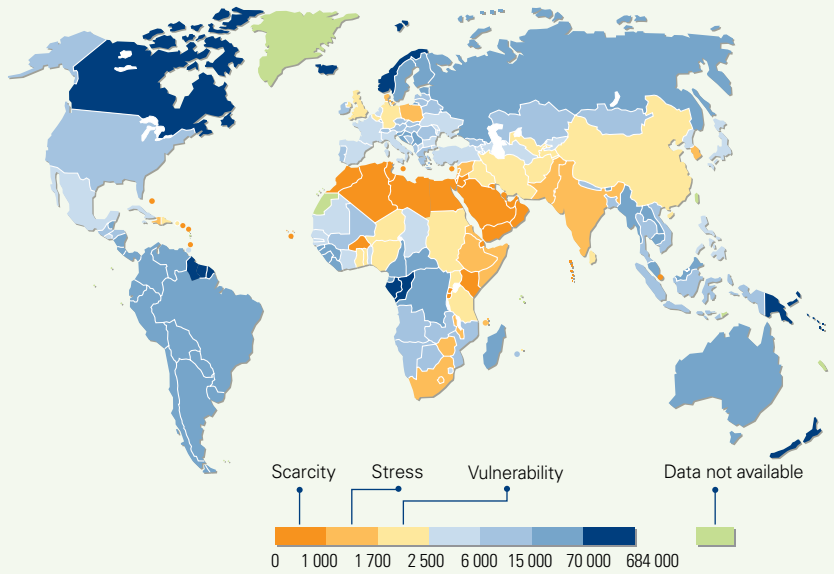
Women in Niger pumping water from an FAO-built communal well.

Making the best use of water resources

With the world population expected to grow from today's 6.7 billion to 9 billion in 2050, a key global challenge will be the capacity to grow more food with less water. At present, irrigated agriculture consumes approximately 70 percent of the world's freshwater withdrawals, reaching 95 percent in several developing countries. FAO aims to improve water use efficiency and productivity through the modernization of irrigation practices, improved crops productivity and better water use policies. It seeks to ensure equitable and stable access to water resources for all.

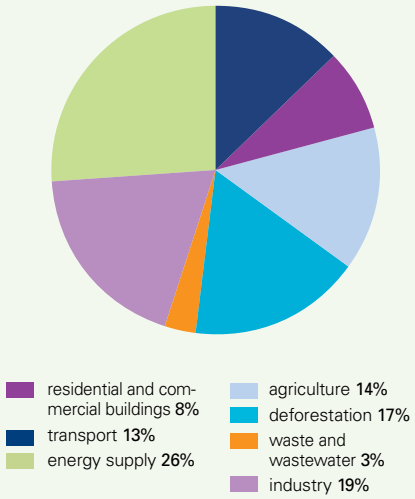
Pressure from industrial and domestic water uses is also increasing, as is the need to sustain water for well-functioning ecosystems. The FAO water programme targets a better integration of urban and rural water needs and offers solutions for water reuse and wastewater that safeguard human health and ecosystems. FAO helps countries adopt resilience building approaches that address the uncertainties associated with the challenges of climate change. AQUASTAT, FAO's water database, provides key data and information – by country and region – that facilitate the monitoring of, and response to developing situations.

Fresh water availability
Cubic metres per person and per year, 2007



Source: FAO, UN, World Resources Institute

Agriculture and deforestation contribute significantly to greenhouse gas emissions



Greenhouse gas emissions by sector

Source: Intergovernmental Panel on Climate Change 2007

Energy/bioenergy

Bioenergy from solid (e.g. wood), gaseous (e.g. biogas) and liquid (e.g. ethanol or biodiesel) fuels, offers many new opportunities. If managed sustainably, it can contribute to achieving policy objectives such as agricultural and rural development, climate change mitigation and energy access and security.

Over the last few years, FAO has worked to explain and illustrate the implications of bioenergy development and to develop sustainability criteria and gender-sensitive indicators in that field and make them operational. It also seeks to ensure that smallholders and rural communities are included in and benefit from the bioenergy development process.

Among the different types of biofuels, liquid biofuels have been the most controversial. Liquid biofuels are not bad or good *per se*. It all depends on how they are produced, including feedstock and land choice, on farming practices, and on the logistics of the biofuel supply chain. Good practices that minimize risks and harness the opportunities associated with liquid biofuels are being promoted by FAO; these include agro-ecological zoning, integrated food energy systems, contract farming, and flexible biofuel policy that take account of food price changes.

Climate change

Achieving sufficient food production for a growing population becomes an even greater challenge when faced with the possible impacts of future climate change. In fragile ecosystems, climate change can greatly increase the risk of crop failure and livestock losses. FAO promotes solutions countries can use to adapt to the consequences of climate variability and climate change. It recognizes, however, that where the reduction of greenhouse gas emissions is concerned, agriculture itself can be part of the solution. Agricultural and environmental policies must be designed to ensure that agriculture contributes to climate change mitigation by reducing emissions and sequestering carbon in the soil.

Conventions, treaties and commissions

The Organization is extremely active in the area of international environmental conventions and treaties. FAO plays a key role in three highly important environmental conventions, those covering biological diversity, desertification and climate change. FAO's Intergovernmental Commission on Genetic Resources for Food and Agriculture aims to ensure that future generations have access to genetic resources and that everyone shares in the benefits.

FAO's work in the UN-REDD programme is designed to provide support to countries, particularly in their REDD+ strategies and readiness phase, through a global programme and through national joint programmes that take into consideration the possible synergies with climate change, biodiversity and food security. The area of disaster risk management in the context of increasing climate variability receives high priority. And in recurrently hazard-prone areas, where large parts of world's population are chronically exposed to a range of climate related extreme events, FAO supports projects designed to promote livelihood adaptation to climate variability and change.

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