

Due to population growth and rise in per-capita consumption the demand for vital resources will increase dramatically during the next decades.

Resource supply

Scarcity of resources is a major global trend. The demand for water, food and energy will increase substantially within the next decades. Several international studies analyse future perspectives and find significant changes in global demand for all areas (see table).

Increase in global demand until 2030

Energy	+ 40-50%
Water	+ 30-40%
Food	+ 30-50%

It is undisputed that demand for natural resources will increase in the medium term because of a combination of population growth and projected increases in per-capita consumption. But there is uncertainty as to whether supply can keep pace. This leads some experts to argue that, in the long-term, the world should expect at best, sustained increases in commodity prices, and at worst, shortages of key resources.

When we consider the impact of climate change, we normally think about the environment – the melting Arctic and Antarctic ice caps, rising global sea levels, intensifying storms or expanding deserts. Several experts realise that the most potent effects of climate change will be experienced by humans directly through the impairment and destruction of habitats. In a 2012 study titled “Resources Futures”, the British think-tank Chatham House analysed the relationship between resource supply and climate change. According to this report, climate change is best understood as a “threat multiplier ... a key factor exacerbating existing resource vulnerability”. It can be assumed that climate change, especially when combined with growing supply shortage, will result in a significant reduction in the planet’s vital resources.

Food

Food risk includes both food security and food safety. Food security is built on four pillars, including food availability and stability, food access and food use. Global population growth coupled with urbanisation, climate change, water

scarcity and resource competition are posing a real threat to global food security. Food safety refers to the conditions and practices that preserve the quality of food to prevent contamination and foodborne illnesses. Unsafe food causes many severe and life-long diseases, ranging from diarrheal diseases to severe organ damages. The World Health Organization (WHO) estimates that foodborne and waterborne diarrheal diseases are one of the leading causes for death in particular for children in developing countries.

Water

In the 2015 “Global Risks” reports of the World Economic Forum (WEF) the topic “water crisis” was top ranked in terms of impact. Around the world, cities, farmers, industries, energy suppliers, and ecosystems are increasingly competing for their daily water needs. Currently about 70% of water resources are used in agriculture, 20% for industry and 10% are domestic use. In the absence of major policy changes and much better water management the situation will deteriorate and water availability will become increasingly uncertain. An OECD study published in 2012 focused on key aspects of water demand and supply until 2050. One of the key findings was that by 2050 about 3.9 billion people are likely to be living in river basins suffering from severe water stress.

Energy

The worldwide energy demand is still rising. While we expect an increase in demand of 40-50% in 2030, experts expect an increase of 100% by 2050-2060. From 1990 until 2008, worldwide energy use grew by 39% with substantial regional differences: The Middle East increased by 170%, China by 146%, India by 91%, Africa by 70%, Latin America by 66%, the USA by 20%, the EU block by 7%. Despite desperate need for limitations in CO₂-emissions, coal will be one of the major energy sources for the next decades. Oil and coal combined represented 60% of the world energy supply in 2008. In 2030, coal will probably still represent about 25% of global energy supply.

Editor: Dr. Andreas Tacke