

Electronic supplement of “Integrative scenario development”

Brief outlines of the four land use scenarios

In this section we provide short versions of the four storylines of the “Sustainable & Citizen Friendly” moderate/extreme and the “Radical Market Forces” moderate/extreme scenarios (the full versions are accessible and downloadable via <http://www.ufz.de/scenario>). The scenarios are retrospective, i.e. looking back from 2050 to the present.

“Radical Market Forces” moderate:

Despite repeated global economic crises, a considerable economic growth could be achieved until today, e.g. based on the ongoing deregulation of markets. Due to positive economic development, the emigration from Central Germany could be reduced. However, this trend, together with a deregulation of spatial planning also lead to continued land consumption for settlement, industry and transportation, mainly in urban areas. Rural areas were by and large cut off from any of these positive economic developments.

Brown coal and natural gas remain the most important energy sources until today, since the development of renewable energies fell far behind political expectations of the beginning of the century.

Using genetically modified plants and other technical innovations, the agricultural sector copes with the consequences of climate change, marginal areas being converted into forests. Many of the forests in turn were converted into industrial plantations using high-yielding and partly new tree species. In general, nature conservation policies and climate mitigation efforts have been reduced considerably over the last decades.

“Radical Market Forces” extreme:

Deregulation and further opening of markets were the preferred means to cope with the shortage of natural resources. This strategy helped to establish a strong economic growth. However, nowadays prosperity and wealth are distributed more unequally than ever. Increasing inequity and other processes of social polarization led to increased emigration and a serious decline in population in Central Germany. The broad and large-scale cuts in infrastructure affected marginalized urban, but mainly the rural population causing the depopulation of most rural areas.

Due to the shortage of fossil oil and gas, other energy sources had to be used. Central Germany’s brown coal and uranium deposits as well as other resources are mined, nowadays even in former conservation areas. The increase in the production of biomass for the generation of energy and raw material for the industry led to a competition for land with food production. The conversion of forests is shaped by a separation of functions and

intensification especially using new tree species for industrial wood production. Conservation areas were drastically reduced since the beginning of the century and environmental conservation is increasingly replaced by resource conservation.

“Sustainable & Citizen Friendly” moderate:

Due to massive global as well as local environmental problems, a profound change of values and life styles started around 40 years ago, leading to a change in politics towards more equity and sustainability. Changing consumption patterns as well as competition for qualified labor forced private economic actors to more sustainable practices. Emigration could, therefore, be reduced considerably. Due to the well-directed development of rural infrastructure, especially of communication infrastructure, the quality of life increased again.

The growing environmental awareness of the population contributed to the realization of energy saving potentials. However, the conversion of energy supply from traditional to renewable energy sources is not yet completed.

The production of organic food has increased in the last decades. Sustainable forestry is compulsory for forest owners and the forest areas were continuously increased. Conservation areas were increased, too, since 2010 and conservation standards were extended and diversified.

“Sustainable & Citizen Friendly” extreme:

Despite the considerable reduction of population since the end of the last century, people developed a new regional solidarity along with societal commitment and multiple participatory decision making processes. The consequent use of urban wastelands and brownfields as well as the regulation for compensation of soil sealing contributed to eliminate net soil sealing.

The phase-out of the use of brown coal until 2030 made a rapid extension of renewable energies necessary. Despite the more sustainable use of land, the increase of production of biomass for renewable energies, raw materials and the increase in organic food production led to an increasing competition for land, which was further tightened by an increase of forest areas. Compared to the year 2010, conservation areas doubled and conservation standards are stricter than ever, and nowadays, even areas which are not under conservation are mostly managed nature-oriented.