Scenarios for EU-27 heavy metals and POPs emissions to air, water and soil until 2050

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The EU HEIMTSA project

HEIMTSA (Health and Environment Integrated Methodology and Toolbox for Scenario Assessment) brings together an international team of scientists in the areas of epidemiology, environmental science and biosciences, to collaborate on developing and applying new, integrated approaches to the assessment of environmental health risks and consequences, in support of European policy in transport, energy, agriculture, industry, household and waste treatment and disposal.

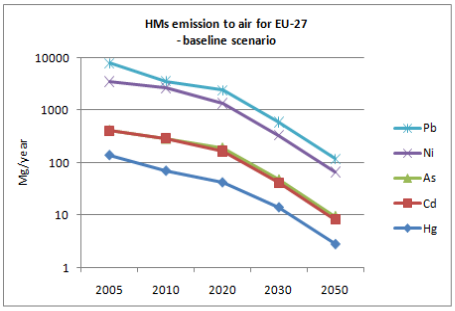
For policy- makers to decide whether and how best to implement strategies to reduce environmental pollutants, information is required on a number of factors, including possible developments. The aim has been to estimate heavy metals (As, Cd, Hg, Ni, Pb), and POPs (dioxins and PCB) emissions to air, water and soil by compromising a baseline as well as alternative scenario for the EU27 for the years 2010, 2020, 2030 and 2050.

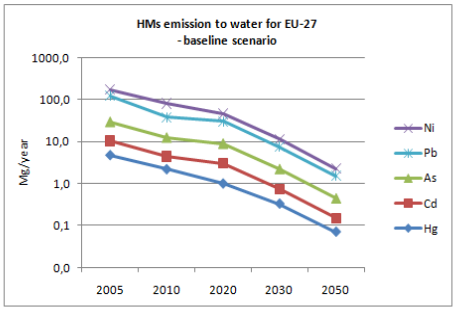
Methods

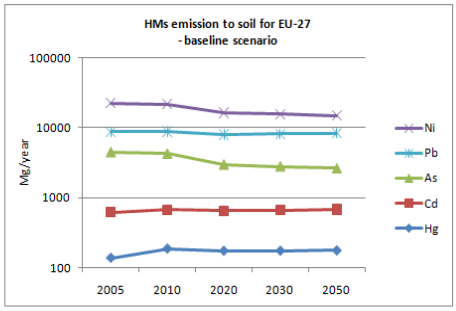
Future developments in the European Union are depending on both activities, taking into account economic growth, changes in behavior, changes in population as well as emission factors, taking into account technological changes. In the EU HEIMTSA project, data has been presented on emissions, activities and emission factors where available for the main anthropogenic pollution sectors; large and small fuel combustion, and industry (production of cement, iron and steel, non- ferrous metals, waste combustion, and other specific sectors for emissions to water and soil).

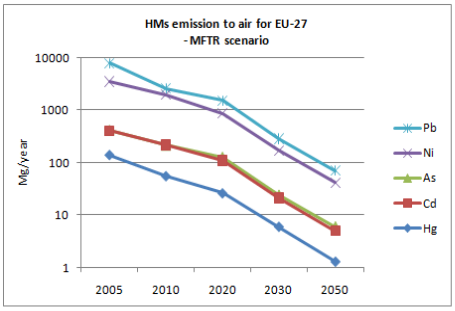
For air emissions until 2020, projections from the EU DROPS project were used. For the next period (until 2050) projections of electricity production were achieved from IEA Energy Technology Perspectives and IPCC projections for other industries. For the Baseline scenario, implementation of new multi- pollutant emission reduction technologies is expected . For the alternative (Maximum Feasible Technical Reduction; MFTR) scenario, emerging techniques are being implemented.

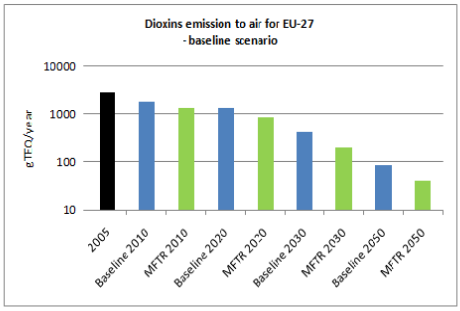
For emissions to water, the EPER (European Pollutant Emission Register) database was used for the 2005 base year. For emissions to soil, data are based on the EUROSTAT and AROMIS database. Emission levels associated with the use of BATs is expected until 2020 while are assumed to follow the emission reduction trends for emissions to air until 2050.

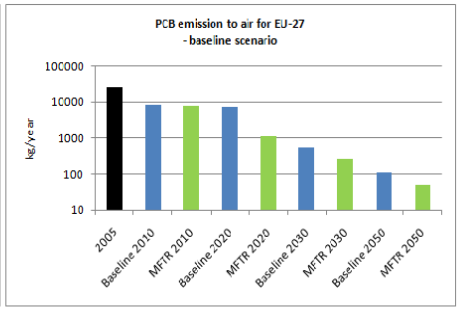












Results

Emissions to air and water can be severely reduced as a result of consumption patterns and technology change. In the MFTR scenario, the emission reductions are more rapid than in the Baseline scenario. A point that should be taken, however, is that measures to reduce emissions to air and water may lead to negative implications for the soil compartment. Safe collection and storage should therefore be targeted to avoid cross- media effects.

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