

Case Study 3 (stylized): Road debris contaminated with PAHs

The road construction company RCC maintains various road construction sites distributed over three cities in Germany (Cologne, Dresden, Kassel). At the construction sites, road debris contaminated with PAHs is generated. Three treatment paths for PAH contaminated road debris are available:

- TP1: Incineration
- TP2: Landfill construction
- TP3: Disposal on Landfills

The incineration takes place in the REKO plant, which is located in Rotterdam (NL). Thus, depending on the location of the construction site the transport distance is 260 km (Cologne, S1), 420 km (Kassel, S2), 780 km (Dresden, S3). On a few of the landfills in Germany, PAH-contaminated road debris can be used for landfill construction. The average transport distance is 100 km. Even more landfills are available for disposal of road debris contaminated with PAHs (average transport distance of 50 km). In RCC's annual sustainability report, it was declared that the company strives for minimizing its ecotoxicity impacts. With respect to this objective, RCC's sustainability manager wants to determine which treatment path is environmentally preferable depending on the location of the construction site. In 5 years, RCC plans to buy a new truck for the transport of road debris which requires only 90% less diesel than an average truck currently in use. In a background scenario, it is assessed which effects could be expected if the diesel consumption of trucks was reduced to 10% of the default diesel consumption.