

**ABSTRACT – For poster presentation**

**Assessment of health and ecological impact of policy on a legacy contamination case study**

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Background and Objective

To investigate the effect of policy decisions on the health and ecological impact of pollution in an industrial area.

Methods

A sustainability assessment methodology is applied to study the impacts of pollution in an industrial area of Bristol, UK. The effects of several regulatory/policy-related changes on a smelting facility sited in Avonmouth are investigated. Impacts considered in the investigation relate to levels of air pollution, human health effects and impacts on the local ecology. In this study the main driver or key question addressed is: what are the implications of various emission policies on ecological and health impacts? Several scenarios which represent a suite of regulatory changes imposed on the smelter over the operating period are considered. Firstly, a scenario models fate and transport of emissions with real site data. A second scenario considering constant emissions at 2002 levels investigates the impact of the smelter if a high level of intervention had been made from the start of the operations. A third scenario with constant emissions at peak levels allows consideration of the potential impacts if none of the interventions had been implemented.

Results

Actual Cd, PM10, As, Zn and Pb emissions data and associated information on the operating parameters and regulatory policies during each stage of the operating period are identified. Life cycle assessment modelling is carried out to examine the environmental burdens and associated life cycle impacts of the smelting operations on the local area and the wider environment. Air dispersion/deposition modelling is performed to identify the fate and transport of pollutants in the surrounding area. Results of this modelling work are then used in ecological impact assessment and human health impact analysis.

Conclusion

Analysis of the scenarios considered allows an assessment of the impact of the policy decisions on human and ecological health.

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