Long-term effect of waste deposition on surface water and low cost method of remediation by defined converting of the material

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In a interdisciplinary German Research association (DFG) research programme, supplemented by the Volkswagen foundation, the long-term effect of landfills on surface water was investigated [Spillmann et al., ed., 1986 and 1995]. Sixteen institutes have been involved with the investigation of this question over a period of 20 years. The investigation of landfills was mainly carried out on 15 defined landfill sections and 4 defined sections in interstitial groundwater aquifers identical to those found under natural conditions.

It was shown that the present understanding of the extent and duration of surface water contamination is not applicable. The emissions from landfills are considerably more extensive and potent than is at present realised. Particularly important is the recognition that anaerobic landfills which appear to be stable are in fact only conserved in an inactive state (Fig. 1). Through physical disturbance or diffusive penetration of oxygen, they are intensively reactivated and give off toxic emissions. Long-term surface and groundwater contamination is particularly caused by the organic toxins from industrial products.

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