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Consequential Effects of Coal Utilization on Urban Water Supply Sources – a Study of Ajali River in Enugu State Nigeria

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Abstract : Water bodies around the world notably underground water, ground water, rivers, streams, and seas, face degradation of their water quality as a result of activities associated with coal utilization including coal mining, coal processing, coal burning, waste storage and thermal pollution from coal plants which tend to contaminate these water bodies. This contamination results from heavy metals, presence of sulphate and iron, dissolved solids, mercury and other toxins contained in coal ash, sludge, and coal waste. These wastes sometimes find their way to sources of urban water supply and contaminate them. A major problem encountered in the supply of potable water to Enugu municipality is the contamination of Ajali River, the source of water supply to Enugu municipal by coal waste. Hydro geochemical analysis of Ajali water samples indicate high sulphate and iron content, high total dissolved solids(TDS), low pH (acidity values) and significant hardness in addition to presence of heavy metals, mercury, and other toxins. This is indicative of the following remedial measures: I. Proper disposal of mine wastes at designated disposal sites that are suitably prepared. II. Proper water treatment and III. Reduction of coal related contaminants taking advantage of clean coal technology.

Keywords : effects, coal, utilization, water quality, sources, waste, contamination, treatment
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