

A Co-Evolutionary Model of Change in Environmental Management

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Abstract

Environmental problems, and human attempts to manage them, can be conceptualised as evolutionary complex systems, involving interlinked processes of physical, knowledge, technological, institutional, perceptual and behavioural change.

A distinction may be made between changes in physical systems ("physical emergence"), changes in human knowledge about those systems ("knowledge emergence") and changes in human perceptions ("perceptual emergence"). While processes of physical and knowledge emergence are important, it is through perceptual emergence that a phenomenon comes to be regarded as a "problem" or "issue", potentially leading to changes in policy, institutional arrangements or behaviour.

The paper proposes a soft complex systems model of the relationships between these processes, illustrated with examples from the history of air quality management in the UK. The model also has wider application in the understanding of other complex issues of environmental management.

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