

The Integral River Basin Approach to Assess the Impact of Multiple Contamination Sources Exemplified by the River Rhine

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Introduction

The basic premise of this paper is that solutions to problems of chemical pollution cannot be achieved unless an integrated assessment exists that connects flows of toxic materials through the industrial economy with their flows to the environment. As shown in *Figure 1*, flows through the industrial economy include all of the anthropogenic movements of materials through society. These include extraction of raw materials, processing them into consumer products, transporting the products to consumers who use and dispose of them, or in some cases recycle them. Ultimately, though, most of the materials that fuel and nourish industrial societies are returned in a degraded form to the land, the atmosphere, or to aqueous systems. The schematic diagram depicted in *Figure 1* greatly simplifies the cycling of most materials in the industrial economy. Indeed, it is important to note that the

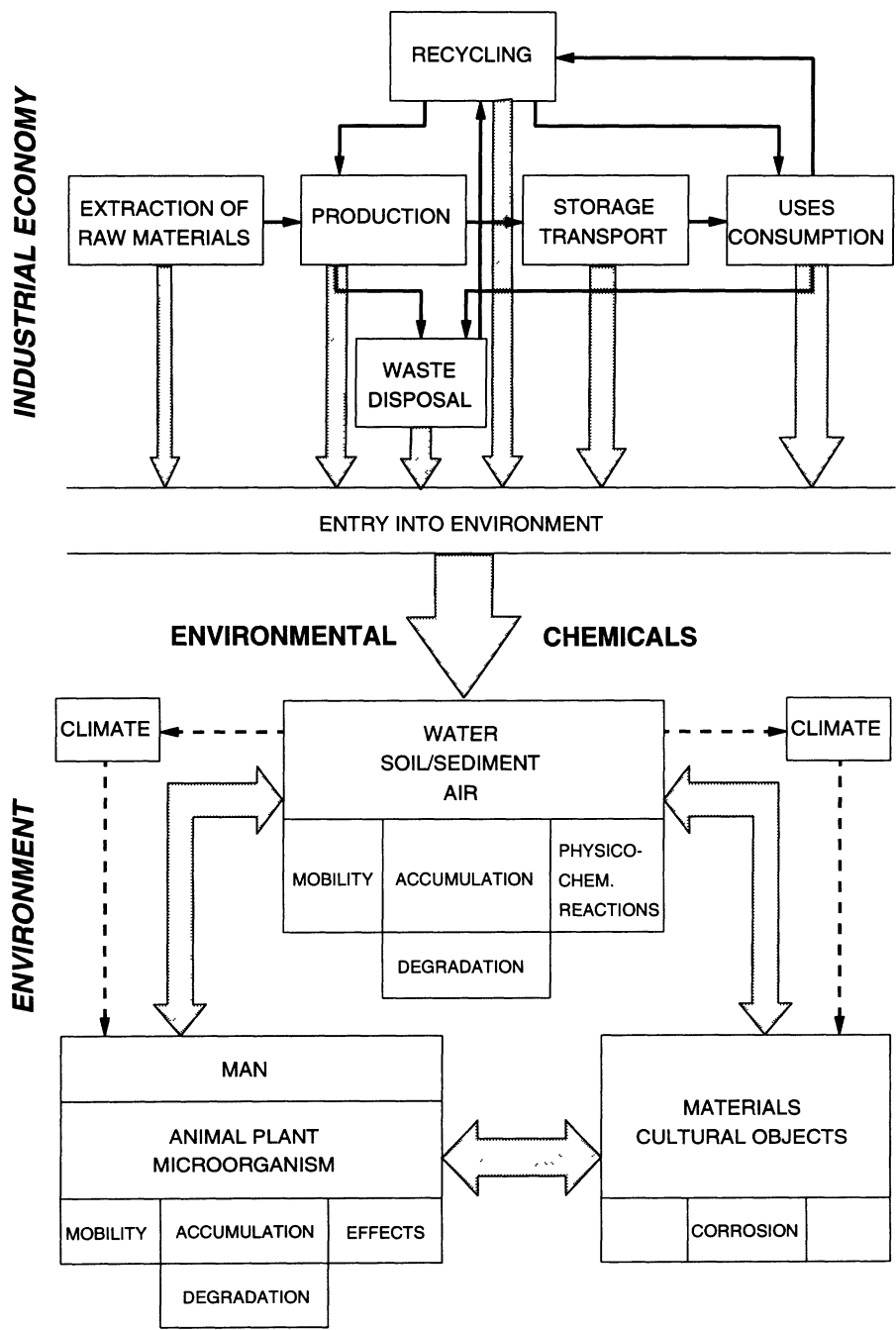


Figure 1. Interactions between the industrial economy and the environment.