

## INTRODUCTION

The first part of the book analyses the phenomenon of joint production and its consequences for economy-environment interactions on a general and abstract level. Phenomena of the real world – the occurrence and consequences of joint production – are translated into the language of science. For that sake, we employ different disciplinary perspectives from the social and natural sciences, in particular from economics, system theory and thermodynamics. The chapters in this part thereby lay the conceptual foundations for the further analysis in the subsequent parts of the book.

Chapter 2 introduces the general notion of joint production by reviewing different definitions from the economic literature. On this basis, we develop our own definition which is suitable for the purpose of an encompassing analysis of long-term economy-environment interactions. We also link the concept of joint production to a traditional analytical tool from economics, the concept of externality. This chapter develops the language in which we will discuss joint production and its consequences throughout the book. Using arguments from the natural sciences, in particular from thermodynamics, Chapter 3 justifies why joint production is ubiquitous, and, thus, why the concept of joint production is universally suited to the analysis of economy-environment interactions. Introducing a time-dimension into the analysis, Chapter 4 points to long-term evolutionary consequences of the phenomenon. The logic of the argument developed there is then applied to the dynamics of environmental problems in Chapter 5.

