

Materials and Sustainable Development

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This book provides a structure and framework for analysing and teaching sustainable development and the role of materials in it.

The last two centuries have been an era of material plenty. Material supply was not (except in war-time) a major issue. Today the picture looks rather different. Global population and affluence are rising fast, driving up demand for water, energy and materials. The increasing complexity of products has created a dependence on a larger number of elements, some comparatively rare, that are sourced globally and used to make products that are traded on a global scale. Nations from which these resources were, in the past, freely traded now exert more control over supply to protect domestic consumption or for geo-economic or political purposes. New and expanding legislation controls many aspects of manufacturer responsibility, product design, material usage and material disposal.

Sustainable development means living (and thriving) in this changing environment. Questions of 'Sustainability' have many facets – the efficient and conservative use of resources, environmental stewardship, rule of law, social equity and more. These questions are intrinsically complex; their assessment requires acceptance of this complexity and finding ways of working with it. There is no simple, 'right' answer to questions of sustainable development – instead, there is a thoughtful, well-researched response that recognizes the concerns of stakeholders, the conflicting priorities and the economic, legal and social constraints of the technology as well as its environmental legacy. The book develops methods for arriving at this response, with numerous case, in-text examples and exercises.

Related Titles

- Ashby, *Materials and the Environment*, Butterworth-Heinemann, March 2012, 9780123859716
- Ashby and Johnson, *Materials and Design*, Third Edition, Butterworth-Heinemann, February 2014, 9780080982052
- Ashby, Shercliff and Cebon, *Materials: Engineering, Science, Processing and Design*, Third Edition, Butterworth-Heinemann, September 2013, 9780080977737