Innovation in Engineering and Technology set

BOOK: Call for Chapters

BIO-BASED VALUE CHAINS AND SUSTAINABLE DEVELOPMENT

Editors:

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Deadline for Submission (abstract in English or in French): April 4, 2025

Scope and Objectives

This multidisciplinary book explores the role of bio-based value chains in territorial development by integrating socio-economic and technical dimensions. At the crossroads of social sciences and experimental sciences, it examines how these value chains—relying on the sustainable use of renewable resources from agriculture, forestry, and organic waste—can contribute to ecological transition and sustainable development while stimulating local economies. The link between bio-based value chains and the circular economy, which involves the reduction of resources, the reuse, and the recycling of wastes and co-products in short circuits, justifies the focus on territories.

The book highlights the territorial dynamics driven by biomaterials, bioenergy, and green chemistry. It specifically examines value chains built from (for example) co-products of flax, hemp, chicory, and other plants, illustrating how local resources can be transformed into high-value applications in textiles, construction materials, bioplastics, and bio-based chemicals. The analysis focuses on innovation challenges, economic models, stakeholder strategies, and public policies supporting these value chains. Drawing on case studies and empirical analyses, it investigates the conditions for their local anchoring and their impact on employment, industrial structuring, and economic resilience.

Additionally, the book integrates analytical methods to assess both the potential emergence of these value chains and their long-term sustainability. By combining theoretical approaches with field experiences, it aims to inform strategic decisions that will embed these value chains into a sustainable and balanced territorial development framework.

Intended for researchers, policymakers, industry leaders, and territorial actors, this book provides a comprehensive and accessible perspective on bio-based value chains and their role in shaping a resilient bioeconomy.

Provisional Table of Contents

Introduction

- Bio-based value chains and sustainable development: Issues and perspectives
    - Definition and scope
    - Role in ecological transition and territorial development
    - Theoretical and methodological framework

Part 1: Emergence, Dynamics and Structuring of Bio-based Value Chains (5 chapters)

- Bio-based Resources: Typologies and Potential
    - Plant Biomass, Marine Biomass, and Organic Residues
    - Innovations in the Processing of Natural Resources
- Co-construction of value chains: Actors, strategies, and governance
    - Roles of farmers, industries, and institutions: an ecosystemic-based view
    - Governance models and territorial cooperation
- Emerging Technologies in Bio-based Value Chains
    - Industrial Biotechnologies
    - Green Chemistry and Bio-based Materials
- Innovation and upgrading in bio-based sectors
    - Role of research, innovation processes, and diversification of uses
    - Technological barriers and competitiveness drivers

Part 2: Sustainability of Bio-based Value Chains (5 chapters)

- Principles of Sustainable Development applied to bio-based Value chains
    - The Three Pillars: Environment, Society, Economy
    - Potential Synergies and Conflicts with Bio-based Value Chains
- Circular Business models and viability of bio-based value chains
    - Value chains and local wealth creation
    - Profitability challenges and attractiveness levers
- Public policies and support for bio-based sectors
    - Regulatory framework and financing instruments
- Assessing the sustainability of bio-based sectors
    - Environmental, economic, and social criteria
    - Analytical methods and monitoring indicators

Conclusion and Perspectives

- Towards an integrated territorial bioeconomy?
    - Summary of key insights
    - Future challenges and recommendations for a successful transition

Submission Guidelines

We invite original research papers, theoretical contributions, and case studies at the international level from scholars in economics, management, chemistry, biology and other experimental sciences. Submissions should be in English or in French and should follow the format of academic book chapters (approximately 8000 words per chapter). Authors are encouraged to provide interdisciplinary perspectives and empirical evidence.

Keywords:
Bioeconomy, Circular economy, Value Chain, Sustainability, Circular business models, Life cycle analysis, Territorial development, Innovation, Biomass valorization

Important Dates:

- Abstract submission deadline (in English or in French): April 4,2025
- Full chapter submission deadline (in English or in French): July 18, 2025
- Notification of acceptance: December 15, 2025
- Expected publication date: March 2026

Submission Process:
Please submit your abstract (300-500 words) along with a short bio (max. 200 words) before April 4, 2025 to

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Selected authors will be invited to submit full chapters.

We look forward to your contributions!