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Biomass-Related Sustainability: A review of the Literature and Interpretive Structural Modeling

Susana Garrido Azevedo

Professora Associada com Agregação

Universidade da Beira Interior

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Abstract:

In this paper we identify a concept of countries' biomass-related sustainability through a revision of the literature and the opinion of professionals and identify the main reasons that prevent biomass from being a major source of energy production (adversities and constraints). The Interpretive Structural Modeling (ISM) methodology was used for establishing the causal and hierarchical relationships among the variables linked with the adversities and constraints associated to the production of biofuel from biomass and their impact on countries' biomass-related sustainability. At the base of the concept of biomass related countries' sustainability we identify an important constraint associated to the high-energy production costs, but also the necessity of supporting new investments, which will drive technological innovations in this sector allowing for an increase in efficiency. The paper presents an innovative approach to the research of biofuel production from biomass by suggesting not only a concept of countries' biomass-related sustainability but also through exploring causal and hierarchical relationships between adversities/constraints of biofuel production from biomass and impacts on countries' sustainability.

Susana Garrido Azevedo holds a Ph.D and Habilitation in Management and is currently Associate Professor of University of Beira Interior (UBI), Portugal. Her Research interests lie on circular economy, sustainability, supply chain, lean, green, and logistics management. She has published more than 300 scientific works in books, chapters, articles and conference proceedings. She is reviewer for many journals and international conferences, editor-in-chief, associate editor and editorial board member of several international top journals and makes part of the Scientific Evaluation Board of ERA-MIN European Funding Program on "Raw Materials for Sustainable Development and the Circular Economy". She currently coordinates the CEFAGE research unit branch at UBI as well as the research line on sustainability.