

Pankaj Pathak · Sadia Ilyas ·  
Rajiv Ranjan Srivastava · Javid Dar ·  
Subashree Kothandaraman *Editors*

# Advances in Environmental Sustainability, Energy and Earth Science

Proceedings of the 1st International  
Conference AESEE-2024

 Springer

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*Editors*

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# Exploring Spatial Technology for In-Depth Natural Resource Management: A Comprehensive Study



Mariya Hasnat, Ruqaiya Bano, and Farhana Khattoon

**Abstract** The integration of Remote Sensing and Geographical Information System (GIS) provides extensive opportunities for monitoring and overseeing natural resources with capabilities spanning multi-temporal, multi-spectral, and multi-spatial resolutions. There is an immediate imperative to comprehend the specialized functionalities of a continuously expanding range of image sources and analytical techniques, particularly for those involved in natural resource management. This comprehensive study compiles diverse applications of remote sensing and GIS tools relevant to the management of natural resources, including agriculture, water, forests, soil, and natural hazards. The major applications of remote sensing and GIS in natural resource management are resource management, change detection, impact assessment, suitability analysis, biodiversity, and forest management, etc. The collaborative effort is essential for the effective use and application of remote sensing techniques for monitoring and assessment of natural resource management. Remote Sensing (RS) proves to be an efficient instrument for monitoring spatial and temporal changes in the landscape, by facilitating land use and land cover mapping. When integrated with on-site ecosystem assessments and other relevant biophysical and socio-economic data, the resulting land cover and land use maps offer crucial insights. By integrating and modifying spatial data in a Geographic Information System (GIS), it is possible to carry out analyses that improve understanding of the dynamics and processes associated with land use changes.

**Keywords** Remote sensing · GIS · Natural resource · Change detection · Biodiversity

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# Empowering Women in Agri-Startups for Sustainable Food Security



Ruqaiya Bano and Mariya Hasnat

**Abstract** The contribution of women to the advancement of agriculture has grown significantly. Women play a crucial role in guaranteeing food security and conserving local agro-biodiversity. Agriculture sector employs 80% of all economically active women; they comprise 33% of the agricultural labor force and 48% of self-employed farmers. Despite playing a significant role in various aspects of agriculture and food production, yet their contributions are often undervalued and underrepresented. As women are the primary participants in all stages of agricultural production, including pre-harvest, post-harvest processing, packaging, and marketing, it is crucial to implement gender-specific interventions to enhance agricultural productivity. Empowering women in agri-startups not only promotes gender equality but also has the potential to significantly enhance food security. This paper explores the crucial role of women in agri-startups for achieving sustainable food security, challenges faced by women in agri-startups, the benefits of their empowerment, and strategies for fostering their leadership in this sector. By addressing these issues, we can create a more inclusive and sustainable agricultural landscape, ultimately leading to improved food security for communities worldwide.

**Keywords** Women entrepreneurship · Agri-startups · Food security · Sustainable agriculture

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