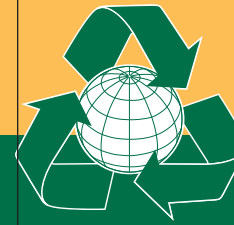


13



Series: Sustainable Energy Developments

13

Bundschuh
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Geothermal, Wind and Solar Energy Applications
in Agriculture and Aquaculture

The agri-food chain consumes about one third of the world's energy production with about 12% of it for crop production and nearly 80% for processing, distribution, retail, preparation and cooking. The agri-food chain also accounts for 80-90% of total global freshwater use where 70% alone is for irrigation. Additionally, on a global scale, freshwater production consumes nearly 15% of the entire energy production. It can therefore be argued that making agriculture and the agri-food supply chain independent from fossil fuel use has a huge potential to contribute to global food security and climate protection not only for the next decades but also for the coming century. Provision of secure, accessible and environmentally sustainable supplies of water, energy and food must thus be a priority. One of the major objectives of the world's scientists, farmers, decisions makers and industrialists is to overcome the present dependence on fossil fuels in the agro-food sector. This dependency increases the volatility of food prices and affects economic access to sustenance. This book provides a critical review of recent developments in solar, wind and geothermal energy applications in agriculture and the agro-food sector such as processing, distribution, retail, preparation and cooking.

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The book series addresses novel techniques and measures related to sustainable energy developments with an interdisciplinary focus that cuts across all fields of science, engineering and technology linking renewable energy and other sustainable materials with human society. It addresses renewable energy sources and sustainable policy options, including energy efficiency and energy conservation to provide long-term solutions for key-problems of industrialized, developing and transition countries by fostering clean and domestically available energy and, concurrently, decreasing dependence on fossil fuel imports and reducing greenhouse gas emissions. Possible applications will be addressed not only from a technical point of view, but also from economic, financial, social, political, legislative and regulatory viewpoints. The book series aims to become a state-of-the-art source for a large group of readers comprising different stakeholders and professionals, including government and non-governmental organizations and institutions, international funding agencies, universities, public health and energy institutions, and other relevant institutions.

SERIES EDITOR: Jochen Bundschuh



Geothermal, Wind and Solar Energy Applications in Agriculture and Aquaculture



Editors: Jochen Bundschuh, Guangnan Chen, D. Chandrasekharam & Janusz Piechocki



6000 Broken Sound Parkway, NW
Suite 300, Boca Raton, FL 33487
Schipholweg 107C
2316 XC Leiden, NL
2 Park Square, Milton Park
Abingdon, Oxon OX14 4RN, UK



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