

1. Record Nr.	UNINA9910975078903321
Autore	Scholz Sebastian M
Titolo	Biochar systems for smallholders in developing countries : leveraging current knowledge and exploring future potential for climate-smart agriculture / / Sebastian M. Scholz, Thomas Sembres, Kelli Roberts, Thea Whitman, Kelpie Wilson, and Johannes Lehmann
Pubbl/distr/stampa	Washington, D.C. : , : World Bank, , [2014]
ISBN	9780821395264 0821395262
Edizione	[1st ed.]
Descrizione fisica	1 online resource (xvi, 208 pages) : illustrations ; ; 26 cm
Collana	World Bank Study
Disciplina	333.9539
Soggetti	Biochar Biomass energy
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Front Cover; Contents; Acknowledgments; About the Authors; Abbreviations; Executive Summary; Introduction; Background on Biochar; Overall Opportunities and Risks of Biochar Systems; Figures; Figure ES.1 Biochar as a System-Defined Concept; Survey and Typology of Biochar Systems; Life-Cycle Assessment of Existing Biochar Systems; Boxes; Box ES.1 Summary of Kenya Case Study; Box ES.2 Summary of Vietnam Case Study; Box ES.3 Summary of Senegal Case Study; Aspects of Technology Adoption; Potential Future Involvement of Development Institutions, Including the World Bank; Chapter 1 Introduction Potential of BiocharIncreases in Research into Biochar; Content and Purpose of Study; Figure 1.1 Acceleration of Published Research on Biochar and Charcoal; Methodology; Chapter 2Background on Biochar; Characteristics and Historical Basis of Biochar; Figure 2.1 Terra Preta Soil Pit near Manaus, Brazil, Showing Thick, Dark, Carbon-Enriched Top Layer; Biochar Systems; Figure 2.2 Biochar as a System-Defined Concept; Tables; Table 2.1 Typical Product Yields (Dry Basis) for Different Types of Thermochemical Conversion Processes That Generate Carbonaceous Residues; Note Chapter 3Opportunities and Risks of Biochar SystemsIntroduction; Impacts on Soil Health and Agricultural Productivity; Figure 3.1

Percentage Change in Crop Productivity upon Application of Biochar under Different Scenarios; Table 3.1 Possible Biochar Effects on Nitrogen Cycling; Impacts on Climate Change; Table 3.2 Direct and Indirect Sources of Biochar Emission Reductions; Figure 3.2 General Concept of the Carbon Storage Potential of Biochar Based on 1 Tonne (t) of Dry Feedstock (Slow Pyrolysis); Figure 3.3 Impact of Biochar on Climate Change Mitigation

Figure 3.4 Alternative Scenarios for Biomass Carbon Dynamics Social Impacts; Competing Uses of Biomass; Table 3.3 Potential Biomass Use and Limitations; Notes; Chapter 4 Survey and Typology of Biochar Systems; Survey; Classification of Biochar Systems; Figure 4.1 Distribution of Project Locations; Figure 4.2 Biochar Production Technologies; Figure 4.3 Utilization of Biochar Production Energy; Figure 4.4 Word Cloud Showing Biochar Feedstocks Most Frequently Cited by Survey Respondents; Figure 4.5 Scale of Biochar Production Systems

Figure 4.6 Typology of Biochar Systems by Type of Energy Recovery and Scale Showing Number of Projects with Each Type of Feedstock (n = 154) Figure 4.7 Summary of Dominant Biochar Typologies; Table 4.1 Biochar System Typology; Chapter 5 Life-Cycle Assessment of Existing Biochar Systems; Life-Cycle Assessment: Definition and Methodology; Box 5.1 Elements of a Life-Cycle Assessment; Case Studies; Kenya Case Study Life-Cycle Assessment; Figure 5.1 Schematic Flow Diagram for Biochar Production in a Pyrolysis Cookstove System; Figure 5.2 Pyrolysis Cookstove in Kenya Case Study

Table 5.1 Primary and Secondary Feedstock Characteristics and Availability for Baseline Scenario

Sommario/riassunto

Biochar is the carbon-rich organic matter that remains after heating biomass under minimization of oxygen during a process called pyrolysis. Its relevance to deforestation, agricultural resilience, and energy production, particularly in developing countries, makes it an important issue. This report offers a review of what is known about opportunities and risks of biochar systems. Its aim is to provide a state of the art overview of current knowledge regarding biochar science. In that sense the report also offers a reconciling view on different scientific opinions about biochar providing an ove
