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Book Review

**MECHANISMS OF LANDSCAPE REHABILITATION
AND SUSTAINABILITY**

Narcin Palavan-Unsal, Valentin Kefeli, Winfried Blum

Bentham Science Publishers, 2011, ISBN 978-1-60805-395-7, 124 pages,

This book is based on the results of landscape rehabilitation with the help of fabricated soil and a new approach on the use of restored soils for building houses and communities. This book presents discoveries and proposals that have emerged from the authors research and explains ways to protect Earth's ecosystems against further degradation. These proposals are founded on the philosophy of sustainable development and its application to various aspects essential to the long-term success of human beings; these include community coexistence, education, water purification and recycling, agriculture, the production of fabricated soil for landscape rehabilitation, and the preservation and propagation of wild flora. Strategies for both indoor and outdoor systems are covered in this publication.

The book covers several subjects including molecular biology, botany, microbiology, soil biochemistry and human interaction with the ecosystem. Methods for soil rehabilitation ultimately allow us to obtain optimal crop yield.

Subjects discussed in this book are included in four parts and twenty chapters. In the first part, which includes three chapters, the authors present soil as a component of the biosphere. The factors of the sustainability of soil sphere in the industrial and rural societies is the main idea of chapter two. The chapter three is dedicated to soil sustainability and soil management, including description of indicators for sustainable agricultural land management.

Part two includes five chapters that refers to the general characteristics of fabricated soils. Preliminary investigation of Alfisol showed us to proper ratio of carbon and nitrogen as well as other

nutritive elements which we compose using waste materials for low income technologies. The imitation of the soil profil allows us to evaluate each layer of fabricated soils and characterizes fabricated soils biota. The ratio and dynamic of soil bacteria and fungi was also investigated in the fabricated soils.

Part three is the largest, including nine chapters, referring to biomass accumulation and growth regulation processes in plants growing on fabricated soil. Fabricated soil function on the bituminized substrate of mining soil was investigated in connection with the growth of populations of willow and poplar.

Using solar energy for photosynthesis werw involved in processes of growth and development. The propagation and growth of young plants growing on fabricated soils took place under the balanced control of phyto-hormones and inhibitors. These substances controlled the development of the main organs and tissues of plants, as well as the formation of cellulose, lignin and other carbon polymers which participate in the composition of fabricated soils. Ideas of molecular biology in the combination of plant science help now to get the highest productivity of the crops. Due to human activity in the discovery of phytohormones and chemical regulators, it was possible to help people achieve the highest of the crop.

The last part of the book, including three chapters, is connected with the role of water in the process of plant growth. The role of plant roots was investigated as a tool for water cleaning. Special plants were selected for gray water cleaning. These experiments could be used for the elaboration of fabricated soils and water cycling in space.

The book closes with a glossary which includes an explanation of specific terms.

In general all chapters deal with restorations of biospheric cycles which are uncoupled during the human activity. Therefore this book deals with subjects from molecular biology to human ecology and covers such kind of main subjects like botany, plant physiology, microbiology, biochemistry, soil science, human behavior in the ecosystem. In the same time, in order to protect soils against destruction, authors proposed unique mechanisms of

the application of fabricated soil for landscape rehabilitation.

Mechanisms of Landscape Rehabilitation and Sustainability is of particular interest to academic and professional biologists, soil scientists, ecologists, agronomists and architects.

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