

## **BOOK REVIEW**

**MECHANISMS OF LANDSCAPE REHABILITATION AND SUSTAINABILITY**, Narcin Palavan-Unsal, Valentin Kefeli, Winfried Blum, Bentham Science Publishers, 2011, 124 pages, ISBN 978-1-60805-395-7

The book is based on the results of landscape rehabilitation with the help of fabricated soil and a new approach to the use of restored soils for building houses and communities. It presents discoveries and proposals that have emerged from the authors' research and explains ways to protect the 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, which 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 an optimal crop yield.

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

Part two includes five chapters that refer to the general characteristics of fabricated soils. A preliminary investigation of Alfisol shows the proper ratio of carbon and nitrogen, as well as other nutritive elements composed by using waste materials for low income technologies. The imitation of the soil profile allows to evaluate each layer of fabricated soils and characterizes the biota of fabricated soils. The ratio and dynamics of soil bacteria and fungi in fabricated soils was also investigated.

Part three is the largest, including nine chapters, referring to biomass accumulation and growth regulation processes in plants growing on fabricated soil. The impact of fabricated soil on the bituminized substrate of mining soil was investigated in connection with the growth of plantations of willow and poplar. Solar energy for photosynthesis was involved in the processes of growth and development. The propagation and growth of young plants 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 conjunction with plant science contribute to getting the highest crop productivity. Due to the discovery of phytohormones and chemical regulators, it was possible to help people achieve the highest of the crops.

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

In general, all chapters deal with the restoration 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 order to protect soils against

destruction, the authors propose unique mechanisms for 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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