

Kohlmaier, G.H., Weber, M., Houghton, R.A. (ed.): **Carbon Dioxide Mitigation in Forestry and Wood Industry.** - Springer, Berlin - Heidelberg - New York - Barcelona - Budapest - Hong Kong - London - Milan - Paris - Santa Clara - Singapore - Tokyo 1998. ISBN 3-540-63433-9. 375 pp., DM 168.00, GBP 64.50, FF 633.00, Lit. 185 540.00, USD 109.00, øS 1226.40, sFr 152.00.

The expected climate change, which may have a serious impact on the biosphere, can only be avoided if the future emissions of CO₂ and other glasshouse gases are reduced considerably from the industry, and natural sinks for CO₂ are increased or, at least, maintained at the present level.

The impact of climate change on plant communities starts at a specific plant physiological level, such as photosynthesis, respiration and allocation, and leads to a changed net primary production, net annual increment, and net ecosystem production, which influences the level of competition between different species. Important parts of the global carbon cycle are forests, and therefore, they are also part of the mitigation potentials.

The book is based on contributions to a workshop organised by the book's editors. The workshop focussed on the opportunities of carbon mitigation potentials in the industrial countries in support of the developing countries. Twenty papers have been prepared by 41 contributors: from Austria (4), Belgium (1), Canada (3), Finland (4), France (3), Germany (16), Great Britain (1), Italy (3), Switzerland (3), The Netherlands (2), and USA (3). They are divided into four chapters, each containing five papers. The Chapter 1—Forest resources: past, present and future role of managed and unmanaged forests in the global carbon balance—deals with the history of forests in Europe, North America, Canada, and Former Soviet Union, and role in global carbon cycle, impact of land-use dynamics on the carbon budget, carbon sequestration under their changing climatic conditions, forest dynamics including assessment of humid tropical forest distribution using remote sensing at a global scale, use of geochemical models, modelling carbon fluxes from atmospheric data, release of carbon to the atmosphere from decay of woody debris, peat, soil organic matter and slash, *etc.*

The Chapter 2—Implementation of carbon dioxide mitigation measures in forestry and wood industry on a national and international scale—contains papers

summarising carbon mitigation potential (present and future mitigation options, and potential considering forms of land use, German climate protection programme and supranational concepts, experience with afforestation and substitution, implementation of carbon mitigation measures in forestry, *etc.*).

The Chapter 3—Quantitative and qualitative evaluation of carbon dioxide mitigation in forestry and wood industry—is devoted to problems connecting with afforestation and wood production (fossil carbon sequestration and substitution, substitution of wood from plantations by that from deforestation, modelling carbon storage, life cycle assessment of wood products, glasshouse gas emissions, global warming potential, forest CO₂-binding capacity, *etc.*).

In the Chapter 4—Forestry mitigation options under future climate change and socioeconomic pressures—the papers deal with future development of the carbon cycle, and discuss ecophysiological problems of forest ecosystems (effect of CO₂ enrichment on photosynthesis and growth of trees and forests, plant and soil respiration, net primary productivity, water balance, water-stress effects, functioning of the terrestrial carbon sink, future forests in changing global climate, development of the carbon cycle, biosphere and ocean-biosphere models, simulation of climate and its impact on forests, *etc.*).

The book has a strong interdisciplinary focus and integrates global aspects with regional and national studies. For readers of *Photosynthetica*, it presents rather rare views on the role of photosynthesis and related traits in the biosphere. Each paper is accompanied by a list of references (together *ca.* 700 citations). The book is well produced, and provided by a simple index. It may be useful to everybody interested in present and future impacts of global climate change on biosphere, and ways to overcome their harmful influence on world life.

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