



## Entrepreneurship and Management in Forestry and Wood Processing – Principles of Business Economics and Management Processes

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*Forestry has long been in a rather favourable position by offering a valuable raw material source in high demand. However, with rapidly changing end-user demands and cost competitiveness within the forest and wood chain as a whole, the industry needs to adapt. Explaining entrepreneurial action as part of a chain of comprehensive value-added processes leads to a new perception of forest production and wood processing.*

*This book applies the main concepts of modern managerial science to the world of forestry and renewable natural resources utilisation. It is the perfect book for students studying forestry, environment and wood processing, as well as entrepreneurs and managers within the wood-based sector. Topics are covered from an entrepreneurial perspective and include perspectives from accounting, finance, economics, supply chain management, marketing and strategy.*

The outline: 1. Forestry and the wood products industry; 2. Creating added value in companies and enterprises; 3. Markets and marketing; 4. Management, human resources and organisation; 5. Accounting: The core economic information system; 6. Investment and Financing; 7. Logistics and production processes; 8. Strategy, controlling and wood-based sector development

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## Foreword

Forests were a major subject of international political attention at the United Nations Conference on Environment and Development that took place in 1992 in Rio de Janeiro. Since then, forestry issues have come to be understood in a much more integrated and cross-sectoral way that captures how this important land use is shaped by interacting and competing activities. Forests contribute to poverty alleviation, rural development, green jobs, renewable bio-energy, energy security, climate change adaptation and mitigation, soil and water conservation, biodiversity protection, sustainable building and city development. Although forests alone will not provide comprehensive solutions to these challenges, without forests there can be no sustainable answers. In June 2012, the Rio+20 Conference revisited the great challenges humankind is facing and in its final report, “The Future We Want,” identified seven major global themes: jobs, energy, cities, food, water, oceans and disasters. All of these issues are interrelated, and all involve sustainable development.

Three major, interrelated challenges that humankind faces are dwindling energy from nonrenewable sources, the growing threat of climate change and the need to provide food security for all. None of these challenges can be solved in isolation. As the world population grows, so does the demand for energy, food and materials – as well as the quest for more modern, convenient life styles. Modern technology helps accommodate the changing preferences and higher consumption levels in particular of people in the developing world. To avoid further damage to the world’s natural resources, countries will need to adjust their approaches to land use, restore soils and degraded land, and optimize the management of agriculture, forestry and rangelands. Consumers need to be more aware of how their choices affect our planet.

Multiple demands for environmental services (water, soil, carbon sequestration, biodiversity) and material uses (energy, food, wood) need to be balanced to prevent overuse of land resources. The world still derives about 9% of global energy from forest sources, mainly for cooking in developing countries. Advances in technology research and industrial development processes can improve the combined production from agricultural lands and forests, considering employment, value added, carbon efficiency and life-cycle analysis. Energy can be produced either at the end of the value chain or from by-products that would otherwise go unused. Agroforestry as well as intensive bio-energy tree crops on poorer agricultural land might offer additional possibilities to produce food, forest products and energy for local populations.

Sustainability is a crucial element in unlocking the full potential of forests – to provide wood (a local, national and global renewable raw material), to offer a renewable natural resource for the enjoyment of present and future generations and to maintain biodiversity and rare forest ecosystems in our varied and changing landscapes. Providing environmental services leads to a larger range of interventions with additional costs; this is an important reason for sharpening the economic perspective in forestry. Income from sustainable wood production is by far the most important source of funding for sustainable forest management. How this income might be augmented in a sustainable way is crucial for improving the living conditions of forest-dependent communities and procuring the necessary funds to maintain environmental services that depend on the quality of forest management practices. Developing countries’ commitment to stop and reverse deforestation will be strengthened when they see that forest management is a profitable

and noncontroversial business, and they will then abandon the unsustainable patterns of the past decades.

Landscape approaches are increasingly being advocated. Maintaining the resilience of forest ecosystems and restoring overused and degraded forest areas are essential activities that have gained increasing attention. Harmonizing different forms of land use and optimizing management strategies of natural renewable resources to increase the sustainable production of goods and services is the only possible way to accommodate a world population of 9 billion by 2050 and lift billions of people out of poverty. Forests are often located in remote, climatically disadvantaged areas, on steep terrain and on poor soils. In such places forestry is the main endogenous economic support of vast areas of the world, and it forms the beginning of a value chain while providing vital environmental services.

Green economy, green growth, low-carbon economies and bio-based economies are related emerging concepts with a focus on new pathways to long-lasting economic development that is environmentally and socially acceptable. Reducing the effects of climate change means requiring fewer material inputs, especially of non-renewable materials, decoupling economic growth from energy consumption, and lowering emissions of carbon and other greenhouse gases. The social and cultural dimensions of forests have gained attention—forest area is an important asset for urbanized societies, for example—and a renewed interest in their economic dimension can be observed. Global discussions on forest governance have identified economic issues as crucial, and the 10th session of the United Nations on forests, held in Istanbul in April 2013, has been devoted to the economic dimensions and challenges.

Forests have a high potential for entrepreneurial initiatives related to wood production and bio-energy, nonwood forest products and leisure activities. Some challenges for the development of entrepreneurship lie in public legal frameworks and technological or social issues, such as uncertain or undefined ownership status or scattered forest ownership. Comprehensive action to overcome these problems from the governance side is crucial for strengthening an enabling entrepreneurial environment. Entrepreneurial thinking and competent action increase the economic and social standards of the rural and urban population. The ability to mobilize the full economic potential of a country is thus related to its culture of entrepreneurship.

Six experienced colleagues in the field of forestry and economics, led by Professor Franz Schmithüsen from the Swiss Federal Institute of Technology (ETH) in Zurich, have written this book devoted to entrepreneurship and management principles in sustainable forestry and in the wood-based sector. The reader will find valuable information on the broad area of forest economics for teaching and research as well as consultation for professionals. I thank the authors for their excellent contribution to implementing sustainable forest management and future forest-based sector strategies in Europe, and in other continents as well. I congratulate Routledge for publishing the book in its Explorations in Environmental Economics series.

Rome, 15 July 2013

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## Preface

*This book* explains the principles of entrepreneurship and management and the application of modern managerial science to forestry and the wood-based sector. It examines how business management is shaped by external economic, social and technological factors and by the goals, culture and internal processes of private and public enterprise. It trains a critical eye on forests' long-term production potential as a renewable natural resource. Altogether, the book is a source for application-oriented knowledge about multifunctional forest development and sustainable uses of wood.

*Forests provide* economic, social and environmental benefits and represent significant cultural and human values. The specific nature of particular forest ecosystems is determined by the local, regional and global climate, by different soil properties and water regimes, and by a great diversity and dynamic flux of flora and fauna. Human influence is also a major factor that affects the extent, resilience and biodiversity of forests. It determines how close to nature the forests are and what their economic and social potential is at a given time and place. Human beings benefit from protecting and managing the forest sustainably, just as they suffer from its misuse and destruction.

*Entrepreneurship in Forestry and the Wood Products Industry* takes an integrative approach and considers forests as a multifunctional economic, social and cultural natural resource that contributes to sustainable development at a time when climate change and the ecological functions of ecosystems are of growing concern. European forests have a long history of supplying wood raw material for a wide range of goods, from lumber and paper to bioenergy, as well as nonwood products and ecosystem services. Rapidly changing market demands and competition on cost, however, are forcing the industry to adapt and develop new resource utilisation and industrial processing strategies.

*Entrepreneurship* is the first word in the title because the authors focus on initiative, innovation, opportunity, openness to change and ability to manage short- and long-term risks in a rational, reasoned manner. They are convinced that with a broad understanding of risks and opportunities, production and marketing processes, interactions between different processing levels, and options for creating value-added chains and industrial clusters – all as related to renewable natural resources – individual entrepreneurs and managers will succeed in modernising the forest and wood-processing sector. Explaining entrepreneurial action as part of a chain of comprehensive value-added processes leads to a new understanding and a more integrative perspective on forest production and wood processing.

*Entrepreneurs act* in a dynamic political, economic, social and cultural environment shaped by competition for physical, financial and human resources and interlinked production and consumption chains. Innovations in technology and business practices, new product and process developments, and changing social and cultural values, such as growing concern for environmental protection, are decisive determining factors. They lead to changing demands for goods and services as well as to changing supply opportunities in production. Actual and prospective market demands and supply potentials in turn drive change in business management. The complex skills that must be mastered by entrepreneurs, managers and employees at all levels include operating in competitive markets, improving value-added production based on sustainable resource use, enhancing the economic efficiency and effectiveness of business activities, and working productively with staff and external stakeholders.

*Whether employed as a textbook by students or consulted as a reference by professionals, the book has the following goals:*

- to explain the fundamentals of business management and the specific conditions of forest production and wood processing;
- to convey principles, methods and techniques of entrepreneurial decision making through practical examples;
- to develop readers' analytic skills in using information and finding solutions to achieve goals and business objectives;
- to encourage creative and reflective capabilities in the search for workable alternatives in decision making;
- to develop social competencies and leadership in personnel management and organisational systems; and
- to link readers to complementary general and specific literature and develop their ability to use such sources.

*The book may be used* in teaching forestry and wood processing courses and as a reference for landowners, entrepreneurs and managers working in the wood-based sector. Decision makers who shape policy or manage private, communal or state forests and environmental leaders who preserve forest ecosystems will find information on strategic and operational management systems that bring together sustainable uses and strict preservation. Topics include marketing; business management, personnel and organisation; accounting, investment and finance; logistics and production processes; and wood-based sector strategy. References and suggestions for further reading in the scientific and general business literature lead to additional information.

*European forestry* developed its successful, sustainable model over a long period, albeit with often controversial practices. A similar quest for sustainability began in North America during the second half of the 19th century. Now, however, many countries in other regions do not have the luxury of decades in which to build the necessary institutional and economic basis for sustainable forest management and a productive wood-based sector. Practical and effective management activities need to be applied today on a large scale in all regions. The world's forests are under pressure and in many cases exploited. The demand for different goods and services rises constantly, and powerful forces of world trade are driving change. The European experience in multifunctional forest management can make a significant contribution if it is adapted to local conditions, promoted by the private and public sector and systematically transferred in teaching and research.

*The forest and wood-based sector* can and should make an exemplary contribution to developing a green economy and has great potential for enhancing conservation, mitigating climate change, and demonstrating how natural renewable resources can be used to benefit both society and the environment. Multifunctional forest management practices, based on conflict resolution procedures and physical planning methods, are an indispensable requirement for preserving valuable ecosystems, maintaining biodiversity, and reconciling social and cultural needs and values with growing economic and industrial demands.

The starting point is *a process- and actor-related analysis* cutting across the full value-added chain, from forest production to processing and end-user markets. That is, the wood-based sector is considered as a series of interdependent business management engagements. Guidelines along which the concept is developed are the following:

- Market focus is the foundation for entrepreneurial success.
- Process management, including appropriate direction and controlling methods, is the prerequisite for entrepreneurial performance, effectiveness and competitiveness.
- Innovation is the basis for entrepreneurial growth and adjustment in a rapidly changing economic, social and political environment.
- Forests, forestry, wood processing and use of biomass are all part of a common context.

The book began as a German text that was published in 2003 and revised in 2009. Academic and professional experience has encouraged the authors to come forward with a new, revised and expanded book in English that takes, simultaneously, a broad, global perspective and a regional point of view. The chapters are self-contained and can be studied independently. The citations and general bibliography are extensive and list references in both German and English.

We thank Michael Robertson for having made a first translation of the German base text. Special thanks are due to our colleague Kit Prins, who has followed the preparation of the new English text from beginning to end with critical, pertinent and enriching contributions. We owe great thanks to Sally Atwater for her editing. We thank our colleagues who reviewed chapters and offered advice: Yves Dubé, Jabory Ghazoul, Volker Hoffmann, Klaus Josef Kammerhofer, Marius Lazdinis, Dennis Le Master, Alex McCusker, Peter Niemz, Adisa Omerbegovic and Florian Steierer. And we thank those colleagues and friends who have encouraged us and participated over the course of our work.

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—*Franz Schmithüsen, Bastian Kaiser, Albin Schmidhauser, Stephan Mellinghoff, Karoline Perchthaler and Alfred W. Kammerhofer*