



Working Paper

**Forests, landscape and society  
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University of Thessaloniki**

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***Forests, Landscape and Society***

***Franz Schmithüsen***

*Address to the Ceremonial Gathering of the*  
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## **Introduction**

To receive today an honorary doctorate from the Aristotle University of Thessaloniki is for me a reason of pride and enjoyment. It is also a reason to express my thanks for obtaining this highest acknowledgment for academic work which we have in our university system. And it is an occasion to be modest and to remember the support from my collaborators and the inspiration from some of my colleagues. The subject of my address to you this evening “Forests, Landscape and Society” has oriented my learning and thinking. It has been the focus of my professional activities as forest manager, as international consultant and as university professor.

Already at high school my father Josef Schmithüsen who was a geographer, took me with his students on field trips and excursions. He taught us to observe fields and forests as much as the expanding zones of urban space as constituting elements and characteristic features which made the individuality of a landscape. He sharpened our eye to recognise man’s influence and rationality in forming the environment in which he lives. At university I learned to understand forests as complex and long lasting ecosystems and the possibilities to use them in a permanent way for wood production and other social benefits. It was Kurt Mantel who gave me the understanding that all forests are in a constant change determined by physical factors as well as by human interventions that often reach over many centuries. I became aware from his lectures that the many uses and management techniques which we find today or which had prevailed in the past have been induced by concrete economic needs of man and by opportunities offered to him by his environment.

As a forest manager in the state forest service of Baden-Württemberg I realized quickly that professional knowledge and expertise is only of practical value if it corresponded to the reality of people’s living conditions. During my work as international consultant in the developing world I learned from practical experience that good forest management and consistent landscape protection require political decisions, functioning public institutions and solid efforts to design and implement appropriate forest and landscape legislation.

Forests, landscape and society and the many linkages which exist between them have been the essence of my teaching and research as professor for more than 20 years at the ETH in Zurich. I realized that in order to understand man’s ability to use forests, land and water resources as a basis of economic and social advancement requires an insight into the reasons of social change, cultural values, economic and technological developments, and political decision making. The trends in leading research and teaching centres which we experience since at least 10 years in Europe as well as in North America have shown me the need to place forestry and landscape development into the larger context of the environmental sciences.

## **Forests and Forestry Development**

Climatic zones and altitude levels of vegetation, soil formation and topography, together with particular demands of plant species, are decisive factors determining the development of forest vegetation. Above all, the average annual temperature during the growth period, the limits of cold and drought, the water regime of soils and the exposure of the site influence the diversity of forest stands and tree species. The natural conditions for the development of vegetation make it clear that in Western Europe large areas would be covered by forests of deciduous species. In Central and Eastern Europe and in mountainous regions coniferous species gain importance.

The actual distribution of forests and the degree of their transformation by man are the results of natural factors and cultural development processes. The limit between forested areas and other forms of land-use are determined by social needs and values, by economic opportunities and by political regulations. Most European forests, perceived by the population as a physical and social space, have been profoundly influenced by timber utilization and forest management. Age-old human interventions have determined their present spatial distribution and their prevailing species composition. During the long history of land colonization, forest areas have been transformed into fields and pasture. Subsequently certain colonized zones have returned to fallow land and to forest again. Varied landscapes have been formed by the natural vegetation successions, by reforestation and/or afforestation. As a consequence the present species distribution reflects only partially what the forest would be without man's intervention. Important indicators for the degree of "naturalness" of the forests of today are the conditions of soil development and the composition of the herbaceous flora.

Manifold land uses have followed each other in the course of centuries. The utilization of wood and other products from the forest were and still are a local resource for people, an integral part of agricultural and pastoral production systems, a basis for local craftsmanship as well as the resource base for pre-industrial and modern industrial development. The succeeding historical stages of forest uses have led to a forestry economy which provides an innovative model for sustainable land management and a steady increase of its productive potential. It is important to state that the utilization of forests, as we know it today in Europe, finds its origins in the importance of wood as a source of energy and as raw material for local uses and industrial development.

The application of the principle of sustainable production of wood has favoured by various silvicultural methods. In regions where oak and beech forests dominated, the coppice with standards system prevailed and allowed the combined production of firewood from new sprout shoots on old stumps and of timber from the stems retained over several cycles of firewood harvests. The coppice with standards still constitutes today an important

management system, even though numerous areas where it was once practised have been converted into high forests since the middle of the XIX<sup>th</sup> century. In other regions, regeneration of forests from seeds and/or from planting and management of uniform and mixed stands constitute today the basis of the current silvicultural systems.

The emergence of sustainable forest management was provoked by technological evolution and internationalisation of timber markets. The economic boom set off a rise in the demand for timber and created new possibilities for the commercialisation of valuable assortments. At the same time, the rapid extension of the use of mineral coal in the XIX<sup>th</sup> century had major consequences. By diminishing the pressure on wood as an energy source, it modified in a radical way the conditions for the use of forests. Since then they have been seen as a renewable resource which may be managed to favour the industrial and economic expansion of a country. This change constituted a decisive element in the passage from locally governed exploitation to a system of sustained wood production on a large scale. Forestry is today a modern sector of the economy functioning according to the principle of sustainable management of a renewable resource.

The solutions for putting it into practice, developed from scientific models that regulate the intensity of felling in relation to the long-term production potential of forest stands. The systematic application of silvicultural techniques ensures regular regeneration by plantation or sowing, or by natural regeneration. Other silvicultural measures such as tending young stands and thinning increase progressively the productivity and value of the harvest. This kind of forestry, which has developed by successive stages, leads to a progressive increase in wood production, realises the potential of the soil fertility, favours the diversity of the forest cover. It provides in various combinations for the production of wood and other forest products, as well as for protection and recreation services. Modern forest management implements a range of harvesting and regeneration methods, with the aim of maintaining or bringing the forests to a stable and well-balanced condition. For several decades there has been intensification in the use of natural regeneration. Efforts are made to increase the proportion of deciduous trees in conifer forests that had been created in the past. The conservation of the genetic pool is henceforth a major factor in management. It aims at protecting biodiversity and the particularities of landscape as well as maintaining the capacity of forest ecosystems to adapt to changing environmental conditions.

Multifunctional forest management and forestry practices close to nature, which have gradually become widespread in European countries, have become a comprehensive model for the valorisation of a natural renewable resource. They make an important contribution to sustainable development in as much as they favour the diversity of stands and at the same time allow for flexibility in production with a long-term outlook. Multifunctional forest management furnishes a concrete example of a land management practice which is able to

react in function of diverse social interests and to adapt to local conditions. It is the basis for a forest economy which can maintain open multiple options as regards market trends, but also as regards to changing needs and demands of the population.

With the use of fossil fuels and new industrial materials, wood is today replaceable from a technical point of view. Its use depends on a capacity to compel recognition in the face of national and international competition. On the other hand, coming from a renewable resource of which the production cycle is largely neutral with regard to emissions of CO<sub>2</sub>, wood production represents today an essential option for long-term development. An economically viable and productive forest economy must be appreciated in the larger context of environmental protection, renewable resources management and climate change.

If, previously, the conflicts generated by land use were in the fore, nowadays the very purpose of the forest and how it is managed make up the essential part of debates regarding man's relationship with his environment. The various fundamental concepts and management systems are now to be found in the centre of the political debate. In the face of more and more pressing demands for environmental protection and conservation of the biodiversity on a large scale, it is not the principle of sustainable wood production which is in question but certain forestry practices which are judged to be incompatible with sustainable development. From this point of view, a forest economy capable of taking into account profound currents of opinion in our society will benefit from the approval and acceptance of the population.

Altogether we can state that the political framework for forest management is in a dynamic process of renovation and innovation. Driving factors are changes in public attitudes towards forest and forestry development, new political actors pressing for more emphasis on the environmental and social importance of forests, and for more public participation in management decisions. These developments have to be seen in the context of the constitutional rights and responsibilities of forest owners. They are not obliged to carry incremental costs without compensation for forestry benefits resulting from demands of user groups and the public which have been incorporated into new forest legislation. The provision of public goods and services need investment and current costs must be financed with public financial resources and contributions from those who benefit directly. Legal and economic instruments that balance rights and responsibilities in private and public land management are indispensable in order to generate an optimal combination of benefits from sustainable forest management. Balancing economic, social and environmental goals is now the overarching international and European requirement for forest protection and forestry development.

## **Societal Demands Concerning Forests and Landscape**

What the forest means at the present time to the population, to land owners or to specific user groups has become an interesting and topical subject. Empirical studies of the perceptions and attitudes of people towards forests and forest management furnish information concerning the evolution of their social signification. Results are available from a number of research projects at the scale of a country or of certain regions or localities. They confirm above all that the forest is still considered to be a usable and productive part of man's environment, the management of which is notably conditioned by economic preferences.

The empirical results also show that the forests have acquired a new and more global signification in modern society. They represent for a growing part of the population a free space for recreation different from other widely transformed parts of the landscape. At the same time, the perception of the quality of a forest area is undergoing massive changes. It is more and more identified as a natural environment which many people imagine to be with little or no human influence. Forests represent today foremost the free interplay of natural forces, in contrast with the urbanized space and surfaces intensively exploited by agriculture. Wood production and forest management, which are a reality to most of the people questioned, are understood in various ways in function of personal values and convictions.

This new perception reflects the needs and compartments of contemporary society and crystallizes the desire of an ever more urban population for relaxation in natural surroundings. It expresses the preoccupations provoked by the impending threats to the environment and to biodiversity, issuing from personal experience or from sensitivity to phenomena on a global scale. It is founded on the individual values of people for whom the forest represents a place for meditation, for reflection and for freedom. The wish to preserve the forest, symbol of nature, is expressed by demands aiming at a limitation of forest exploitation. In a similar manner the preservation of areas near to the natural state and the protection of environment and of landscape become major criteria judging and accepting forest uses and management practices.

For the inhabitants of towns, the surveys confirm the importance of the social facilities provided by the forest. They put into relief two perspectives in which the forests and the green spaces around them are seen. Forests and the open landscape suffer less from outside influences and can counterbalance and compensate the effects to which other intensively used areas are subject. Both constitute a social space which permits a greater liberty of movement and more spontaneous activities. The motives of people interviewed vary according their preferences and their individual social and economic conditions. On the whole, the accent is on the forest as a place where one may go for a stroll, go walking, practice various sports or study nature, breathe and relax and where one feels happy and can rest from daily stress.

Answers to the enquiries also underline the importance of the forest as a place where one can withdraw and express one's love of nature, as a favourable place for personal reflection and as a realm of sensations. If visitors to the forest come for many different reasons, most of them give a greater and greater signification to emotional, spiritual and mystical values.

Opinions on the current role played by the forests of the region where people interviewed live show, for example, that in Switzerland the mountain forest is considered by almost everybody as a natural area and as an element in environmental protection. Almost in the same proportions, it is considered to be a place for recreation, a characteristic element of the landscape and a renewable resource for wood production. The assessments of the importance and utility of management activities show that the importance of forests as a natural environment and a local zone of liberty is determinant in what concerns the priorities given to management and forest work. Silvicultural care and forest regeneration as well as repairing damage caused by natural disasters are qualified by more than 90% of people questioned as important or very important. Activities aiming at protection or restoration of flora or fauna receive the same priority in the responses.

On the whole, the information available brings into evidence the various expectations and demands, often contradictory, which concern the forest and its management. For town-dwellers the forest represents above all a favourable area for leisure and relaxation. Inhabitants of mountain regions see it to be a protection against natural dangers and as a tourist attraction. Private forest owners, farmers and industry see it above all as a source of revenues from the exploitation of wood. For one part of the population, the forests are unique and the necessity to conserve them predominates. Another part considers that economic interest, employment and the use of sources of revenue remain of importance.

The implications are far reaching and concern the role of forests, the goals of forest management, and the objectives of public policies addressing sustainable forest management.

- Public perception of the meaning of forests moves from a tradition sectoral view as an economic resource toward a more global view of forests as social space and a significant part of human environment.
- Current forestry practices have to demonstrate that they are in accordance with a large range of public demands and values. They have to balance economic, social and environmental requirements as well as multiple and often divergent public and private interests.
- Forest policies are not anymore the exclusive public policy domain which addresses forest utilization and management. They can only be effective if conceived, formulated and implemented in the context of a growing number of public policies addressing rural development, nature and landscape conservation and environmental protection.

As for other land management sectors, sustainable development has become the overarching political principle and the benchmark for judging to what extent forests and forestry contribute to economic and social welfare and are indispensable for maintaining a safe environment that benefits present and future generations. The essential content of this principle is that economic growth, social integration and caring for a liveable environment are on an equal footing. Economic growth, social integration and protection of the environment depend on each other, cannot be substituted for, and are fundamental to social progress and common welfare.

Sustainability furnishes an imperative requirement for the use of natural resources. It starts from the principle that the present level of consumption and its effects on the environment must respect an equilibrium which takes into consideration the necessary room for manoeuvre for future options. From this point of view, the forest economy does not represent a gratuitous putting into motion of means of production. A sustainable management of forests requires investments which permit the maintenance of productivity and the adaptation of wood production to a long term potential. It necessitates a framework of conditions which allow the harmonization of present interests with future potential. A sustainable utilization of natural resources is thus linked to concrete economic and technical conditions, and therefore depends in the same way on fundamental human perspectives and social norms. Sustainability does not express itself as a mere intention for the use of resources. It results from decisions of what people and political communities recognize to be worth saving and to be worth of responsible management.

It follows that we need to gain more knowledge about the interactions between social demands, human behaviour, ecosystem processes and environmental change. We need to understand in a more intelligent manner the feedbacks between man and his natural resource base. We have to assess the impacts which result from human interventions and the consequences for us and the following generations. We need to know more about the interactions between society and forest ecosystems at a given time and at a determined location. We have to anticipate the potential for providing different combinations of goods and services of the forests of today as they have been shaped by long lasting human intervention of the past. We have to examine the effects of alternative management and utilization practices on the vitality, stability and biodiversity of the forests. And we have to recognize the changing meaning of forests in our culture. To determine concrete action to follow the principle of sustainable development is one of the prominent tasks of professionals, academic teachers and innovative researchers. This means to identify and develop sustainable land management systems that are feasible in a particular country and at a particular location.

## **Multidisciplinary Research in Managing the Renewable Resource Base**

The United Nations call on us to reflect on the overall political and social context in which we have to see the growing complexity of forestry development and landscape management. It is the concern of our citizens as well as of the international community to safeguard environment and improve the quality of life for present and future generations. It needs to be addressed at global and continental scales, within our own countries, and in our immediate surroundings. The challenge to land owners and land managers is thus to be seen in the broader perspective of maintaining the renewable natural resource base and to understand the role of forests as an essential part of landscape dynamics in a holistic manner. This is in fact the essence of wise use of forests and ecosystem management that builds on the legacy of the past and provides opportunities for the future.

As for academic teachers and scientist the common task is to investigate human-environment system interactions as they affect land use, landscape dynamics and environmental change. What we have to develop at our universities, more then until now, is interdisciplinary research combining the analysis of political processes and socio-economic developments with the modelling of our physical resource base. Such analysis has to be undertaken at different spatial scales and in alternative short and long term time horizons and impact cycles. Combining natural science modelling of the physical effects in our environment with social, economic and political investigations on different kinds of land management practices creates added scientific value. There are three fundamental dimensions of a systematic approach in order to develop socio-economic research on human environment system interactions at various scales.

The *first dimension* deals with change in societies. Cultural values expressed, for instance, in personal life styles and spiritual convictions, and social demands that relate to individual freedom, democratic participation and political organization are important driving factors that induce and reflect dimensions of societal change. In combination with changing economic needs and opportunities to produce multiple goods and services they initiate continuously changes and innovations in the prevailing political and legal systems. And altogether, these factors determine to a large extent individual and collective decision-making processes in natural resources utilization and management with landowners and land users as important primary agents.

The *second dimension* addresses at different scales present and likely future reciprocal interactions between human interventions and the renewable natural resources base. This includes global and regional environmental interactions; interactions at the level of landscapes, ecosystems or watersheds; interactions that result from alternative or combined

land use systems; and interactions at the level of individual or corporative ownership and land management units.

The *third dimension* concerns the ways and means to address land management and environmental problems and to find appropriate solutions. This refers, for instance, to the relationship between private and public interests and objectives; to existing and new technologies in land management; and to effective and cost efficient political and economic instruments. It also concerns the feedbacks and outcomes from individual decisions and public policy measures which provide important signals to land managers, stakeholders and policy makers. They show whether the taken course of action leads to satisfying results or requires corrections and further intervention.

Multidisciplinary research is essential in order to identify the factors of change within the reciprocal relationships and to evaluate in quantitative and qualitative terms the effects and dynamics of human-environment system interactions. On the basis of such an analysis substantive proposals for improvements in land management practices can be made which are commensurate with the demands of landowners, land users and society as a whole. This implies to investigate the characteristics, dynamics and vulnerability of human-environment systems in a global and regional context, as well at the level of landscapes, distinct land-use categories, ownership and land management units.

A comprehensive understanding of human environment system interactions needs to acknowledge the cultural, social, economic and political dimensions of society respectively the societal norms which they induce as permanent factors of change. This demonstrates the obvious need for an interdisciplinary research approach combining social and cultural sciences, political and economic sciences, and decision making sciences. Such research has its own disciplinary methodological basis and needs to facilitate the integration of quantitative and qualitative knowledge.

- Socio-empirical and cultural research is required, for example, in order to gain an understanding of the attitudes, perceptions and levels of acceptance of individuals, stakeholders, and societal groups; to show the variety of personal and collective values and their dynamics of change, or to identify motives and objectives in making concrete decisions in land management.
- Policy and decision making research refers, for instance, to participatory mechanisms and stakeholder involvement; to different forms of governance and political organisation; distribution of competences at different levels of government; decentralisation and political process steering; and to cross-sector policy effects and appropriate forms of political coordination.
- Inputs from economic disciplines and in particular from environmental and natural resource economics are necessary in order to investigate positive and negative external effects in quantitative and monetary terms. It is essential to determine ways and means for an effective internalisation of positive and negative effects, to identify trade offs between different categories of land use and forest conversion, to assess cost-benefits

and cost-effectiveness of alternative land use management systems, and to quantify transaction costs that result from different land tenure systems.

The identification of critical factors determining human-environment interactions and choosing a critical path facilitates interdisciplinary research considerably. It allows producing consistent, empirical and politically relevant socio-economic frameworks, which indicate critical factors that are of importance in a given context. The construction of frameworks showing the socio-economic context of sustainable resources utilization and land management is an important step to provide inputs into modeling and system analysis of physical processes and interactions of environmental change. It allows to conceive and design innovative research, which integrates systematically human and physical aspects in common models and system analysis and to build bridges between the natural sciences community, the environmental sciences community and the social sciences community.

To call for bridges between the natural science community and the social sciences leads to the more fundamental issue of how this can be done. How can one create an environment, appropriate working relations and institutional structures that favour creative, productive and lasting interactions between different classes of sciences? I think that there are many answers, and to say it with one of the philosophers of the past there is no “royal road to it”. Or more plainly speaking it takes time, it is difficult to accomplish and it seems that none has a proven and successful solution to it. Interdisciplinary research that works requires an open-minded and unbiased dialogue between scientists, and is based on research designs involving scientists and practitioners interested in and concerned by the forthcoming results. It benefits from a focus on concrete problems and field studies that are of political, economic and social relevance. It depends on institutional rules and on the allocation of financial resources as much as it depends on the personal disposition and experience of the researchers. Foremost interdisciplinary research means to learn to understand the science language of colleagues formed in different disciplines. And it means to recognize the reason, value and significance of the methods which they use in their own scientific communities.

It is a political necessity to build a more permeable science-policy interface and to develop innovate and more comprehensive interdisciplinary research networks that are able to determine what impacts human interventions have on the environment, to assess individual and collective opportunities and risks that result from changes in the environment, and to show at the same time what concrete measures can be taken to increase benefits and to avoid or reduce risks.

## Conclusions

- 1) In the course of the two last centuries sustainable forest management has made great progress thanks to the efforts of forest owners, professionals and scientist. It has integrated step by step growing societal demands into current management practices and lead to productive forests and diversified landscapes. Multifunctional objectives and forest practices close to nature, as they are current in many European forests today, offer a solid basis for adjusting to further changes in forestry resulting from new demands and cultural values in largely urbanised societies.
- 2) Wood production remains the centre of forestry as an important land management practice. It provides economic opportunities, maintains a valuable labour force in rural areas, and contributes to a regular regeneration of protection forests in mountainous regions. At the same time rational and economic feasible wood production is the prerequisite for an expanding and increasingly competitive European wood processing sector. Investment in new production and marketing technologies increases the sector's chances on world markets.
- 3) A new challenge which has appeared in all European regions during the last 20 years is to place forestry practices and wood production into the larger context of rural development and landscape management. Sustainable management of forests is today an indispensable contribution in maintaining the renewable natural resource base for our own use as well as for the use of the next generations. Public policies as much as private and public investments need to be coordinated in order to maintain an efficient use of natural resources at landscape scale.
- 4) There is need for more differentiated land use systems at local, regional and global levels. Maintaining the forest cover and fostering wood production as an important renewable industrial raw material are highly relevant in the context of environmental protection, climate change and economic welfare. On the other hand there is need to develop or reinforce complementary and not conflicting strategies for biodiversity conservation and for providing accessible space which satisfies the needs of the population for leisure and tourism.
- 5) Sustainable development is the political benchmark to judge the contributions of forest and landscape management to a more consistent integration between social and environmental concerns and efficient economic productions processes. This can only be achieved through democratic decision making processes and private and public arbitration between different needs and values that prevail in our societies. We need an explicit understanding of what we consider as the finality of individual as well as of societal progress. We have to agree on the common good as the fundamental point of reference in order to concretize the meaning of sustainable development in our time.

## **Final Remarks**

Let me come back to the beginning of my address. I want to add that it is a very special and significant occasion for me to receive an honorary doctorate from your university. It is named after one of the great Greek philosophers who have formed our thinking as Europeans. Aristotle has been for me already at high school and university one of the impressive examples showing that the quality of intellectual reflection and the intensity of interpreting personal life have not really changed over time.

When I started to read some of his philosophical writings during my professional activities I became often fascinated how actual and real, not to say how modern, his reasoning seemed to me. One of his thoughts that seems to me highly relevant in our present debates is his argument that man has or can have an inborn understanding of what is the common good, either in his personal relations to others or as a member of a structured and liveable society. His definition of justice as a modus and his explanation that justice can be defined as much in a positive manner as it can be sensed by referring to what is its contrary is another thought that has kept its relevance. And the same is true when he says that the significant elements from which injustice results, are transgression of the law, avarice and to be an enemy of equality.

His great work on political philosophy and anthropology tells us how differentiated the understanding of society, government and human behaviour was at ancient Greek times. It also helps us to ascertain more clearly where we put the focus on the same subjects in our time. If we look at this text as a scientific publication it offers in my view an excellent example for combining theory and methodology with empirical social research and practical political conclusions. In his writings on ethics Aristotle tells us in the 6<sup>th</sup> book that wisdom is the most perfect form of science. His reason is that a wise man can not only draw consequences from the principles of understanding and scientific knowledge but is also able to perceive the principles themselves. Again it seems to me that in a time where knowledge and concrete research results increase steadily, it could be worthwhile to remember Aristotle's wisdom.

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