

# The continuing evolution in social, economic and political values related to forestry in the United States and in Europe

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***The Continuing Evolution in Social,  
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***Dennis C. Le Master and  
Franz Schmithüsen***

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**Abstract.**

More than a century ago, Europe and the United States approached forest management quite differently. Europe's degraded forests were being replanted and managed for sustained yields of timber, through strong forest protection laws and conservation programs imposed by authoritarian governments. North America still had vast tracts of untouched timber, and in its democratic, capitalist culture, a conservation movement was only beginning to have an effect. By the end of the 20th century, both continents had embraced multiple-use forestry to meet the complex demands of their respective societies. Europeans and North Americans are now revisiting forest management because the political and social context has changed. Ecosystem management and sustainable forestry seek to maintain the composition, structure, and functions of forest ecosystems in the long term, guided by explicit goals, executed by well-researched practices, and made adaptable to human environmental interactions and processes. Differences remain. But full convergence is neither necessary nor desirable. We can better face the future if we learn from each other's successes and inevitable failures in forest management. The knowledge gained from our different approaches to forest management will help us contribute to forestry beyond our borders, especially in the development of the world's boreal forests and the forests of the Southern Hemisphere.

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## **The Continuing Evolution in Social, Economic and Political Values Related to Forestry in the United States and in Europe**

*Dennis C. Le Master and Franz Schmithüsen*

### **1. Introduction**

European influence on forestry and forestry education in the United States during the late 19th and early 20th centuries was very strong (Dana and Fairfax 1980). Europe was the center of higher education in the world at the time, and European universities alone offered formal curricula in forestry. Prospective US forestry students, such as Gifford Pinchot, had little choice but to go to Europe to study if they wanted a diploma in forestry.

Sustained-yield forest management was at the core of European forestry (defined here as managing a forest to achieve and maintain a balance between timber growth increment and cutting). It had made sense since the high Middle Ages (13th and 14th centuries) because the difficulty of transportation made local consumption virtually dependent upon local production. Hence, communities had to be self-sufficient in their timber and fuelwood requirements. During the 15th and 16th centuries, cities as well as pre-industrial entrepreneurs found that the current wood supply from forests that were already under exploitation could no longer cover the growing need for firewood and construction timber for domestic use, salt production, and metallurgical factories. As a consequence, the essential conditions for a more stable forest regime were established in the 17th and 18th centuries. Public policies and law determined the framework conditions for sustainable wood production, which meant stopping mere exploitation of what was available in the accessible forests.

The concept of sustained-yield forest management was transferred to the United States from Europe at a time of national concern over the possibility of a timber famine. Nevertheless, the underlying assumptions of sustained-yield management did not fit American circumstances at the time. Neither land nor timber was scarce, and whether the demand for wood was stable was at least questionable. Accordingly, appropriate standards for forest management were uncertain. Still, in the late 19th century, wood was the principal construction material and energy source in the United States, and large forest areas had been cleared in a kind of forest mining, with no thought of reforestation. Local timber supply shortages were becoming increasingly frequent. A real concern was whether a regional or national timber shortage would limit economic growth. Sustained-yield forest management addressed that concern. If it were applied, timber supply would not be a problem.

### **2. Forest clearing in the United States and Europe**

Forest clearing for agriculture by European settlers began almost as soon as they arrived in North America and continued throughout the 17th and 18th centuries as more and more settlers arrived. The 19th century was a period of rapid population growth. The US population increased from 5.3 million in 1800 to 76.2 million people in 1900, a more than 14-fold increase (World Almanac 2004). Roughly 230 million acres (93 million hectares) of forestland were converted to cropland and pasture during the same time span (Powell et al. 1993). The demand for timber must have seemed almost insatiable after 1850 because of rapid industrialization, urbanization, and the growth of railroads, whose tracks were spreading across the country.

Deforestation continued until about 1920, when the acreage devoted to cropland stabilized. In turn, the extent of forestland stabilized at about 732 million acres (296 million hectares), about a third of the landscape (Powell et al. 1993). The area covered by forest grew during the later part of the 20th century (Floyd 2002). Additions to forest land base since the 1930s have been smaller but significant. Converted cropland and pasture tend to be offset by losses due to development, both commercial and residential.

In 1992, forests covered 737 million acres (298 million hectares), 33 percent of the total land area (Powell et al. 1993). If Alaska is subtracted from the total, the forest area of the lower 48 states is 608 million acres (246 million hectares), or 32 percent of the landscape. Total forest area in the United States expanded by 0.2 percent during the period 1990–2000 (FAO 2001). The extent of forest land today is about 70 percent of what it was in 1600, just prior to European settlement (Powell et al. 1993). (Discrepancies are common in forest databases. For example, *Global Forest Resources Assessment 2000* shows the land area for the United States as 915,895,000 hectares (2,273,177,000 acres) with 225,993,000 hectares (558,429,000 acres) forested 24.7 percent (FAO 2001, 236). Differences are typically due to alternative definitions of variables.)

In contrast, the great period of deforestation in Europe began in the eighth and ninth centuries, reached its culmination in the 12th and 13th centuries, and then effectively stopped in the 14th century (Mantel 1990). The reason for clearing the land was rapid population growth in Europe, and the reasons for its cessation were the typhus epidemics between 1309 and 1317 and the bubonic plague, or Black Death, in the middle of the century (1347–1350), which resulted in dramatic population declines. About a third of the population of Europe—an estimated 25 million people—died from the plague in the mid-1300s (<http://black-death.biography.ms/>). Whole villages were abandoned in Europe in areas that had been only recently colonized. Dwellings and fields were left to be reclaimed by forest.

The large population loss brought about economic changes due to increased social mobility. It eroded the peasants' already weakened obligations under the feudal system in Western Europe. Further, the sudden scarcity of cheap labour provided incentives for innovation and the substitution of capital for labour, contributing to the Renaissance, which began in the early 15th century. Forest clearing was less important during the 15th and 16th centuries. During the 17th century, population increases were held in check by war, in particular the Thirty Years' War (1618–1648), and hence there was a corresponding restraint in the need for additional cropland and pasture. In the 18th and 19th centuries forest clearing for agricultural purposes occurred in some areas but was offset by reforestation activities and natural succession as a result of decreased demand for farmland due to imports of wool and, later, cereals.

During the 20th century, with interruptions during the two world wars, forest land was cleared for agricultural purposes in areas suited for agricultural production, but forests expanded on less productive land, particularly in mountainous regions. In recent decades, the increase in agricultural productivity and the expansion of international markets, together with restructuring and concentration of management units, including collective farms in eastern Europe, have led to abandonment of agricultural production on substantial areas that are suitable for reforestation or favour a return to forest through natural succession. These changes occur mostly in the mountains, where rapid change is affecting the balance among cropland, pasture, and forest.

The net result is that after the huge changes in the Middle Ages, the European forest land base has stabilized at a little over 1 billion hectares, which accounts for about 46 percent of the

landscape (FAO 2001). If Belarus, the Republic of Moldova, the Russian Federation, and Ukraine are subtracted from the total, Europe has 168,548,000 hectares of forestland, which equals 34 percent of the landscape (FAO 2001). However, in regions under intensive cultivation, as well as in the areas around large towns and in the surrounding open area, the forest now occupies only a small part of its initial expanse. On the other hand, in hillier areas and in the mountains, such as the Alps and the Carpathians, the forest has remained or has become a primordial element of the area, largely determining its economic and social potential and the specificity of the landscape. Total forest area in Europe expanded by 0.1 percent during the period 1990–2000 (FAO 2001).

### 3. Sustainable wood production in Europe

European forests have historically represented a combination of resources available to the local people that went well beyond domestic fuelwood and construction material (Schmithüsen 2006). These resources were essential to meeting daily needs. Forests were a complement to agricultural production, and as such they provided a direct food source for humans in the form of nuts, berries, and mushrooms, a source of medicinal plants, pasturage for domestic ungulates and forage for swine, and a source of animal bedding material. Forests were used in industry in Europe as a source of energy in the form of both charcoal and fuelwood in glass works, salt works, and the production of ferrous and nonferrous metals. Timber was used in mining to shore up pits and galleries. Wood was reduced to ash to produce potassium for bleaching textiles and making soap. Forests were a source of dyes for textile manufacturing. Importantly, for both commerce and national defense, forests supplied ship masts and naval stores (pitch, tar, spirits of turpentine, and resin).

Conflicts over the use of forest resources were common and centered on the demands of local populations to take advantage of the forest for their own needs, as a complement to agricultural production, and the efforts of landlords and local overlords to develop the forest as a commercial or industrial enterprise. This struggle continued up to the 19th century and was apparent in legal struggles concerning user and property rights. By 1850 at the latest, most European forests were under a system of sustainable wood production.

Since about 1700, forestry and wood processing have become productive sectors of the economy, using a renewable resource in a sustainable manner as the basis of business management (Schmithüsen 2006). Step by step, policy and law introduced the principles of renewable natural resources use as we understand them today. The term *sustained utilization* was used as early as 1713 by von Carlowitz, who worried about maintaining wood supply for large-scale mining activities. In 1804, Georg-Ludwig Hartig had already formulated the principle of sustainable forestry with its intergenerational perspective when he remarked that descendants should be able to draw at least as many advantages as the then-living generation appropriated.

In the 20th century, the meaning of sustainable forest management expanded from wood production to include all aspects of forest uses and values. In a modern business management-oriented definition—as formulated, for instance, by Speidel (1984)—sustainable forestry means the ability of forest enterprises to produce wood, infrastructural services, and other goods for the benefit of present and future generations. It means maintaining and creating the entrepreneurial conditions necessary for the permanent and continually optimal fulfillment of economic and noneconomic needs and goals.

#### 4. US westward expansion and the national forests

The 19th century in the United States featured the westward expansion made possible in large part by purchase of the Louisiana Territory in 1803 (for approximately \$15 million), rapid population growth (primarily by immigration), and the clearing of approximately 120 million hectares of forest land for agricultural production. Forests were abundant at the outset of the century, stretching unbroken for hundreds of miles. They were recognized as a source of valuable resources, but they were also seen as a barrier to development. As in Europe, forests were a source of timber, fuelwood, wildlife, pasturage for domestic ungulates, and forage for swine, food for humans in the form of nuts, berries, and mushrooms, and some medicinal plants. They were also important on the East Coast as a source of naval masts and stores. But with the possible exception of ship masts, the relative value of forest resources in the United States was very low in 1800.

By the late 1800s, concern—but only among a minority—developed about destructive logging and the loss of forest lands. Since wood was still the major building material and the predominant source of fuel in the United States, a timber shortage occurred would have a major negative effect on the economy. There were also less market-oriented reasons. Aesthetics was one. The economic exploitation of timber was basically an ugly process, especially at the scale at which it was done. The impacts of destructive logging and loss of forests on water quality and soil productivity were also reasons.

George Perkins Marsh published *Man and Nature* in 1864, and it was republished in 1874 as *The Earth as Modified by Human Action*. The book detailed the impacts of forest destruction on climate, water quality and timing, and loss of soil fertility, using the Mediterranean region as an example. Marsh concluded that ancient Mediterranean civilizations had sown the seeds of their own demise by the wanton clearing of their forests. Careful American readers did not miss the parallel with what was occurring on US forest lands. James Pinchot found the book fascinating, and it confirmed his belief in the direct relationship between a nation's forests and its general welfare (Miller 2001). He arranged for his son Gifford to receive a copy of *The Earth as Modified by Human Action* as a gift on his 21st birthday.

On November 13, 1889, after graduating from Yale University earlier in the year, Gifford Pinchot was accepted at L'Ecole Nationale Forestière. His experience there was mixed, but he became certain of one thing: the circumstances in which forestry was practiced in Europe was substantially different than in the United States. He returned home late in 1890. The following year, 1891, the Creative Act (26 Stat. 1095) was passed, which authorized the president to set aside forested areas of the public domain as forest reserves. The Organic Administration Act (30 Stat. 11, 34) was passed six years later, in 1897, and it specified the purposes for which forest reserves might be established and provided for their protection and use.

Pinchot succeeded Bernhard E. Fernow as chief of the Division of the Forestry in 1898. The Transfer Act of 1905 (33 Stat. 628) transferred administration of the forest reserves from the secretary of the Interior to the secretary of Agriculture. Later that same year, the Act of March 3 (33 Stat. 861, 872-873) changed the name of the Bureau of Forestry to the Forest Service, and in 1907, the Act of March 4 renamed the forest reserves the national forests. In the space of 17 years—1890 to 1907—through several incremental changes in policy and events—forestry in the United States took a significant turn in its development toward the sustained-yield forestry practiced in Europe.

Management of the national forests was largely custodial until the mid-1940s. Control of wildfire was the major activity on national forests in the West, and it was amazingly successful (MacCleery 1992). In the East, the challenge was restoring cutover forest and

abandoned farmland to forest cover in national forests acquired under authority of the Weeks Law of 1911 (36 Stat. 961). This effort, too, was very successful (Shands and Healey 1977).

The concept of sustained-yield management began to be accepted by private timber companies in the 1940s. There was no apparent future in the past practice of buying forests, liquidating the timber, and abandoning the land. If private timber were to be available on any significant scale, it had to be grown and managed, like an agricultural crop. Since private timber inventories had been steadily drawn down throughout the 20th century and at an accelerated rate during World War II, private timber companies looked to the national forests for their timber supply until enough timber had been re-grown on private lands to supply raw material needs. The prevailing notion at the time was that by maintaining a continuous supply of timber and protecting the basic productivity of the soil, a broad set of forest values would automatically be made available. Since growing trees and protecting the soil would spontaneously or naturally produce other values, there was little need to focus upon them. Management efforts should be directed at the trees—other values would be addressed incidentally.

## 5. US forest legislation in the 1960s and 1970s

Incomes rose during the 1950s, and people had more leisure time (Le Master 1984). They wanted places to recreate. Urban populations increased, and natural environments—areas comparatively untransformed by human activity—became increasingly scarce. Wildlife and the opportunities to view them in natural places became important. Millions of Americans went to the national forests to enjoy natural surroundings, to recreate, and to view wildlife.

The Multiple-Use Sustained-Yield Act of 1960 (74 Stat. 215) marked a major change in national forest management in the United States. It authorized and directed that equal and active consideration be given to five renewable surface resources, namely (in the order they appeared in the statute), outdoor recreation, range, timber, watershed, and wildlife and fish, and that they be “utilized in the combination that will best meet the needs of the American people” (sec. 4(b)). Incidental production of one these five would no longer be acceptable. The national forests were to be actively managed for multiple objectives. Further, the act directed that the five renewable surface resources produce high yields that could be sustained in perpetuity without impairment of the productivity of the land (sec. 4(b)).

Sixteen years later, after a major lawsuit (*Izaak Walton League v. Butz*) that effectively suspended timber harvesting in large parts of the National Forest System, Congress passed the National Forest Management Act of 1974 (90 Stat. 2949, as amended). This act established standards and guidelines for national forest planning and management. Among other things, limits were set on timber production, opportunities were provided for public participation in national forest planning, and plans were required to “provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives ...” (90 Stat. 2949, as amended, sec. 6).

Implementation of the National Forest Management Act initiated a transformation of the Forest Service:

- from an agency concerned about outputs, economic development, and commodity clients to an agency concerned about healthy ecosystems and diverse, changing market and non-market values;



- from an agency that emphasized a line-staff organizational scheme to an agency whose line-staff design is flexible, which shares power and engages in partnerships both inside and outside government;
- from an agency that emphasized science-based management to an agency that recognizes the importance of both biological and social sciences in its management programs and activities;
- from an agency that prided itself as being a “can-do,” mission-oriented organization to an agency responsive to changing social values in the context of sustainable, interrelated ecological, social, and economic systems; and
- from an agency dominated by white male foresters to an organization that is diverse in terms of gender, ethnicity, culture, and the disciplinary training of its employees.

National forest planning also served to sharpen the debate over sustainable forestry. Biological correctness was necessary for sustainable forestry, but it was not sufficient. Also required were economic viability and social responsiveness. Hence, national forest plans also had to take into account the local economic and social systems to gain public support and minimize conflict. In the early 1990s, three characteristics of sustainable forest management were identified. Such management would be characterized by being ecologically sound, economically viable, and socially responsible (Aplet et al. 1993).

Another transition occurred in the early 1990s, which was an evolution from multiple-use sustained-yield management to ecosystem management. Ecosystem management is defined as “management guided by explicit goals, executed by policies, protocols, and practices and made adaptable by monitoring and research based on the best understanding of ecological interactions and processes necessary to sustained ecosystem composition, structure, and function over the long term” (Helms 1998).

One essential difference between the two strategies is that the former is oriented largely toward resources while the latter is based on ecosystem structure and functioning. A second difference is the greater emphasis in ecosystem management on protection of biodiversity. A third is the application of adaptive management in ecosystem management based on monitoring and research.

## **6. Changing European values in the 20th century**

As stated by the Food and Agriculture Organization of the United Nations in *State of the World's Forests, 1995*, European forestry is in a position to provide multiple goods and services from forests that have been used and managed over centuries, and to adjust to changing demands and values in modern societies:

Most European forests are managed to produce a wide range of goods, notably wood, as well as many locally important non-wood goods, and services such as recreation, protection (of soils, watersheds and transport infrastructure in mountainous regions), and nature conservation. The role of Europe's forests as an important “carbon sink” is increasingly recognized. As growth exceeds fellings, there is a net uptake/storage of carbon in the biomass. Human management over the centuries has shaped the forests of Europe, creating forests of great beauty and rich biodiversity (such as the selection forests of central Europe and English ancient woodlands), as well as efficient wood

production forests which are often also valuable for the non-wood goods and services they provide (FAO 1995).

Empirical studies indicate that forests have, in fact, acquired a new significance in European societies during the 20th century (Schmithüsen 2006). Their significance has gone beyond their role as a source of valuable construction material and energy, which continues to be important for forest owners, the wood products industry and its workers, and farmers. Environmental protection and services such as soil stabilization and watershed protection, already an important aspect of forestry during the 19th century, together with new concerns for maintaining biodiversity and measures for carbon sequestration, are today central themes of forest management. For an ever-larger component of the population, mainly urban residents, forests represent free space for recreation and a place for meditation and reflection in natural surroundings.

Public policies for protecting and managing forest resources as well as the corresponding laws have been revised during recent years in practically all European countries (Le Master and Owubah 2000; Schmithüsen 2000). Major changes have occurred in central and eastern European countries. In transition to an open civil society, democratic institutions, and a market economy, they have had to develop a completely new policy and legal framework for addressing agriculture and forestry, nature conservation, and environmental protection (Mekouar and Castelein 2002). Societal demands on private and public forests, together with responses from within the forestry community and from the public at large, have received considerable attention from politicians and the forest administration.

Multifunctional forest management practices implementing the principles of sustainable development are current in many European countries. They increasingly involve forest owners, forest users, and environmental groups on an equal footing; contribute to balancing private and public interests with workable arrangements for landowners facing public demands; and facilitate a shift from governmental and hierarchical regulatory systems to negotiation, public process steering, and joint management responsibilities. Close-to-nature forestry practices are used as a land management strategy allowing adaptation to changing societal values. Favoring flexible and long-term production cycles and relying to a large extent on natural site factors, they contribute to maintain biodiversity, varied ecosystems, and diversified landscapes, and they leave options for alternative uses and new developments. Acknowledging economic necessities and multiple social and environmental demands, multifunctional and close-to-nature forest management offers a flexible range of land-use options for the future.

For more than 40 years, Europe has been engaged in building or rebuilding a common continental space in which people and nations can live peacefully together. It is for Europeans a revolutionary process with great successes but also drawbacks. Europe's move toward open civil societies, democratic rule, progressive economic development, and common political institutions has many faces. Contributing to cooperation in many domains and to a new European identity is the European Union. It is a driving force toward a more permeable and integrated continent in which people can move according to their personal choice and in which transnational and national political institutions coexist. The expansion of the European Union in 2004 that has resulted from the joining of eight countries from Central and Eastern Europe has brought new geographical and political horizons. With two other new members, Cyprus and Malta, the European Union now has 25 member countries. Its population amounts to more than 450 million people and its land area covers around 3.8 million km<sup>2</sup>, extending

from Ireland to the eastern borders of Poland, and from northern Finland to Portugal and Cyprus in the south.

The growing economic, social, and political integration of Europe has far-reaching implications for forestry and the wood-processing sector. For the wood products industry, a continental European sphere offers opportunities and challenges involving new and larger markets, more market competition, gains in efficiency and productivity, and stronger positions in world markets (European Commission 2000). The forest development perspectives are manifold and lead to a new vision for European forests, forest ecosystem networks covering large European regions, progressive adaptation in national policies and laws, common management principles and standards, and research and education networks on a European scale.

## **7. Changing US values in the 20th century**

Substantial changes have also occurred in the ways Americans value forests, especially during the second half of the 20th century (Le Master et al. 1997). More values of various kinds have been articulated, and non-market values—those not exchanged in markets—have increased relative to market values. Bengston et al. (2004) examined three forest value orientations—clusters of interrelated values and basic beliefs about forests—that emerged from an analysis of the public discourse about forest planning, management, and policy during the period 1980–2001. The three value orientations are anthropocentric, biocentric, and moral-spiritual-aesthetic. The study found that the share of expressions of anthropocentric forest value orientations (e.g., livestock forage, recreation, and timber) declined over 1980–2001, while the share of biocentric value expressions (e.g., biological diversity and carbon storage) increased. Moral-spiritual-aesthetic value expressions (e.g., getting back to nature) remained constant over time.

Management of public lands has changed as a result of changes in public values, slowly at first, then quite rapidly. Forest management changed on industrial lands as well, following the lead of public forest land management. Non-market values such as protection of water quality and wildlife habitat became a formal part of management strategies of large industrial holdings. Management of non-industrial forest lands was and continues to be very diverse in terms of goals and methods. Yet there is significant evidence that non-industrial private forest owners are quite responsive to public values toward wildlife, water quality, and biological diversity. These landowners are managing for such values on the basis of altruism, incentive programs, and the fear or the fact of government regulation.

In brief, many of the value and policy changes going on in Europe are also occurring in the United States.

## 8. UN Conference on Environment and Development

The 1992 United Nations Conference on Environment and Development (UNCED, the “Earth Summit” in Rio de Janeiro) was unprecedented in both size and the scope of its concerns about economic development and environmental degradation, particularly as they related to forests and forestry practices. Three major agreements directed at changing the traditional approach to development were adopted:

- The Rio Declaration on Environment and Development, a series of principles that define the rights and responsibilities of states;
- Agenda 21, a comprehensive program of action for sustainable development, and whose Chapter 11 concerns stopping deforestation; and,
- The Statement of Forest Principles, a set of principles for sustainable management of forests worldwide.

In addition, two legally binding conventions aimed at preventing global climate change and maintaining biological diversity were agreed to—namely, the Framework Convention on Climate Change and the Convention on Biological Diversity. The United Nations was also called on to negotiate an international agreement on desertification, which has subsequently occurred.

Significant progress has been made since UNCED. The Intergovernmental Panel on Forests, from 1995 to 1997, and the Intergovernmental Forum on Forests, from 1997 to 2000, were established within the United Nations to implement the Forest Principles and Chapter 11 of Agenda 21. The two processes generated 270 proposals for action for management, conservation, and sustainable development of forests. The UN Forum on Forests was established in October 2000 to provide a coherent, transparent, and participatory global framework for policy implementation, coordination, and development, including carrying out those proposals. It now serves as the main forum for international policy deliberations on forests in the absence of a global forest convention.

The number of legally and non-legally binding agreements having a bearing on forests and forest management grew significantly with UNCED. Ten legally binding forest-related agreements, including the UN Forum on Forests, now exist, and four of them were initiated either during or after UNCED (Braatz 2002). In addition, more than 20 other forest-related international conventions and agreements exist that have a bearing on forests and forest management, and the majority of these were initiated during the 1990s as a direct result of UNCED.

The list of international agreements is impressive on its face and encourages the view that countries of the world are converging toward a common set of generally accepted principles for sustainable forest management directed toward common goals in forest conservation. However, they do not constitute a coherent and holistic set of principles for forest management worldwide. A comprehensive, international, legally binding instrument is still lacking.

## 9. Convergence on sustainable forestry: Fact or wishful thinking?

The efforts in North America and Europe, as well as in the United Nations, to adapt forestry practices to expanding and new social demands have led to more diversified and comprehensive forest policy goals. Moving from a focus on wood as a sustainable resource, they now address a wide range of private and public goods and values and acknowledge the equal importance of production and conservation. On both continents and in a worldwide perspective, the actual policy goals are incremental and refer to the role of forests as multifunctional resources, for their economic potential and their importance to the environment. Increasingly they address the variety of ecosystems, the need to maintain biodiversity, and the urgency of safeguarding the natural renewable resource base for future generations. New policies and laws favor multifunctional land-use strategies capable of addressing divergent social interests and adapted to local conditions.

However, although steps have been taken to establish a common international base for the protection and sustainable management of forests, many more are necessary before a generalization of this kind can be made comfortably. For example, the fifth session of the UN Forum on Forests, which was anticipated to be a milestone event, ended on a very disappointing note on May 27, 2005. The forum's chairman, Manuel Rodriguez Becerra, said, "At the end, we didn't agree ... It's a collective failure ... We were not able to agree in making decisions that are relevant for addressing the huge deforestation, the huge degradation of forests ..." Becerra continued: "Developing countries say we need strong means of implementation and the developed world says we need strong objectives, and there is not a strong point of encounter between means and goals".\* The gulf between the Northern and Southern Hemispheres, between developed and developing countries, remains large and very real, and in the meantime, the global deforestation rate is currently estimated at 9.4 million hectares a year, overwhelmingly in the Southern Hemisphere.

The main forest certification programs operating in the United States, the Forest Stewardship Council (FSC) and the Sustainable Forestry Initiative (SFI), have also exhibited some convergence, as noted by Sample (2006). Although important differences remain, SFI, like FSC, now requires independent, third-party verification of a company's adherence to the standards required for use of the SFI label. And FSC, like SFI, is moving toward a "continuous improvement" approach to the standards by which it evaluates forest enterprises and a more stable, inclusive approach to modifying its standards over time. Both systems face similar and substantial challenges. Neither has been able to design an effective program for private landowners, who own 60 percent of the forest land in the United States, and neither has created much awareness among American consumers comparable to that of European consumers.

In Europe forests are certified under two competing processes, the Forest Stewardship Council and the Pan European Forest Certification System. The latter is based on the common definition of sustainable forest management, agreed upon at a 1994 follow up meeting to the "Helsinki Process," on the protection of forests in Europe, which is the most important pan-European institution in forestry matters and involves more than 40 countries. It uses six specific evaluation indicators combined with quantitative and qualitative criteria that were accepted at the Third Ministerial Conference in Lisbon in 1998.

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\* [http://p128news.scd.jahoo.com/s/afp/20050528/sc\\_afp/unforestagriculture\\_05052800383](http://p128news.scd.jahoo.com/s/afp/20050528/sc_afp/unforestagriculture_05052800383)

Despite the many successes of the sustainable forestry movement, certain trends of serious concern remain. Millions of acres of American forestland are being taken out of sustainable forest management, largely through land sales and land-use exchanges that result in parcelization and fragmentation. Large blocks of forest are being sold for business reasons, and many end up being held in smaller, sometimes disjointed parcels that cannot produce the multiple benefits that contemporary society has learned to expect from forests.

Indeed, one of the biggest problems in the United States today is the parcelization and fragmentation of forest land, which is substantially eroding the structure and function of forest ecosystems. Industrial firms are divesting themselves of forest land in a substantial way, and timber investment management organizations (TIMOs), which were expected to help, have proven to be driven by the same economic incentives common to any private enterprise. Agreement may exist among scientists and forestry practitioners on what constitutes sustainable forestry, but no such agreement is apparent among US forest landowners.

## 10. Conclusions

The changing conditions for sustainable forest management are to be seen in the overall perspective of maintaining the natural resource base, in a holistic understanding of forests and landscapes, and as part of the overall goal of protecting the environment and improving the quality of life for present and future generations. This is in fact the central theme of wise use of forests and ecosystem management, which builds on the legacy of the past and provides opportunities for the future (Farrel et al. 2000). An integrative approach to gaining more knowledge about the interactions among social systems and human behavior, ecosystem processes, and environmental change is essential to capture more closely the impacts and feedbacks between man and his natural resource base.

One has to understand the locally differentiated interactions between society and forests, the dynamically changing social and cultural meaning of forests, their physical potential for providing different combinations of goods and services, and the political and economic conditions for maintaining their stability and biodiversity under alternative management systems (Schmithüsen 2004). As it is for other land management sectors, sustainable development is the overarching political principle and the benchmark for judging to what extent the forest sector and forest policies contribute to economic and social welfare and to a safe environment that benefits present and future generations. Its essence is that economic growth, social integration, and caring for a liveable environment be on 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. The specific managerial possibilities and political commitments of individual countries and regions toward sustainability have to be seen in their respective stage of development, their cultural traditions, and the extent of their natural resource base.

Europeans and North Americans are both revisiting sustainable forest management because the political and social context has changed. European multifunctional forestry corresponds to multiple-use, sustained-yield forestry and its extension, ecosystem management—a term coined in North America and now readily accepted in Europe as well. It defines a strategy necessary to sustain the composition, structure, and functions of forest ecosystems in the long term. It is guided by explicit goals, executed by policies, protocols and practices, and made adaptable by monitoring and research based on the best available understanding of human environmental interactions and processes.

In 1900 Europe and the United States were divergent in their collective views of forest management for several reasons:

- The United States was rich in its forest wealth, and Europe was not.
- The United States was fundamentally a democratic society, while the nation-states of Europe were not, at least for the most part, and their forests were managed authoritatively.
- European countries had promoted conservation during the 19th century through strong forest protection legislation, and through land conservation and reclamation programs focusing mostly on replanting and afforestation.
- In the United States, large-scale deforestation and forest overexploitation had prompted a conservation movement, which developed as a countervailing force against 19th-century American capitalism. It had no counterpart in Europe, where economic system was mixed combining capitalist elements with strong state interference.

By 2000 Europe and the United States were converging in their collective views of multiple-use, sustained-yield forest management for these reasons:

- Europe and the United States today are both fundamentally democratic in their form of governments.
- Europeans have invested in and expanded their forest wealth, while the United States has drawn down its forest capital so it is now comparable to that of Europe.
- Both Europe and the United States participate in global markets for forest products.
- European and US societies both make complex, multiple demands upon their respective forests.

On the other hand, European and US societies will not fully converge in their conceptual bases of multiple-use, sustained-yield forest management for three reasons:

- Forests play a significantly greater role in European culture—as the setting of many European fairy tales and the basis for institutions such as the “free man’s rights” in Scandinavia—whereas in the United States, forests were historically regarded as a barrier to economic development, something to be cleared.
- Private property rights tend to be overdrawn in the United States and often obscure the public character of many forest resources.
- The scale of forests is much different in Europe, where forests are still developed and managed on the basis of nation-states, a considerable number of them within the European Union, and will likely continue to be in the foreseeable future.

But full convergence is neither necessary nor desirable. We can better face the future if we learn from each other, from both our successes and our inevitable failures in forest management. We can also better contribute to the world through the knowledge, experiences, and convictions gained from our different approaches to multiple-use, sustained-yield management, especially in the development of the world’s boreal forest as well as the many forest management challenges of the Southern Hemisphere.

With the forests of Russia extending from eastern Europe to the Pacific, a virtually intact belt of boreal and temperate forests encircles the globe. It is in our common interest, as Europeans and North Americans, to respond to the immense efforts required to achieve sustainable

management and preservation of unique ecosystems of the world's boreal and temperate forests. Europeans, like North Americans, are engaged within the UN system, seeking to implement international agreements, legally binding and otherwise, that constitute an emerging international forest regime, and to reach consensus on how forests around the world are to be used and managed, given the growing public perception of forests as a common heritage.

The challenges can be captured by the term *sustainable development*. The venue is global. We need to participate, and collaborate, in addressing these (among many other) critical global issues:

- How is Russia going to develop its great expanse of boreal forest?
- How are the tropical high forests of central Africa and Central and South America going to be developed?
- China and India, which combined have 2.4 billion people, are net importers of timber and huge net contributors to carbon in the earth's atmosphere. Are they going to be so forever? Or will they invest in forests and forestry to sequester carbon and meet more of their own timber needs as well as receive the environmental services of the forests they desperately need?

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## **Appendix: Definitions of Management Strategies Mentioned in this Paper**

***Ecosystem forest management:*** A strategy guided by explicit goals, executed by policies, protocols, and practices, and made adaptable by monitoring and research based on the best available understanding of interactions and processes between human activities and forest ecosystems necessary to sustain the composition, structure, and multiple functions of forests over the long run.

***Forest management:*** The practical application of biological, physical, quantitative, and qualitative information required for implementing managerial and political principles related to the use and regeneration of forests to meet specified economic goals and social objectives while maintaining the productivity of the resource.

***Multiple-use, sustained-yield forest management:*** A strategy focusing on sustained production of multiple resource outputs as determined by economic demands and social values that best meets the needs of land-owners, forest users, and of the public.

***Sustainable forest management:*** The practice of meeting forest resource needs and values of the present without compromising the similar capability of future generations.

***Sustained-yield management:*** Managing a forest to achieve and maintain a balance between timber growth increment and cutting.

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