

## Contribution of forestry to rural development

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### Abstract

Rural development will be a primary challenge in the next century. Consequently, the question arises what will be the contribution of forestry to this rural development, taking into account that nowadays in terms of rural employment the importance of forestry is low.

Rural areas are confronted with major challenges of economic restructuring and development, partially due to the permanent evolution of perception and roles of forests and managers in rural development. In comparison with the recent past, the current rural economies are much more diverse and urban/globally interrelated.

Next to the limited direct income and employment supply, intelligent rural forestry protects the agricultural crops and enhances their productivity. But moreover, the potentials of the new forest functions must be explored, based on the typical characteristics of each individual rural area.

There still are, also in the next century, various reasons for farmers to incorporate forests within their farming system. However, the motives and objectives for management may be quite diverse and a lot of problems must be solved, before forestry can express its full potential. Beside the production of marketable goods, numerous arguments about quality of environment, landscape beauty, biodiversity protection, water quality, erosion control, etc. are recommended to farmers.

The challenge of sustainable rural development is to promote efficiency and social equity, while respecting and enhancing ecological integrity and cultural identity. For the implementation of the forestry contribution, three specific means are available: forest development programmes, full utilisation of potential market chances for wood and non-wood products and marketing of forest services.

**Key words:** *rural development, farm forestry, small forest owners, forest policy*

### 1. Introduction

The **importance of rural areas**, mainly occupied by cultivated lands and woodlands, lies in the fact that they amount to more than 80 % of the European Union's landmass. However, no more than 25 % of the population live and work there, of which a small part (less than 7 %) is employed in agriculture or in silviculture (UN-ECE/FAO, 1993).

Although important local disparities appear, two general trends can be observed at the European level :

- agricultural areas and all types of wasteland are decreasing, unlike areas covered by urbanisation, industrialisation, transport infrastructures, etc.
- an increasing part of the population leaves the town to live in the country.

The result of that evolution is that **the distinction between rural and urban areas dim in all types of economic and cultural activities**. The specificities of rural areas are moving towards closer relationships with urban areas. The public opinion is rediscovering trees and forests for their amenity values. Agriculture, forestry and tourism are more and more complementary. And new types of rural enterprises are appearing (Cailliez, 1996).

Vos (1996) too stresses the **importance of the urban people on rural development**. Indeed he claims that in the N.W. European society the forest's clients and decision makers are both "urbanites". They constitute the real market and demand a broad spectrum of products and services from forests. He concludes that many forests are alienated from a large part of present-day society and also from their surrounding landscapes. There must be a reorientation towards involving society and integrating forests in the landscape.

It cannot be denied, however, that **nowadays in terms of rural employment, the importance of forestry is low**. In France e.g. 1000 ha of forest create 3 jobs, one for tending and two for felling and extraction, whereas 1000 ha in agriculture create 40 jobs. To these figures 20 more jobs per 1000 ha are to be added in downstream industries, both for agriculture and for forestry. For this reason, Cailliez (1996) underlines that a massive reconversion of arable land into forests would be disastrous in terms of employment and that rural development can only be devised via a controlled expansion of forestry and its integration into the other rural activities.

Because of the low profit and employment of the traditional forests and forestry, Merlo et al. (1996) investigate if, how and under what conditions environmental goods and services constitute an opportunity for creating additional income.

The clearly marked disparities in economic performances between rural and urban areas are recently acknowledged by international organisations. They confirm **the urgent need for integrated programs of rural development**. In this respect forestry is considered by the EU as an important tool of rural development, either by afforestation of abandoned agricultural land or by employing existing forests for more than just timber production (Koch, 1996).

Herewith, together with Solberg (1996), **tree basic questions must be put :**

- a. What do we know about forestry's actual contribution to rural development at present ?
- b. How much more can forestry contribute than it does today ?
- c. Which institutional and policy changes are necessary in order to get these increased contributions from forestry ?

**Rural development will be a primary challenge of the EU in the next century**, since we have learnt that the sum of the impact of the old Common Agricultural Policy on the environment over the last 30 years have been very damaging. Indeed, policies designed to meet narrow production-related objectives have led to the destruction of the wider potential of the countryside. Therefore the European conference on rural development of Cork 1996 was very hopeful, as agreement was reached on an integrated set of measures, which should promote sustainable rural development aiming at the quality and amenity of Europe's rural landscapes as regards natural resources, biodiversity and cultural identity.

## 2. Defining rural development

Probably most striking when going through the considerable amount of literature of forestry in the context of rural development is the **ignorance about the meaning of the term "rural development"**. Both words are difficult to define and to measure or to evaluate.

The term "rural" is used in many contents, without defining the concept or its spatial implications. Recent authors point to the diversity of rural areas and stress that rural can mean very different things. This coincides with the opinion of Newby, that "rural" is wholly a matter of convenience and that arid and abstract definitional exercises are of little utility. But as rural development programs expand, the need for rural research has increased and spatial categories have gained influence in discussion on the issue (Dax, 1997).

Definitions are needed and have been developed for the purpose of statistical analysis and/or financial policy. However, amongst international attempts to classify the rural area, definitions vary significantly. Both the OECD (Organisation for Economic Cooperation and Development) and the European Council have coined their own definitions. But many countries still use national definitions. As those tend to reflect national debates and specific socio-economic and administrative patterns, they can hardly be used for international comparisons or for generalised interpretation of spatial change.

In public discussion the term rural area is generally used as an expression for non urban or peripheral regions. It means that it is defined negatively in the sense of not being "urban" or "agglomerated".

However a review of the definitions of rural areas in OECD member countries shows that different criteria and different thresholds are applied (OECD, 1994a).

- size of population: limits for population size of the agglomerated units range from 1000 to 10,000;
- population density: density thresholds vary from 100 to 700 inhabitants per km<sup>2</sup>;
- commuting intensity;
- proportion of labour involved in agriculture: share of agricultural employment ranges between 1.5 and 20%.

At any rate, all definitions converge on the same parameters: population density and percentage of employment in the primary sector.

So, finally the following definition can be accepted: rural areas are those regions with a low density of population (generally below ca.100 inhabitants per km<sup>2</sup>) and where employment in the secondary sector is lower than a set percentage (e.g. 40%) - or below the national average.

Next to the term rural, Solberg (1996) puts a lot of questions on the term development. What is development? How can it be measured? How do we know whether development has taken place in the course of time? Is it possible to say that region A is more rurally developed than region B? According to Solberg development means improvement of some kind and is closely connected with increase in welfare.

The European Council on its side stresses that development involves demographic, social, economic and structural changes. As a consequence one needs a number of indicators to evaluate the development of a certain region. These indicators must be used as a set. Single indicators can only reflect individual aspects of development, which is rather a complex phenomenon.

The following indicators are used:

- demographic indicators: number of inhabitants, distribution in classes of age, sex, etc.;
- social indicators: education, type of employment, used goods and services, etc.;
- economic indicators: tax income, average salary, cash flow, etc.;
- infrastructural indicators: housing, road network, public facilities, etc.

The essence of development is dynamic. Development is not a state but the passage between two states. Therefore, measuring development requires a comparison between successive recordings of these indicators, to show their variations.

### **3. Characteristics of rural economic systems, with main attention to forestry**

A basic point of forestry is the permanent evolution of perceptions and roles of forests, forest management and managers in rural development. This way Kennedy et al.(1996) distinguish four areas of US public forestry:

- harvest forests & migrate (1850-1900s);
- sustained-yield development & management (1900-1950s);
- scientific, multiple-use forest management (1950-1980s)
- ecosystem-based stewardship (1990-present).

Rasker (1994) explains that traditional rural economies in the 1950s had simplicity in their structure, operation and urban interactions. Community development was seen as primarily (or completely) economic development-not as a complex, socioeconomic development process. Simplicity and confidence prevailed. Hays (1959), together with Kaufman (1960) and Steen (1976) also stated that, midway in the 20th century, US foresters were confident and rightfully proud of their profession's contribution to rural economies and ecosystems. At that time the same attitude could be fully observed with european foresters, providing rural communities with an optimum sustained-yield an an increasing wood supply.

Rural economies and social systems in the 1990s, however, are much more diverse, complex, sophisticated and urban/globally interrelated (Kennedy et al. 1996). Much traditional forestry thinking is evolving into more comprehensive, integrated forest ecosystem beliefs and management. At the close of this century one is no longer so certain of how to define:

1. the structure and function of rural economic, social or environmental systems,
2. forest planning and management,
3. forestry's and forest managers' roles in rural economies, and
4. how they all interact and impact one another.

These beliefs are in transition, and rightfully so stress Kennedy et al. (1996). They also point out the increasing need od rural areas: 1) to store and recycle urban solid, liquid, gaseous and

nuclear wastes, 2) for multiple uses (e.g., recreation/tourism, or water) and 3) for general environmental amenities and services of healthy, diverse, sustainable regional eco-and socioeconomic systems.

Merlo et al. (1996) come to similar conclusions for the EU. Within a generation, **attitudes have changed from indifference to convinced environmentalism, expressed by the so-called "green consumerism"**. With regard to the demand for environmental goods and services in the EU, one should first consider the high share of the population living in rural areas. Then there is the demand from visitors, associated with the general growth in tourism. As far as Europe is concerned, annual increases of 2-3% are expected. And, according to Croize (1992), environmental quality takes first place on the tourism demand agenda.

In order to gain information on attitudes, perceptions and opinions of the Swiss mountain population on the subjects of forests, forestry and forest policy Zimmermann sent a questionnaire to 2,232 people. Out of the 656 received answers, he concluded that the so-called welfare functions (recreation, nature and landscape conservation) as well as the protection function of the forest are given priority. The economic function of the forest, however, is considered to be of somewhat secondary importance. The landscape function of the forest is considered, surprisingly for the author, to be more important than its protection function, which is considered to be about as important as the recreation function. Least importance is attributed to the forest as an economic factor.

Koch et al. (1998), warning for the risk of oversimplifying the complex problems, describe as follows the **general trends for rural areas**, associated with the socio-economic periphery of society:

1. The rural population is declining; tourism is increasing.
2. The benefits and profits from traditional use of forestry products is decreasing; focus on the protective role of forests and environmental issues and nature conservation is growing.
3. Silviculture has become and is in process of becoming more and more extensive.
4. The multifunctional role of forests within the forest sector is gaining more and more recognition.
5. The owners and managers of the forest resources are often small scale farmers and villagers having forest management as one of several responsibilities and income generating options.
6. Multipurpose afforestation is in many areas widely considered as a suitable alternative to non-profitable agriculture.
7. The need for a cross-sectoral approach to the problems in peripheral areas is stressed .

As a conclusion, von Meyer (1996) states that **rural areas are confronted with major challenges of economic restructuring and development**. Yet, rural areas are not uniform. They are characterised by a great variety of economic, social and environmental conditions and potencies. Rural areas offer a great variety of environmental assets, from natural resources to cultural heritage, such as varied natural and semi-natural habitats and biotopes. Development may, however, also cause environmental threats, e.g.:

- over-exploitation, or pollution and degradation of soils, ground- and surface waters, air and climate;
- interference and destruction of habitats and biotopes, resulting in a loss of fauna and flora;
- banalisation of landscapes and loss of architectural features in many villages;
- increasing demands for settlement and major infrastructure.

In accordance with Kennedy et al. (1996), Vos (1996) too stresses that we are in the midst of a transition from the industrial stage towards the post-modern multifunctional stage, with characteristic shifts towards:

- a broader spectrum of different forest functions;
- a direct orientation towards urban needs;
- new production forestry being integrated in farm households;
- naturalisation of existing forests;
- isolation of natural forests from society through nature conservation;
- spatial differentiation of forests, adapting to the "new markets";
- greater involvement of urban and rural society in the future of our forests.

Altogether, Vos (1996) points out that the direction is not all that uniform, but diverges "à la carte" for different functions. **The new market demands a broad spectrum of production, information, regulation and option functions from the forests.** These challenges are facilitated by various factors such as the rapid changes taking place in agriculture that lead to land being abandoned and opportunities for new forests, and by technical innovations (lamination, construction technology) and the ability and willingness of the societies to pay for quality of life. And who does the claiming? In our urbanised society, by far most of the clients and decision makers are urban: readers of books and magazines, conservationists, tourists and people with second homes. They constitute the real market for forests. What leads to the questions: are our forests already producing what these people demand, and are the forest owners and managers able and willing to meet these demands?

With specific reference to the US, Kennedy et al. (1996) state that, at the moment, **urban populations communicate their values and attitudes towards forest management practices in several indirect ways.** Urban populations have a larger influence on legislation, both formal as well informal. They also represent a greater tax paying potential, so their attitudes have to be regarded by political decision makers. People living in urban areas also communicate values by donations to environmental NGOs, whom they expect to influence forest management practices either by on-site activities or by putting pressure on the political-administrative system.

Hunter (1997) remarks, however, that the developed world has been very poor at resolving the conflicts that have arisen across the town:country divide-tending to arrive at solutions that oscillate exclusively between production and conservation (e.g. the Spotted Owl controversy in the Pacific North West of the USA). Typically the view is held and defended by the land managing agent that non-country dwellers have no or very limited stakeholder rights until that position is overwhelmed by the political pressure exerted by such stakeholders. The

consequences can be expensive and disruptive. Waters et al. (1994) estimated that over 30,000 jobs would be lost as a result of the change in forest management to protect the Spotted Owl. Flora and Maginnis (1991) estimated that harvests would reduce by a quarter, log exports by a third and domestic lumber prices rise by 12% as a result of the changes. Rubin et al. (1991) however found that people in the USA were prepared to pay to protect the owl and compensate for job losses. Urgent work is required on determining the relative legitimacies and weightings of the various stakeholders and on mechanisms to incorporate those in decision making.

Against the eventual loss of jobs Vos (1996) puts the **potentials of the new forest functions**. The problem, however, is that for most of these functions no price is paid nowadays, as there is no market price known for them. So, many are still discussing about the feasibility of assessing the intangible functions in monetary terms, subsidising, the incompatibility of forest functions, etc. Yet, most of these problems can be solved technically. Indeed, there are many different methods for assessing the values of non-marketable forest services/products (Filius and Hekhuis, 1995) and there are also all kind of payment mechanisms.

An important question is, **which product-market combinations should be the core business of forest management today**, and how they should be dealt with. They can only be identified if forests are better integrated in urban and rural societies. Nowadays, decisions about forest management, conservation and the establishment of new forests are frequently made by distant planners, ecologists, landscape architects, etc. without involving local society and without an adequate knowledge of local ecological, physical and socio-economic conditions. The alienation of society from the forest should be transformed into involvement, a more direct link. Vos (1996) concludes, that, altogether, for forests to be more marketable, the attitude of those responsible for them should be pro-active, driven by the multiple demands of society and the value forests can add to these, and not so much by a reactionary attitude, dominated by the wish to go on producing as before. This transformation can only be achieved if both forests and foresters are flexible: their adaptability to new market demands.

#### **4. General contribution of forestry and options for forest development in rural areas.**

Forestry contributes to rural development in many ways. It plays a subsidiary role by complementing the revenues of conventional farming. In many situations, however, this contribution is crucial to farm survival.

Farm forestry is labour-intensive and offers good employment opportunities. But again, one has to stress the subsidiary character of this contribution: farm forestry is often seasonal and may not offer much chance for permanent employment. Yet, it helps overcoming temporary crises.

**Next to the limited direct income and employment supply, intelligent farm-forestry protects the agricultural crops and enhances their productivity.** Farm forests screen the crops from the wind, reducing evapo-transpirational losses and avoiding that the crops are buried by drifting sands. Farm forests also support the population of useful organisms, such as pollinating insects or pest eating birds.

Altogether, in a context of rural depopulation, farm forestry is a viable alternative to abandonment. Rather than let the land uncultivated for lack of manpower, farmers can plant it with forest crops.

**The availability of infrastructures is crucial for rural development** and forestry can contribute its own service infrastructures. Buildings, bridges and especially roads, which can be upgraded for public use. The support could be mutual, since forestry would certainly profit from available farm infrastructures. Moreover, forestry guarantees protection to these infrastructures, preventing erosion and mass movements.

In general, **farm forestry is an important stabilising factor**, whose role is crucial during crisis situations. Forestry helps overcoming a large variety of crises, whether they are physical (exceptional rainfall, wind, etc.), social (lack of manpower or, on the contrary, lack of employment opportunities) or economical (bad market for agricultural products).

With regard to forestry's contribution to rural development as part of the integrated approach of the new Common Agricultural Policy of the EU, **rural areas are divided** by Glück & Ottisch (1996) **into five groups** which are characterized as follows.

#### **Remote rural areas**

Forestry and forest industries provide some of the few job opportunities. Protection against erosion as well as measures for ensuring water supply can be considered priority. The high value for nature conservation is to be seen as the comparative advantage of such areas. The establishment of protected areas (e.g. national parks) could provide incentives for local economies (e.g. quality tourism, marketing of goods made from traditional agricultural and forestry products). A balanced relationship between forestry, agriculture, tourism, local craftsmanship and small industries is considered to be the desired goal for such areas.

#### **Areas dominated by the primary sector**

In such regions, forests have been reduced drastically from historical times until recently. Forests serve as wind-breaks against soil erosion. Abundant agricultural land can be used for new afforestation and plantations of fast growing species.

In such areas forestry proves to be important for the diversification of agricultural activities. Afforestation programmes could help reduce the agricultural overproduction as well as improve the situation as regards soil erosion.

#### **Rural areas used for mass tourism**

Forests are important for the overall appearance of the landscape as well as for protecting against water erosion and avalanches and wind erosion and desertification (in coastal areas). In mountainous areas, forests also contribute to high-quality water supply.

The development of new products in the recreation sector in cooperation with the tourism industry is one of the main challenges for forestry in such areas.

### Rural areas with a diversified economic structure

Forestry is dominated by the importance of timber and other wood products. As urban lifestyles become more attractive for a part of the population, the demand for forest services similar to those in urban areas will increase.

Whether the emphasis lies more on the wood production aspects (e.g. afforestation programs, diversification, investment in further processing stages), or more on amenity values (e.g. , recreation, environmental services) and the creation of high-quality living environments (e.g. retirement homes), depends on the situation specific to the region.

### Rural areas adjacent to agglomeration centres

Forests are under great pressure to be used for other purposes than forestry. Remaining forests are appreciated in terms of their amenity value, recreation and enhancing the urban microclimate.

The comparative advantage of forests near urban areas lies in their closeness to the potential customers of recreational and environmental services. As in tourist regions, the development of markets for amenity services is the main challenge for all actors involved. In these areas the demand for public involvement in forest planning and forest policy will increase in importance not only on public but also on private land, requiring foresters and forest owners to get acquainted with the various strategies of conflict management.

Summarizing the specific potential of rural areas for the production of forest goods and services and wood processing, according to Glück and Ottisch (1996), is presented in table 1.

Table 1. Specific potential of rural areas for the production of forest goods and services and wood processing (Glück & Ottisch, 1996)

	+++ very high potential		++ high potential		+ medium potential	
	Remote areas	Areas dominated by primary sector	Areas used by mass tourism	Rural areas with a diversified economic structure	Areas adjacent to urban agglomerations	
Ray wood production	++	+++	++	++	+	
Wood processing	++	+++	++	++	++	
Non-wood products : Food	+++	+	++	++	++	
Non-wood products : Non-food	++	+	+	++	+	
Forest services	+++	+	+++	++	+++	

### Role of small forest owners in rural development

**Small forest owners (SFO)** are defined as those forest owners, for whom forestry forms only a partial activity within their total livelihood system and whose forest management objectives are not predominantly oriented to industrial timber production. Two basic types of small forest

owners may be distinguished, i.e. farm foresters and other small non-industrial private forest (NIPF) owners. A further subdivision is possible on the basis of the functions of forests for various categories of owners.

Consequently for nearly all small private forest owners, their forests are not their main source of income. Traditionally, these forests are primarily maintained because of their contribution to the functioning of the farming system, while more recently forest ownership may also be combined with different types of non-farming employment.

As a result of the multifunctional features of forests, Van der Ploeg and Wiersum (1996) recognize **various reasons for farmers to incorporate forests within their farming system:**

- providing supplementary production of valuable products for household consumption (construction material, fuelwood, wild fruits and other fruit products);
- providing opportunities for supplementary economic activities (e.g. on farm camping) in addition to agricultural production;
- maintenance of landscape values, including shelter and wind protection for crops and livestock.

As a result of these multiple functions of forests for farmers, different farmers may perceive forest resources in quite different ways, and consequently, **the motives and objectives for management may be quite diverse.** These motives may be considered the guiding forces which motivate the decisions of small forest owners with respect to forest management. Various studies indicate that five major kinds of motives may be distinguished (Kurtz and Lewis, 1981; Bliss and Martin, 1989; Johnson and Nicholls, 1991; Karppinen, 1995).

1. Financial returns: obtaining income on a regular basis, not necessarily annually but within a time span allowing for consistent returns from management.
2. Investment: maintaining ownership for its increased value over time.
3. Residence: desirability for permanent residence or holiday cottage in a forest environment.
4. Satisfaction and aesthetic enjoyment of the intangible landscape qualities of the forest environment.
5. Social responsibility: preserving forests for future generations.

Traditionally the main motive concerned the possibility of using forests and trees as an input for the agricultural production process. But increasingly, a new form of integration with other income generation activities is developing. The nature and landscape values of forests are not only enjoyed by the owners, but also by tourists and recreationists. The behaviour of forest owners is often based on the wish to receive not only monetary but also non monetary returns from their forest investments.

**Small forest owners can therefore best be characterized as being utility maximisers rather than profit maximisers** (Hyberg and Holthausen, 1989). This is reflected by the findings that forestry incentive programmes aimed at stimulating increased rates of timber production in small forest holdings have in several cases not been successful (Clark and Johnson, 1993; Balleux, 1997). This indicates that there may be many reasons for managing forests. Forestry development policies should recognize such diversity rather than assume that the management systems, developed for public and industrial forests, are the only rational way of managing

forests. Because wood production often has a relatively low priority for the small-scale forest owner, while other functions are relatively more important to him, it might well be that the practices of these forest owners could provide interesting examples of how forests could be managed in an alternative way in order to contribute towards innovations in rural development.

Despite the difficulties, which can be listed, we can be sure that the forest and forest industry sectors will play an increasing role in rural development and that some farmers can be decisive actors in that process.

**The following problems must be solved, before farm forestry can express its full potential** (Van der Ploeg & Wiersum, 1996).

- First of all the development of farm forestry is hindered by the conflicts of interest over land use. Honest negotiation is needed, so that the requests of all parties can be integrated in regional development plans.
- Farm forestry also requires the development of suitable cropping techniques and appropriate equipment.
- The establishment of a forest requires a certain initial investment, and its maintenance is made expensive by the lack of suitable equipment. The long rotation of forest crops involves a long immobilisation of invested capitals and a large margin of uncertainty about their yield. In turn, this may cause the depreciation of the land planted with forest crops.
- Legislation provide further limits to the development of farm forestry. Typically, this is the case of non wood-products, whose exclusive use by the landowner is prevented by the "everyman's right" or other similar regulations.
- Psychological factors may prevent the development of farm forestry. Farmers are often suspicious of innovation and may turn down viable opportunities, due to their natural resilience to change.

Anyway **farm forestry can support the economical growth of farming** by increasing the quantity of marketable goods and services. Forestry contributes to farm economy by direct production, which can be traditional or innovative.

- Traditional production concerns mainly wood, berries and hunting. In the EU, traditional forest production is threatened by the competition of developing countries, and especially Eastern European countries. Farm forestry suffers less from this competition, since it operates on a different level. The production of farm forests is offered to local markets and it does not reach the global circuit where international competition takes place. Moreover a substantial share of this production is used for internal consumption and does not even need a market.
- In addition to conventional forest products, farm forests can provide farmers with a number of new marketable products. Some of these new products benefit from an established market. This is the case of tourism, that can dramatically increase the farmers revenues. Farm forests enhance the amenity of the place, thus increasing its appeal to potential tourists.
- Other products have a large potential, but lack suitable marketing mechanisms. In many situations this is still the case of berries and mushrooms, whose exclusive use by the farmer is often hindered by existing legislation.

- Another possibility is offered by the production of wood biomass for industrial and energy uses. The development of this new sector still needs suitable technology and it is affected by the strong competition of other raw materials.
- Finally, the sale of social services is being considered by some rural communities.

Everywhere in Europe one can observe a diversification of the activities carried on in-farms. One sees that an increasing number of new types of farms appear which may be named "rural enterprises". Cailliez (1996) recognizes at least three **conditions which should be fulfilled in order that the forest activities can be a strong component of these new farm enterprises.**

1. Grant aids are obviously necessary because the profitability of forestry is too low to interest the farmers. Present afforestation grant schemes are not well suited to the small size and the financial status of the small landowners. They consist of a small-term period (e.g. 15 years) followed with a long period problematically financed by thinnings.
2. The professional qualification of farmers and the stimulation of their unions should be reinforced. Farmers are generally underqualified in forestry. The necessary improvement of their qualifications does not only concern the silvicultural techniques, but also the use of tools and machines, as well as the knowledge of markets and marketing procedures.
3. It is necessary to maintain the system of rural enterprises dealing with wood transformation, in order that the prices paid to the producers should not be handicapped by transportation costs. Unfortunately, the present evolution of the sawmilling industry is in the opposite direction since the number of small sawmills is decreasing and some experts argue that a good industrial unit should saw 40,000 m<sup>3</sup> of broad-leaved logs or 200,000 m<sup>3</sup> per year of coniferous logs.

Cailliez (1996) is also looking for **the most promising forest activities for farmers.** To answer this question he distinguishes three basic situations, depending on whether it concerns existing woodlands, natural afforestation or afforestation of grazing and arable lands.

1. Generally speaking, existing farm forests are presently managed very weakly. There are, however, numerous cases where some intensification is possible by promoting the production of good quality timberwood. Special rules are needed to stagger the replacement of overmature or low grade stands over time by plantation of small plots of high quality trees. Several technical schemes are available, in some cases associated with grazing outside the regeneration areas.
2. The case of fallow lands and grazing lands naturally afforested is more difficult. These stands are vulnerable to fire. Their conversion into profitable forestst by means of silviculture only is a long and problematic task. Their future is highly determined by the importance of grant aids which are given to breeding activities.
3. Afforestation of agricultural land is highly recommended by european authorities. These afforestation schemes, however, seem to be adopted rather seldom by farmers to date. In France, only 15% of agricultural land afforested with public aid are performed by active farmers. Besides technical and financial reasons, farmers likely have psychological reservations linked to the fact that planting trees is irreversible.

The short (7 years) or very short (2 to 3 years) rotation plantations for energy or pulp purposes look more like agricultural than forestry productions and thus seem to be more attractive to farmers, but their extension is still limited for different reasons, among which are some technical uncertainties concerning species, pathological risks, long term durability of the system and resistance of nature conservationists.

In all cases where the main goal is the production of marketable timberwood, investments should aim at the production of quality timber. This is possible in large forest estates and is not the case with farm forests. Beside the production of marketable goods, numerous arguments about quality of environment, landscape beauty, biodiversity protection, water quality, erosion control, etc. are recommended to farmers. There is no reason to think that farmers are impervious to these arguments, but the decisions which they have to make require that precise answers be given to the very concrete questions they ask themselves, such as: Which additional income shall I have in the coming years? Which compensation shall I receive in case of failure?

### **Policy means for rural development and the contribution of forestry**

Von Meyer (1996) points out that **the challenge of sustainable rural development is to promote economic efficiency and social equity, while respecting and enhancing ecological integrity and cultural identity.**

To implement this challenge he proposes a concept based on 4 points. Sustainable rural development is:

- **a territorial concept:** it deals with spatial differences in development options and opportunities. Such differences can be considered positively, as diversity, or negatively, as disparities.
- **a multi-sectoral concept:** it is concerned with a wide range of demographic, economic, social and environmental issues.
- **a dynamic concept:** it is concerned with longer term changes in technological options, economic structures, social attitudes and perceptions, in environmental qualities and patterns.
- **a democratic concept:** it builds on participation and partnership among various actors.

This concept is on line with the **conclusion of the European Conference on Rural Development** (Anon., 1996b), assembled in Cork, which urges Europe's policy-makers:

- to raise public awareness about the importance of making a new start in rural development policy;
- to make rural areas more attractive to people to live and work in, and become centres of a more meaningful life for a growing diversity of people of all ages;
- to play an active role in promoting sustainable rural development in an international context;
- to support the ten point programme and co-operate as partners in the fulfilment of each and every one of the goals, which are embodied in this declaration.

This so called **Cork ten point rural development programme** for the European Union stresses or deals with the following points:

1. Rural preference: sustainable rural development must be put at the top of the agenda of the European Union.
2. Integrated approach: rural development policy must be multi-disciplinary in concept, and multi-sectoral in application.
3. Diversification: economic and social activity must be diversified.
4. Sustainability: policies should promote rural development which sustains the quality and amenity of Europe's rural landscapes.
5. Subsidiarity: rural development policy must follow the principle of subsidiarity. It must be as decentralised as possible and based on partnership and co-operation between all levels concerned.
6. Simplification: rural development policy needs to undergo radical simplification in legislation.
7. Programming: the application of rural development programmes must be based on coherent and transparent procedures.
8. Finance: synergies between public and private funding should be better mobilised.
9. Management: must be enhanced through the provision of technical assistance, training, better communications, partnership and the sharing of research, information and exchange of experience.
10. Evaluation and research: monitoring, evaluation and beneficiary assessment will need to be reinforced in order to ensure transparency of procedures, guarantee the good use of public money, stimulate research and innovation, and enable an informed public debate.

Coming back to the specific role and contribution of forestry in the context of rural development Kennedy (1996) concludes that, **to be relevant and effective in the 21st century, forestry management and research must be positioned in a broader, more inclusive ecological, economic and social context.** This does not imply rejection of traditional natural resource conservation values and beliefs, rather than a maturation and integration of traditional conservation thinking into a broader sustainability context. This would be a maturation and evolution from:

- forest site, narrow ownership and biological thinking to...broader, more integrated watershed, ecoregion and socio-economic views;
- myopic wood or wildlife resource (stuff) focus to...incorporating traditional product and broad urban and rural social values into ecosystem planning, management and research;
- traditional users and resident orientation to...new urban, and rural values and clients, as well as generations unborn;
- intensively managed sustained-yield forests for regional economic growth to...sustainable, high quality, diverse regional ecosystems, economies and communities;
- rural development = economic (base) development to...rural development = sustainable social development, with important political, environmental and economic systems components;
- independent, benign, expert "forstmeister" status and societal role to ...involved partners in challenging and assisting communities to cooperate in shaping sustainable futures;

- foresters managing forests for the public to... natural resource professionals who manage public forest ecosystems with the people.

Kennedy (1996) believes that most rural communities will still rely on forest and natural resource in the next 100 years. But this reliance relationship is changing in amount and type (quality), and more jointly shared with urban residents. The 21st century invites more comprehensive, inclusive organic-model beliefs in understanding and encouraging sustainable rural eco-, socioeconomic and political systems. Otherwise sociopolitical conflict could become the major constraint to healthy, sustainable forest ecosystems and to rural community development in the 21st century.

Concerning the role of forestry, Glück et al. (1996) consider the realisation of its production potential with respect to both forest goods and services as the main challenge. They propose **three specific means for the implementation of this challenge.**

### **1. Forest development programmes**

As a framework of planning, the Forest development programmes provide strategic orientation for the forestry sector. They should involve all forest-dependent actors at local, regional and national levels (FAO, 1996). In the effort to prepare FDPs, a multidisciplinary approach is required, which involves professionals in various fields of natural as well as human resources (including economists, marketing experts, lawyers, agronomists, environmental sciences specialists, and social sciences experts).

### **2. Full utilisation of potential market chances for wood and non-wood products**

Presently only one half of the annual growth of Europe's existing forests is actually harvested (UN-ECE/FAO,1990). In the future, the potential annual cut will even increase as soon as the new afforestations and plantations of ex-agricultural land come into production. As the consumption of wood products is in the utmost public interest, because they are renewable, biodegradable, sequester carbon as long as they are used, require low energy in the manufacturing process, and are domestically available, etc. it deserves public support. This can be accomplished by promoting research and development of forest products. As the UN-ECE/FAO Forest Resource Assessment shows, forests are also abundant sources of forest products other than wood. Many of these products have market value, others have not at the forest site due to a constitutional common-user right in many countries. It is obvious, however, that in some cases ownership and user rights to non-wood products are topics ripe for discussion. At any case, non wood forest products represent a huge potential market for many rural areas, the development of which should be promoted by appropriate means, such as entrepreneurial education of forest owners, market research, and cooperative supply strategies, etc.

### **3. Marketing of forest services**

Forests provide also environmental, social and cultural services. In the traditional understanding, these services are regarded as "public goods" and/or external economies of wood production, with the effect that their market price is zero. However, in the meantime people have learnt that

many of the forests services deemed to be public goods are "impure private goods" for which a market price can be achieved. Given that forest owners have the right to exclude users for these services, they are able to sell the right to use their forests for these purposes. Another example for creating value-added from forests stems from the demand for biotope conservation. Some forest owners may also earn money from sponsoring natural habitats when big companies try to improve their image by promoting environmental projects.

In summary, there are more and more forest owners whose income from forest services is no longer negligible. Utilising this potential requires again entrepreneurship, creativity, knowledge of markets and marketing, etc. This knowledge is not yet available in most forestry schools and extension services.

Merlo et al. (1996) have a more concrete approach and speak about **policy tools for achieving remuneration of environmental goods and services**. They point out that the supply of environmental goods and services may be guaranteed through different tools, mandatory or voluntary.

Mandatory tools are based on State intervention. They include constitutional principles, laws, regulations, plans, compulsory purchases, etc.

Voluntary tools have been recently developed to achieve remuneration of environmental goods and services. They may be outlined as follows.

### **1. Financial instruments**

They can take the form of: (1) compensation to make up for higher costs and/or lower revenues; (2) grants and incentives to encourage farming and forestry practices which would be otherwise neglected; (3) tax concessions.

### **2. Market-led measures**

At least three market-led measures may be identified:

- Management agreements providing payments subject to negotiation between farmers/forest owners and the responsible public authority. Management agreements have been applied for some time in the UK (Bishop et al., 1993) and in the Netherlands (Slangen, 1992).
- Marketing of environmental goods and services foresees specific markets where environmental goods and services (access, hunting, fishing, mushroom and chestnut picking, water resources, etc.) can be sold directly to consumers. In general, transaction costs make it difficult to market these benefits.
- Marketing of traditional products whose image is joint to environmental quality. This approach can be practised wherever direct sale of environmental goods and services is impossible or unwise. Remuneration can be achieved by selling traditional quality products, with the price being influenced by stewardship and, more generally, by the environment in which they are produced. In this respect, an important role will also be played by the policy of eco-labels and stewardship certification.

### 3. Trusts, persuasion and cross compliance

Trusts for conservation, amenity and recreation have recently assumed an important role in promoting environmental goods and services. Purchase of land is considered where important countryside features have to be protected and enhanced.

Measures of persuasion, through information, advice and extension services, have also been developed to facilitate the implementation of the various tools examined so far. Thanks to modern mass-media, persuasion has become more effective in modifying farmers/forest owners.

Koch et al.(1998) realise, that **relevance and political attention to rural development, and forestry in that context, vary considerably from country to country**. Nevertheless, they suggest, at the overall level, a development of national or even Pan-European policies for the rural development. Cailliez, however, is not directly hopeful in that sense and remembers that, in contrary to agriculture, forests and wood products are outside of the field of Community policies because there is no juridical basis for a forest policy in the Rome Treaty and forest matters are shared by at least eight Dgs.

Concerning the **evaluation of the current government forest policy**, Zimmermann (1996) notes that in Switzerland more than 60% of the people are generally dissatisfied with government forest policy. The following arguments are used to explain this feeling:

- lack of forest tending;
- too many forest roads;
- bad forest condition;
- insufficient state involvement;
- general dissatisfaction with politics.

It was striking in his research that the forest owners have been attributed the highest share of dissatisfaction. The activities of this group are therefore rejected most frequently.

It is therefore obvious, that to improve the efficiency of forestry in the context in rural development **an infrastructural network and capacity building must be set up**. Together with Glück et al .(1996), it can be underlined that the effort towards forest development in rural areas will fail without the support of adequate public services such as education, health care, crime prevention and the provision of roads, housing, cultural facilities, and sustainable agricultural management and development. Moreover, a capacity of forest owners for taking up the economic challenges is required, and if not available, it must be provided by training, upgrading, education, research and development of management systems, etc.

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