



## **Forest Business**

### *How do we manage our forests in Hesse*

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## **1 Forests in Germany**

Forests cover 11.1 million hectares, or about 33% of Germany's land area. Although Germany is a heavily industrialized country, its forests have among the highest standing volumes in Europe. The forest land in Germany is to 43 percent in private ownership, 21 percent belong to towns and cities. In Germany we term these as community forests. 36 percent are government land, mainly state, little federal government owned. All together more than 400000 estates are engaged in the management of forests, almost three-quarters are agricultural holdings with small areas of woodland. These areas furnish additional income for farms and are a reserve asset for farmers.

Broad-leaved tree species, principally beech and oak cover 40% of the German forests, while the conifers, mainly Norway spruce and Scots pine represent approximately 60%. Naturally, there are big variations from region to region. The average standing volume in Germany is 317 m<sup>3</sup>/ha and the annual increment is at about 11 m<sup>3</sup>/ha. Annually an average of 6 m<sup>3</sup>/ha is harvested. The average revenue from timber over all species and assortments is at 50 €/m<sup>3</sup>.

The forest authorities of the 16 federal states are responsible for managing the state forests, technical forest planning (e.g. forestry framework planning) and land-use planning at the local, regional and federal state levels, as well as for:

- advice and extension services for owners and managers of private and community forests,
- technical operations management and implementation in part of the community forests,
- supervision of all forests.

## **2 Forests in Hesse**

Hesse is one of 16 States located in the center of Germany. It covers an area of 21.100 km<sup>2</sup> of which 42 % are forests, the highest percentage rate in Germany. Hesse is rather densely populated with an average of 287 habitants per km<sup>2</sup> however, with big differences between Southern Hesse (511/km<sup>2</sup>) and Northern Hesse (151/km<sup>2</sup>). The gross domestic product per inhabitant is at 34.000 €. The contribution of Agriculture and Forestry is rather small at 0.5 %, whereas the service industries (transport, logistics – Frankfurt Airport) is dominating with

37.1 %. This is in sharp contrast to the Land use: Forestry and Agriculture occupy 42 % respectively 41 % of the land area while urban areas and infrastructure make use of 7 % each.

The Forest area in Hesse amounts to 895.000 ha. These forests are owned to 40% by State Government, 35% by communities and 25% by private individuals.

Forests in Hesse cover the entire ecological amplitude of this State. They occur from an altitude of 90m to 950m with annual average temperature between 5-10°C. During the vegetation period between May and September, average temperatures are at 12.5 -17°C. Precipitations range between 600-1.300 mm. Geologically, a good proportion of the area is characterized by sand stone and quartz rock with mostly brown earth types.

Broad-leaved and coniferous tree species cover each approximately 50 % of the forests. 30% of the Hessian Forests are covered by beech.

The standing average volume of Hessian forests is with 319 m<sup>3</sup>/ha a little higher than the German average. The annual increment is at 11.0 m<sup>3</sup>/ha, while annual timber harvesting amounts to 7.5 m<sup>3</sup>/ha. The rotation periods range from 180 yrs. (oak) to 80-100 yrs. (spruce).

### **The Hessian Forest Act, § 6 Basic obligations; orderly forest management:**

(1) The forest owner has to manage his/her forest in a sustainable and sustainable, professional way and according to plan as well for the benefit of the general public, under consideration of the landscape ecology and by preserving the protective, productive and recreational functions. ....

Some key aspects characterize the legal background of Forestry in Hesse:

- Long-term forest management planning (10 yrs.-plans are obligatory), persistence of forests and sustainability of forest production
- Multipurpose forestry that means, all forest functions are considered simultaneously at the same site (i.e. timber production plus environmental and nature protection, plus recreational functions)
- Avoidance of large area clear-cuts
- Choice of tree species that are best suited to the site.
- Extent abandonment of pesticides

Being a characteristic landscape element, the forests of Hesse contribute to the attraction of annually almost 25 million tourists and an unknown multiple of this for local recreation, sports work out and leisure. The Rhine-Main area to which the City of Darmstadt belongs to is one of the most densely settled and economically most powerful regions in Europe.

The forest regime in Hesse applies the principles of multi-functional management providing social, economic and environmental benefits at the same time on the same area. Due to the high population density and the traditional appreciation of the forests by the population, the recreational and protective functions are of utmost importance. Moreover, approximately 40% of the Hessian State forests are protected under the Flora-Fauna-Habitat and the Bird Protection Directives of the European Union.

In Hesse, measures to maintain and enhance the biodiversity of forests are an integral part of sustainable forest management. Specific measures for the maintenance of valuable species and forest biotopes as well as for increasing the value of habitats are taken on the basis of biotope mapping. This is the reason, why forest management by Law follows the principles of a close-to-nature or seminatural silviculture.

### **3 State Forest Administration**

The structure of forest organization varies from State to State. In Hesse, the State Forest Administration follows a three tier organization composed of the Ministry for Environment, Power Supply, Agriculture and Consumer Protection as the highest authority in forest and nature related issues, the Forestry Divisions of three Regional Councils as the regional authority and a State owned forest company for forest management. Ministry and Regional Councils are in a direct hierarchical relationship. Both have sovereign functions such as legislation, policy development, law enforcement, supervision, promotion programs as well as the transformation of the EU's forest related issues. However all managerial functions in the State forest have been transferred in the year 2001 in a reform process to Hessen-Forst, a semi-autonomous State Enterprise. Many other States have followed the example.

The reforms included a significant but socially conciliatory reduction of personnel, a complete modification of the accounting and revenue system and adaptation to the requirements of a modern forest business.

#### **3.1 Forest Management by Hessen-Forst State Forest Enterprise**

Hessen-Forst operations are governed by the State Forest Act, which assigns Hessen-Forst direct management responsibility for 343.000 hectares of state owned forests (including a National Park of 5.700 hectares) as well as 296.000 hectares of community owned forests (439 communities). Hessen-Forst further provides advice, technical support and – upon request – management and extension services for mainly small-scale 106.000 hectares of private forest owners. The management of the State forests and most forests of other ownership is certified under PEFC (100% of the state-owned forests) or FSC.

Under the supervision and target setting of the Ministry, consulted by a State Forest Enterprise Commission, the Board of Executives is responsible for the achievement of economic targets and those given by the State Forest Act. In the State Forest Enterprise Commission, representatives of the community and private forest owners, forest based industries and the public sector as well as one member of each political party represented in state parliament, are members.

Hessen-Forst operates along the lines of good governance, sustainability, community participation, teamwork, customer-orientation, harmonization of forest management and conservation, enhancement of efficiency and integration into regional development.

Three regional controllers supervise the 41 Forest District Offices operating as Forest Management Units (FMU) with an average forest area of nearly 18.000 ha. The FMU are assigned to manage the forests, assist private forest owners and contribute to nature conservation according to long-term, mid-term and annual natural planning. The FMU maintain close relationship with public offices and the private sector for ensuring an integrated landscape management. Each FMU is headed by a professional forester with a academic level. At this level, there are – according to the specific nature of the area - specially qualified and trained foresters for extension services, sovereign functions, production, environmental education and nature conservation. Each FMU is divided into 9-11 Ranger Districts with an average size of 1.800 ha.

Each year, Hessen-Forst supplies customers with approximately 2 million m<sup>3</sup> of timber from state owned forests and 2.5 million m<sup>3</sup> from the community and private forests, which Hessen-Forst is managing on behalf of their owners. Additionally, Hessen-Forst produces some 0.8 million m<sup>3</sup> of fuelwood. Due to the growing energy prices in Europe in the year of 2007, the demand on fuelwood has dramatically increased in recent years. Hessen-Forst as the biggest forest owner and manager in the State of Hesse has intensified activities to meet the demand and increase production for supplying the fuelwood and bio-energy market.

The biodiversity aspects determine to great extends the management of forests. Hessen-Forst practices a semi natural silviculture which is focusing on multi-species, multi-ages, single-tree-harvest.

Forests play an important role in the stabilization of the meso- and micro climate in Hesse. Approximately 300 million t of CO<sub>2</sub> have been sequestered and are stored in the Hessian forests – a fact which is also being considered in forest management.

### **3.2 Management of Non-State-Owned Forests**

#### **a) Community forests**

According to the Hessian Forest Act, Hessen-Forst is obliged to manage corporate forests according to the owner's objectives and under consideration of the principles of the Forest Act. Towns and cities on their side are not obliged to contract Hessen-Forst, they can consult other forest professionals or establish their own forest management unit. However, almost all corporate forest owners have made use of the option to contract Hessen-Forst. Reasons for that are: Hessen-Forst records long experience and in all forest management and forest development issues and guarantees the consideration of all legal requirements. Moreover, the enterprise has a State-wide organization and a long tradition and success story in cooperation with the communities. Thirdly, Hessen-Forst is economically competitive. The communities pay a fee (ha basis) for the services provided which cover the costs of the enterprise. In providing the service, Hessen-Forst is not profit minded or bound.

Generally, the communities have own skilled forest workers, who are instructed and supervised by the technical personnel of Hessen-Forst. Where this is not the case, Hessen-Forst organizes the necessary activities by contracting forest companies.

#### **b) Private forests**

226.000 ha (25%) of the forest area are owned by individuals. There are as many as 60.000 small-scale forest owners (forest farmers) with an ownership of less than 100 ha. The average ownership is at 3.8 ha which demonstrates how small this properties are, causing special challenges on forest management and managers. 343 forest owners dispose of land larger than 100 ha of size.

Private forests in Hessen are supported by Hessen-Forst on base of agreements and contracts against service payments. Forest management services with contract and bill include:

- Annual planning
- Afforestation/reforestation, forest protection measures
- Forest road construction and maintenance
- Timber harvest and logging
- Timber sales contract negotiation / accounting
- Timber grading and preparation of timber sales
- Management of service contracts (Third party contracts)
- Measures for safeguarding road and traffic safety in forests
- Management of non-timber forest products marketing including fuel wood
- Forest inventory and long-term planning
- Studies and expertise

The payment for these services is graduated according to the size of the forests which shall be managed. It is important to note that general management service for forest under 5 ha is free.

The Costs for Hessen-Forst are 5 million €, while the services payment to Hessen-Forst amounts only to 300.000 €. There are good political reasons for subsidizing small-scale

private forest management: Forest are integral part of the landscape and play an important role for the welfare of all citizens and for the livelihood of the rural population in particular. The conservation and improvement of the regional environment and of the living and economic conditions is a declared goal of the State of Hesse. The global discussion about carbon sequestration gives even more and new reasons.

Because of the specific structures of the private forests in Hesse special emphasis is laid on the establishment of forest owners associations in order to create forest areas which can be managed sustainably and economically.

#### **4 Participation**

Participation of the civil society in forest management planning regarding community forests is often facilitated by town councils. Moreover, the interdependences of forest Act with the Law on Nature Protection and other land-use relevant laws open the door for more participation. Especially the Law on Nature Protection creates many opportunities for the civil society to participate actively in forest related decisions.

The state forest administration and Hessen-Forst actively maintains contact with representatives of the civil society. All district forest offices permanently inform local people on forest related issues, especially on those related to tree harvest. The local media are involved and also communal gatherings, in particular local parliaments.

The Government of Hesse has assigned Hessen-Forst with the development and implementation of an Environmental Education Program, which has become a mayor activity for all district forest offices. Forest rangers are trained specifically to work with Kindergarten and school children. Their 'nature classes' are much in demand. Hessen-Forst maintains three forest youth camps where practical nature related courses are conducted under the guidance of experienced and specially trained forest officers in the out-door.

#### **5 Relevance of Faustmann's formula to the State forest in Hesse today**

The State forest of Hesse has a size of 343.000 ha and consists of 55% of broadleaved species and 45 % of coniferous species. Beech is the lead tree species covering 40% of the State forest area. According to the Hessian Forest Law, the State forest has to be managed by Hessen-Forst State Forest Enterprise according to economic principles under special consideration of the public benefit. The annual turnover is at approximately 100 million €, of which 85 % result from timber sales, 5 % from hunting rights, 5 % land rents and leases, for example from rock quarries and 5 % other non-timber-forest-products.

The co-equal main goals of State forest management are: Protection, recreation, timber production, labour and financial returns. As a principle, all goals shall be pursued simultaneously at the same time and at the same place. This system of goals is a result of a public negotiation process and has to be broken down on a ha-basis.

This means, that in favour of nature conservation, recreational or protective functions, profit cuts and/or additional expenditures occur. As an example: By assigning 1.000 ha as so-called old-growth island for maintaining the habitat of cavernicole species (woodpeckers, bats) the sum of this voluntary relinquishment of possible profits annually amounts to 7 million € or 7%.

Over many years, the Hessian State forests management has been deficitary because of high numbers of staff. Only during the last 5 years, staffing could be adapted to the real

workload. Hence, since 2006, Hessen-Forst is in a position to manage the State's forests without business losses.

It is the goal of the State Government to achieve positive returns from forest management however, without insisting on a concrete interest rate. At the same time, it is a requirement not to alter importantly the current proportion of broad-leaved and coniferous species of 60:40.

The consideration of all public objectives, in practice leads to a management method for 130.000 ha of beech stands which are characterized by long natural regeneration period with a rotation period of about 140 years and a 60 cm BHD target. With this method, a forest rent (without interest) of up to 10 €/ha is achieved. Moreover, this method allows for the production of old growth and dead-wood timber which is important for nature conservation. The productivity of the Hessian State forests depends on coniferous tree species, which are however less desired from the conservation point of view.

I recommend the presentation of Mr. Armin Offer, who will intensively deal with this field of conflicts with the view of an economist.

Could Faustmann foresee the wide palette of objectives of today? The public forest enterprises in Germany have to face up to the increasingly economic objectives of the owner. At the same time, international agreements and conventions such as the Convention on Biological Diversity are indirectly responsible for economic constraints. The demand for timber and wood products creates a situation of competition between forestry and nature conservation. Moreover, people in the Rhine-Main area look for recreation and want to walk with their baby-buggy on well maintained forest roads. Some forest experts already recommend separating forests of high productivity from those with high nature conservation and recreation values (segregation). This approach seems to find increasing acceptance seen from a worldwide point of view.

However, here in Hesse, we want to continue with our approach and philosophy of the integrated forest management and optimally harmonized objectives. With all humbleness we want to demonstrate to you during our excursion on Saturday, that this is possible even with our modest Hessian means.



In Dedication to MARTIN FAUSTMANN