



## Forestry in Austria [Österreich]– Supply Chain and Economic situation of small-scale Mountain Regions

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**Introduction** Forests play a substantial role in ecological environmental development. Austria is a mountainous and highly developed central Western European country with a landscaping dominated by Alps and forests. The forest area is nearly half (48%) of the full total section of the country which percentage is growing (Fachzeitschrift Ländlicher Raum, Austrian government). Small level family still dominates the range, although the importance of the primary sector is declining, it is relevant to the management of the landscaping and the ecosystem. In Austria, almost all the farms are family held however in the context of the paper, private farms are also considered irrespective of the house size and activities. In Austria, around 50% of the forest area belongs to private holdings. Holdings significantly less than 50 ha accounts for 32% (Fachzeitschrift Ländlicher Raum, Austrian government), the task is to increase services when coping with private small-scale forestry. Whereas holdings bigger than 500 ha show a usage rate of 104.9% of the increment (Timber production), the utilization for holdings below 200 ha amounted to only 72% of the increment (Fachzeitschrift Ländlicher Raum, Austrian government). Demographic and monetary improvements increase deforestation threatens the ecosystems routine. Hence, UN Sustainable Development Goal 15, goals 15.1 and 15.4, which list forest area as a percentage of total land area and the conservation of ecosystems are goals in forestry that play a s stringent role in Austria, especially in rural, mountainous areas.

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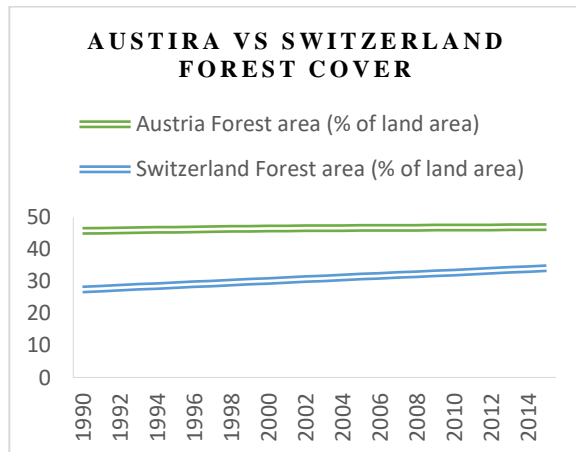
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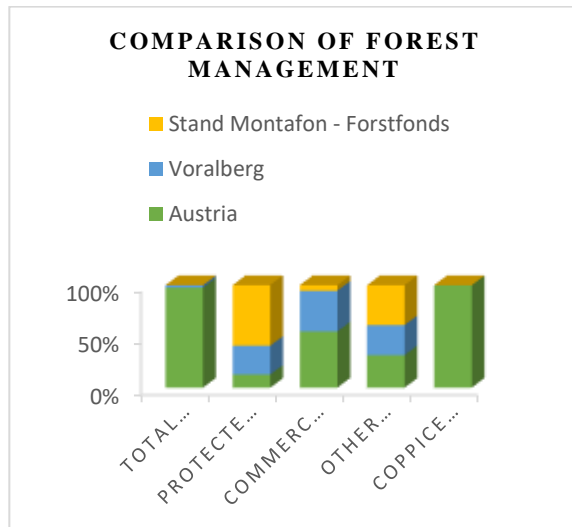
Figure I: Geography of Austria.

**Literature Review** Austria is covered with 3.9 million ha of forests, representing 47% of the country’s surface area, small forest owners comprise the majority (99%) and oversee 48% of the forested zone while the rest of the 1% oversee 52% of the Austrian forests (Anon, 2000a). The share of the state is 16% of the forest zone (Anon, 2000a), these circumstance gives the entire situation a complex touch. George Ludwig Hartig, characterized the idea of sustainability in backwoods expressing that future ages should profit or if nothing else the same advantages as the present generation, this was likewise expressed in the Forest Act of 1853 as various function related with forests, for example, firewood and infrastructure had to be secured. In view of this demonstration, individuals in that time utilized the forest resources in an astute and sustainable way, not only in the amount of timber taken but also in the size of the area cut ( Bobek and Perzanowski 1994).



Graph I: Comparison of forest area. [Source: World Bank]

In the elevated locale, "mountain forests" alludes to the forests near 600 and 800 m, the primary distinction amongst mountain and other forests is the challenge faced by the forest owner who is relied upon to deliver both market products as well as open merchandise and to maintain biological diversity. Based on the current forest policy the Austrian forest must fulfill four categorical functions in an ecological way: 1) Benefit: Economic and sustainable Timber production, 2) Protection: Security of the forests and settlements against natural disasters, 3) Welfare: Safeguard of environmental assets, 4) Recreation. Furthermore, the definition of forest has been introduced as a habitat for the fauna and the (Anon. 2002a). The Austrian forest has been split into four management systems: 1) Commercial forest, 2) Covered commercial forest, 3) Indirect commercial forest, 4) Protective forest. Regarding banned forests, the public view is known as more important than the cons that the ban symbolizes as the function of the forests is linked the ecological spectrum and natural disaster prevention. That is why the area of protection forests around Vorarlberg and the forests handled by the enterprise, Stand Montafon Forstfonds is a lot higher than the complete of Austria [Graph II]. In Austria, there are many lowland forests nevertheless they are less common in the province of Voralberg and Montafon Valley. Despite, the progressive schemes of sustainability in Austria, the hill forests in the Western Alps have been exploited to the hilt by commercial measures that is for Timber wood, triggering deleterious results including erosion and disruption of the slope size. Humans have been using these areas in many ways, from large size clearings for mining, to assortment of firewood and fodder as well as grazing areas. About 20% of the forested area in Austria contains forests with immediate or indirect defensive function, because of factors such as over-harvesting, over-grazing by livestock, three quarters are in the necessity for repair (Anon. 1998b).



Graph II: Comparison of forest management. [Source: Anon. 1998b]

**Data Methodology:**

**Secondary Data:** The data is taken from the website [www.statistik.at](http://www.statistik.at) (Statistics Austria) and [www.worldbank.org](http://www.worldbank.org) (World Bank).

**Nature of Research:** The Research is descriptive and Analytical

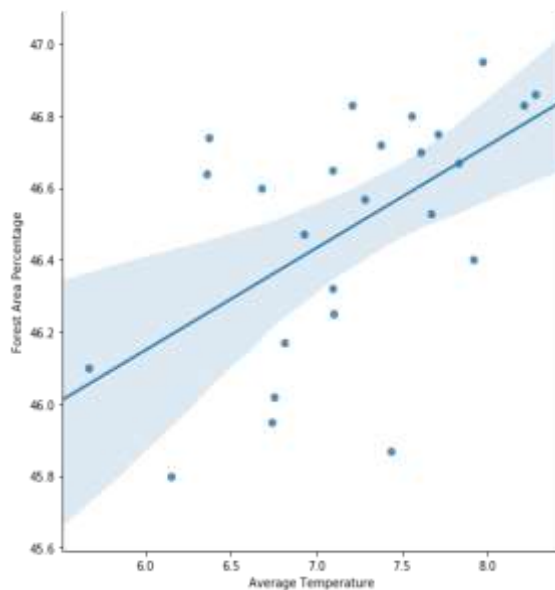
**Data Analysis and Interpretation:** Data Analysis is done with R and Python

**Discussion:** Austria agreed upon the resolution of "Conservation of forest hereditary resources" and resolution H2 in Strasbourg thus committing itself to promote the solution for the conservation of forest biodiversity. Within the European range it added to the to the forming of the "Pan-European Biological and Landscape Diversity Strategy" in the year 1995. To control the forest area in a sustainable way, the country should be assessed and the first large size, nation wide inventory was completed in the year 1952-1956 with the desire to obtain a clear picture of the Austrian forests regarding classes, varieties and stock. (Heinrich Braun, 1983). Because a restricted amount of plots can be assessed the grid of the inventory is quite coarse as it only allows the interpretation of data at a sizable spatial level, e.g. for Austria and its own provinces. Already a couple of years later a fresh, more concrete idea was developed in to the Austrian forest inventory, 1961-1970. Initially (1961-1970, 1971-1980), the emphasis of the inventory was placed on the study of growing stock and increment aiming at continual yield. Using the introduction of remote sensing and field studies a whole cover of major habitat area and types has been collected. Due to the assessment of any systematic grid test of permanent plots from 1981 onwards, the inventory evolved to a far more sophisticated monitoring system of several areas of the ecosystem.



Figure I: Vorarlberg province.

With the existing inventory (2000-2002), special emphasis is placed on the analysis of biodiversity like the genetic, kinds, and structural levels. An indicator of recent advancements in the ecological thinking was the change of the name for the countrywide forest inventory from "Forstinventur" to "Waldinventur" in 1991. Whereas the German term "Forst" is associated somewhat with a man-made forest, the word "Wald" relates more to the ecosystem all together, it points to the synergy and psychological make up of the government. Subsequently the inventories are growing further, including new factors such as natural regeneration, near natural management techniques, level and composition of dead resting and standing solid wood, tree and shrub types and the actual and woodland community.



Graph III: Regression between Forest Percentage and Average Temperature of Austria, 1990-2015 [Data Source: World Bank, climate change portal].

The world it is tilting towards a greener tomorrow, is it is widely believed that forests are an asset and must be managed in a sustainable way, synchronized with the native ecology, meaning that wood production, non-timber related products and biodiversity are included. In 1992, Convention on Biological Diversity was formed, and it channeled the international attention on the affairs of forestry, plus focused the attention on the concept of biodiversity and set the expectations that the signatory nations will shift towards preserving the local biodiversity. Along with the ongoing international and national schemes for the preservation of biodiversity, additional elements are also playing a key role in Austria as managers of forests face the challenges to fulfill

multipurpose functions under fragile economic and environmental conditions. Although these roles are strongly supported by society, the economic aspects often drag the complete process, because of difficult terrain in forests, timber harvesting cannot be mechanised up to the same level as on flat landscape. Logging through cable tv cranes costs around doubly much as highly mechanised logging. Small range forest possession inhibits rationalisation and weakens the positioning in the timber market, because of international competition focussed on low prices; the market of the forest corporations is under great pressure. Normally, this is followed by a significant reduction of employees. Increasing competition makes foresters to fulfil short-term economical goals neglecting the long-term sustainability. To make profit, the forest owners may look for extra resources of income from non-wood products and services. According to the present forest plan, forests should be open to the public for recreational purposes. Today, the demand for entertainment is increasing, both in winter and in summer season, hence the need to protect it increases. In Vorarlberg, free access to woods has begun to end up noticeably an issue particularly amid winter, due to irreconcilable circumstances. Because of a high increment in off-post skiing and in addition snowboarding, stations of red deer incite an increase in game hunting. This irreconcilable circumstance among hunters, foresters and the industry must be tackled with care. It is of most extreme significance that the people take an interest in this procedure. Local people and in addition tourists must be educated and taught their impact on nature. Individuals must know that the backwoods are not just for amusement yet additionally should satisfy different functions as well.

**Conclusion** There are three important points. As competition increases the need to fulfill short-term increases and long-term goals are neglected, market and public goods must be produced but without any long-term policy to cover the cost of public goods. To maintain biodiversity in forests, definite regulations and guidelines are needed so there is cooperation with foresters, environmental agencies and locals. The maintenance and preservation of biological diversity has become an important part of forest management, to achieve this goal environment friendly methods must be adopted so that timber production and biodiversity can be maintained. A cost-effective scheme is needed.

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