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The Swiss Case. Main Results of the Sustainability Assessment of Swiss Forest Policy and its Merits in an International Context¹

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Introduction

The scope of my presentation is to briefly highlight the main results of the 'Sustainability Assessment', but also to discuss the usefulness of this kind of assessment as a forest policy tool. My elaboration is entirely based on the outcome of the assessments by the international expert group and the information received from the authors of the research project. What I will deliver is not about individual forest companies or local authorities in Switzerland. The scope is national.

In Switzerland, forests have provided wood, food and other products for local people for centuries. Swiss forests protect human settlements and infrastructure against avalanches and rock fall. They regulate the water balance and provide many recreational services. The Swiss forests, mainly owned by municipalities, now cover more than 30% of the total area of the country.

One has to keep in mind the differences between five forest regions in Switzerland. Each one of the regions has its own characteristics and social structures. As a federal country, the cantons have many laws and regulations of their own. The cantons are responsible for implementing most of the policies, including the work of the cantonal Departments of Forests. However, Switzerland has a long history of common forest policy concerning the whole country. Since 1874, the Swiss Confederation has had the overall authority to legislate on the national forest policy. The new Forest Law, in effect since 1993, defines the framework which enables the Swiss Forest Agency to operate.

The concept of sustainable forest management

The recent development in the international forest policy dialogue has strongly emphasised a three-dimensional approach to sustainable development, by taking on the original idea put forward by the Brundtland Commission as early as 1987. Furthermore, the Heads of the States agreed in 1992 in Rio de Janeiro to adopt the concept of sustainable development, which encompasses the need for slowing down the continuing depletion of natural resources and degradation of world forests. In this three-dimensional approach, the concept refers to ecological as well as economic and social concerns.

In 1993, the Helsinki Ministerial Conference on the Protection of Forests in Europe viewed forests as ecosystems that are managed for multiple benefits rather than mainly for wood production. This approach was strongly supported by the Rio

outcome, and manifested in four resolutions, signed and adopted by the European ministers responsible for forestry. Sustainable forest management was defined in Helsinki as follows: «The stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social functions, at local, national and global levels, and that does not cause damage to other ecosystems.»

When assessing Swiss forest policy, we have been using the Helsinki set of criteria and indicators for sustainable forest management as a toolbox to demonstrate whether or not progress towards sustainable forest management has been made. In our case, each of the six criteria describes the different sides of sustainability on a conceptual level. It is «a distinguishing element or set of conditions or processes which the forest characteristics or management has been judged by». The six criteria are directly linked to the Helsinki Resolutions.

Each criterion is characterised by several indicators. In our assessment, also some new indicators, applicable to Swiss forestry, have been adopted to complement the basic set of pan-European, Helsinki indicators. These indicators are used to measure the objectives defined by the criteria, and are thus the operational elements of these criteria. They support the reporting process, and make the reporting internationally credible.

Main results by using the Helsinki criteria and indicators

Criterion 1: Maintenance and appropriate enhancement of forest resources and their contribution to global carbon cycles

- Preservation of the forest cover and fulfilment of all forest functions are official goals of the Swiss federal forest policy. There is a strict regulation on clearing practices, including a clear-cutting ban and compensation scheme.
- Afforestation of forests with protective functions is encouraged through economic instruments.
- The forest cover in Switzerland is increasing, now covering one third of the surface area. Also, the growing stock is exceptionally high. The greatest increase in forest area has been recorded for the Alps, mainly from abandoned agricultural and previously non-productive land.
- The average age has increased from 91 to 97 years in the past decade, 24% are older than 120 years, but only one quarter of the forest stands are under 60 years. The highest volume of growing stock occurs in the medium-aged, coniferous stands.

¹ Lecture held on January 31, 2000, within the series of the 'Monday Colloquia' at the Federal Institute of Technology (ETH) in Zurich, Switzerland.

Assessment in terms of sustainable forest management

The current forest policy has been very successful in maintaining forest area. However, we would like to raise the question whether this increase of forest area is managed or evaluated properly in terms of desirability. New policy goals and policy tools should be developed, which would allow a «positive management» of the additional forest cover.

The policy goals of reducing the growing stock of forests are adequate, but stronger measures would be appropriate for balancing utilisation and ecological considerations. Urgent tasks are to correct the age-class distribution, convert even-aged stands to mixed and uneven-aged stands, as well as regeneration of over-aged mountainous forests. Also, wood demand and utilisation should be stimulated.

The desirability of a forest cover, multiple future social and economic demands, as well as conservation of landscape diversity, sites of high ecological and cultural value, should be evaluated, and new policies, such as integrated cross-sectoral land-use plans and programmes introduced.

Criterion 2: Maintenance of forest ecosystem health and vitality

- Pollution is a major factor that affects forest health and vitality. A monitoring network of 16 stations measures the most common types of air pollutants occurring in Switzerland. Also, defoliation is regularly measured within the Swiss Forest Monitoring Network. The new Forest Law stipulates the goal of acting against defoliation of forests by enhancing the vitality of forests and forest soil. The instruments to achieve the goals on soil quality and enhancement are stipulated in the Law on the Protection of the Environment.
- Disturbances and stress, such as storms, insect attacks, snow breakage, fungi infestations, avalanches and landslides have been regularly monitored. Storms, which pass regularly through Switzerland, are by far the most significant causes of damages.
- Grazing was recorded on 10% of the total forest area. Half of the regeneration area runs a high risk of being damaged. Preventing game damage is basically delegated to the cantons.

Assessment in terms of sustainable forest management

Depositions of pollutants are still high, and it has been estimated that the present situation is a threat to forest health. The gradual ageing of the Swiss forest also affects forest health and vitality. More data is needed on the loads of potentially toxic substances in leaves and soil.

There is a great need for further research on causes of defoliation as well as on assessments in order to find the degree of grazing that allows regeneration without additional protective measures, albeit policy goals on game damages are adequate.

When developing forestry-specific goals and objectives, silviculture should take into account the issue of soil quality, particularly the effect that silvicultural practices may have on soil acidity and nutrient balances.

Criterion 3: Maintenance and encouragement of productive functions of forests

- The principle of sustained yield is one of the main elements of Swiss forest policy. The federal forest policy pursues the goal that the removals of wood do not exceed the natural increment, which succeeded handsomely. The balance between growth and removals of wood over the past ten years of Swiss forests is positive. The annual increment has been 9.8 million m³ and annual removals and natural losses have been 7.2 million m³. The actual problem now is the under-utilisation of Swiss forests.
- Forest management plans are not compulsory. However, the Forest Law encourages forests to be managed according to a plan, which should ensure the sustainability of all forest functions. Of the total forest area, over 50% is managed according to plans or projects which are less than 20 years old. For those forest owners who wish to get government subsidies, a management plan is an important incentive.
- Non-timber products are not specifically mentioned in the Forest Law, but it states that the public has a right of access to all forests.

Assessment in terms of sustainable forest management

In the present situation, such a strong emphasis on the sustained yield principle may not be adequate any more. The idea of increasing flexibility of authorised harvesting levels would be worth considering. The practical tool to implement this idea would be integrating management plans of single enterprises into regional forest development plans. All kinds of co-operation, even joint forests, formed by owners of small forest holdings, should be encouraged.

The ideal goal for forest policy is that 100% of forests would be managed according to management plans or management guidelines.

In order to enhance sustainable use of non-timber products, systematic data collection and policy guidelines should be established, including information about carrying capacity, potential harvest and economically viable production of wood for energy.

Criterion 4: Maintenance, conservation and appropriate enhancement of biological diversity in forest ecosystems

- Because of a long-lasting human intervention, all Swiss forests can be considered seminatural or man-made forests. Switzerland does not have any old-growth, climax forests. Roughly 4% of the total area in Switzerland is either strictly protected or under a special management regime. 16% of the total forest area is monitored for the protection of landscapes and protected areas of national importance. Most protected areas are rather small in size. The largest proportion of the protected areas is found at elevations above 1400 meters above sea level.
- 25% of the plants and roughly from 10 to 30% of different animal species are red-listed as threatened species. The measured species diversity at stand level is considered to be too low. But we also have to remember that more than 99% of the Swiss forests consist of native species.
- Protection of rare and threatened species as well as their habitats is a priority, stipulated by the Law on the Preservation of Nature and Landscape.

Assessment in terms of sustainable forest management

The area of protected forests should be increased. Basic data on ecological viability, representativeness and effectiveness of protection should be collected. A minimum size for forest reserves should be defined according to conservation objectives and ecological principles.

Species diversity can be enhanced through appropriate forest management, as an essential and operational part of it. Forest policy would then encourage management towards mixed stands, natural regeneration and restoring natural composition of forest. Particular forest gene reserves could also be established in different ecological zones.

In order to maintain and restore key habitats, where special ecological values can be found, particular management guidelines are needed. An integrated land-use plan should also deal with impact assessment and fragmentation of forests.

A monitoring system is needed to assess the evolution of biodiversity in Swiss forests over time. It should include the identification of indicator species, as well as mapping and systematic periodic monitoring of key habitats.

Criterion 5: Maintenance and appropriate enhancement of protective functions in forest management (notably soil and water)

- For Switzerland, the protective function of forests has been very important. Silviculture and management of protection forests is primarily aimed at maintaining and enhancing stability, and less towards wood production.
- Soil protection is a very important goal of Swiss forest policy in order to protect population and infrastructure against erosion, landslides, avalanches and rock fall. 8.2% of the total forest area is classified as a particular protection area for soil protection.
- 5% of the total forest area in Switzerland lies within water protection zones.

Assessment in terms of sustainable forest management

The regeneration of mountainous protection forests is not sufficient. New policy instruments are needed for the regeneration of over-aged mountainous forests.

Further efforts are called for maintaining and restoring the stability of watershed forests. Forest soil erosion could be kept at a minimum level by using appropriate harvesting techniques and by enhancing the stability of protection forests.

Criterion 6: Maintenance of other socio-economic functions and conditions

- Forestry and timber industry only play a minor role in the Swiss economy. This statement, however, does not fully reflect the importance of the aggregated costs and benefits of an entire economy. Also, non-market benefits originating from forests have become more and more significant.
- On average, subsidies amount to 25% of the revenues of the Swiss wood production enterprises. In the Alps, the share of subsidies amounts to approximately 40%. On top of that, the cantons pay roughly the same amount of subsidies as the Confederation, and the municipalities make

further financial contributions to forestry. This has led to a situation where up to 80% of the costs are covered by public authorities. In certain cases, as for hazard assessment and designation of risk areas, subsidies cover up to 100%.

- In 1995, the Confederation paid 176 million Swiss francs to the forest sector, 89 million alone were paid for silvicultural operations for the prevention and reparation of forest damages, for not covered harvesting costs and for the protection against natural hazards. There are subsidies for improving the management condition of forest enterprises and other financial incentives in the field of information, education, training and research, to maintain and enhance the forestry sector.
- The productivity of the Swiss forest sector is not very high. Particularly, the medium-sized (from 100 to 500 hectares), public forest enterprises with a large number of regular staff have not been able to cover their expenditures by the income they generate. Deficits have been covered by the municipalities or other public forest owners. On the other hand, very small enterprises are still able to produce wood cost-effectively.
- Exports of unprocessed logs largely exceed the imports. One third of all logs harvested in Swiss forests has been exported without first being processed.
- The Swiss forest legislation guarantees free public access to forests, which, however, can be restricted for the purpose of forest conservation or the protection of wild plants and animals.
- The policy of the Confederation and the cantons stipulates the citizens to participate in the policy formulation. It is up to the cantons to ensure that the public is not only informed, but also able to participate and is consulted in the planning process.

Assessment in terms of sustainable forest management

It is vital that the productivity of the forest sector is competitive in the market place. To that end, economic efficiency of the forest enterprises must be improved.

The priorities of the subsidised production of wood, goods and services must be identified and enforced effectively and efficiently. In the absence of clear goals, too many, too detailed and too high shares of subsidies impede the efficient allocation of public money. The basic principle could be that subsidies to indemnities and non-timber services would be directed to support the activities which are not strictly aimed at timber production.

The Swiss forest policy should encourage a more market-driven orientation, including strengthening the stimulation of the demand of domestic wood, determination of wood prices and strengthening the production patterns in order to allow more value-added processing in Switzerland. Synergies between forestry and wood-using industries should be further encouraged.

An adequate provision of non-timber products should be guaranteed by expanding the marketing strategy for the non-market benefits of forestry. This includes studies on potential markets, adaptation of the user-pay principle and re-directing the compensations. This would also offer opportunities of maintaining and increasing the rate of permanent and regular employment in forestry, forest industries and related sectors.

The policy goals of public participation are adequate, but the citizens should be further encouraged to use their right to be involved in forest planning.

Conclusions

The strengths

- The strong protection regime has been effective in maintaining the forest cover over the years.
- There are clear policy goals and means for producing non-market benefits and services as well as the protection of landscape, human settlements and infrastructures in mountainous areas.
- There is a strong focus on promoting ecologically sound forest management.
- The democratic institutions and policy have enabled a broad public participation and consultation between various authorities.

Major areas of concern

- The economic efficiency of the forest enterprises should be improved and the sector's dependence on subsidies reduced.
- The current subsidy system effaces the priorities and clear measurable objectives for forest policy. In principle, commercial forest operations for wood production should not be subsidised.
- There is a need for effective instruments for protection management in order to develop a national concept for a network of ecologically representative and unique protected areas.
- The desired extent and distribution of forests in Switzerland should be discussed by using cross-sectoral land-use planning.
- The ageing mountainous forests and their regeneration present a problematic issue, which requires innovative approaches.
- Continuous measures are needed to reduce the pollution effect. Monitoring of forest health will require new means and research input. Forestry should take into account the issue of soil quality, particularly the effect that silvicultural practices may have on soil acidity and nutrient balances.

Way ahead

This assessment was the first of its kind, based on the Helsinki Criteria and Indicators for Sustainable Forest Management in evaluating a national forest policy with the purpose to provide input for a national forest programme. As such, this process has been very useful and encouraging. The additional indicators of sustainable forest management in Switzerland have been well justified. We have been hoping that the Swiss policy makers would study our recommendations carefully and adopt them, as appropriately as possible. The initial point is, of course, the thorough evaluation of the existing policy and the tools applied. And, ultimately, I wish that this exercise would facilitate a process leading to a comprehensive national forest programme for Switzerland.

I have made these comments in order to point out some new directions, which were agreed upon by the international expert group. Our assessment is far from a complete one, but I hope that our contribution can help your researchers, administrators, policy makers and practical foresters in their everyday life. I also hope that they will be working together for a better forestry and a better future, build bridges and co-operate across the traditional sector lines when addressing the social, economic, ecological, cultural and spiritual needs of the Swiss people. Personally, I am quite impressed by your high level of commitment, dedication and professionalism.

Summary

Mandated by the Swiss Forestry Agency, a group of internationally recognised experts drew up a sustainability assessment of Swiss forest policy. In this paper, the author, himself a member of the expert panel, presents the main results of this study. The strong protection regime of forests, for instance, is seen as one of the strengths of Swiss forest policy, whereas the lack of economic efficiency as well as the lack of clear policy goals with corresponding evaluation criteria have been identified as areas of concern.

Zusammenfassung

Fallstudie Schweiz. Hauptresultate des Nachhaltigkeits-Assessments der Schweizer Forstpolitik und dessen Verdienste aus internationaler Sicht

Im Auftrag der Eidgenössischen Forstdirektion hat eine Gruppe international anerkannter Experten ein Gutachten über die Nachhaltigkeit der Schweizer Forstpolitik erstellt. In diesem Aufsatz stellt der Autor, selbst Mitglied der Expertengruppe, die hauptsächlichsten Resultate vor. Eine Stärke der Schweizer Forstpolitik stellt z.B. die streng gehandhabte Waldarealpolitik dar, als Schwäche werden die mangelnde wirtschaftliche Effizienz sowie das Fehlen klarer politischer Ziele mit entsprechenden Evaluationskriterien identifiziert.

Résumé

Situation de la Suisse. Les principaux résultats de l'évaluation de la politique forestière suisse dans le contexte de la gestion durable et les mérites de cette évaluation sur le plan international

Mandaté par la Direction fédérale des forêts, un groupe international d'experts a évalué la politique forestière suisse dans le contexte de la gestion durable des forêts. Dans le présent article, l'auteur, lui-même membre du groupe d'experts, présente les résultats les plus importants. La politique stricte de protection des forêts est l'exemple d'un des points forts de la politique forestière suisse. En revanche, il faudra remédier au manque d'efficacité économique ainsi qu'à l'absence d'objectifs politiques clairs et de critères d'évaluation.

Traduction: CLAUDE GASSMANN

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