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Keynote Speech of Switzerland

Barriers to overcome in financing payments for ecosystem services: experience from Switzerland

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We remember the speech of our forest minister on Monday: forests are our friends, they provide us, so to speak, with the half of life itself. However the question remained in the room: do we devote enough to this friendship, do we give the forest enough in return? Allow me first as a local a short retrospective on the forest here in Engelberg and their key services.

As anywhere in the mountains, wood has been in the forefront for centuries as raw material for houses and all things of daily life, particularly as a source of energy. The monastery used the most wood. It was founded in 1120 and burned down in the course of the century three times. All the reconstructions in fact used much less wood as the monastery's functioning, which each year utilized firewood in large amounts.

The wood consumption of private citizens and of the monastery therefore caused severe scarcity of wood – already 300 years ago. On May 15, 1729, the abbot Maurus Rinderli, at that time also the political authority of the valley decreed a strict restriction and supervision of wood harvesting, in order to avoid “the total ruin for the sake of wood”.

However wood scarcity in the valley remained another 200 years. In the end of the 18th century the monastery installed new stoves to reduce wood consumption, and in 1774 farmers were obliged by decree to use stone walls instead of wood for fencing. The hunger for wood, but also the need of enough pastureland resulted in the situation that Engelberg had half as much forest than exists today. Deforestation and over-use in the mountains caused not only lack of fire- and construction wood, but also dramatic shortcomings in one essential service of forests in this valley, namely protection from avalanches, rockfall, mudflows, and flooding.

In the 1860's several large floods across Switzerland caused considerable damages and deaths. Floods, that started for example here in Engelberg, affected the lowlands all the way to Lucerne. Due to the fact that also urban centers were concerned, the history of payment for ecosystem services of forests began in Switzerland.

The goal of the first national Forest Law of 1876 was thus specifically oriented to increase the forest surface area, in order to improve watershed management as a whole. To encourage afforestation, the Confederation also provided subsidies to the Cantons.

The fact that the Forest Law was effective cannot be unlinked from the establishment of railway lines in Switzerland, the introduction of coal, and the onset of industrial development. On the railroad junctions, employment was available and many moved from the mountains to the cities. The pressure on the forests decreased.

This is how for the first time in history an actually sustainable forest management was possible. Clear cutting of forests was replaced with small-scale, near to nature silviculture, as you will see on the excursions this Friday. High quality wood was periodically in strong demand, for example in the years of economic boom after 1945. Some communities in the mountains could not only finance their school teachers from wood sales profits, but also their entire community expenditures.

Whereas the first Forest Law of 1876 was strongly quantitatively oriented, meaning concentrated on the expansion of forest area, in the middle of the 20th century the quality of protective forests came into focus. The avalanche winter of 1951 caused more than 100 casualties. In those years people who lived in cities increasingly began to spend their vacations in the mountains. Mass tourism resulted, accompanied by the necessary infrastructure, and with this the need for safety from natural disasters drastically increased.

A significant means for more security is a better protective forest. Good protective forest consists of groups in which either older or younger trees predominate. Such a protective forest structure is only established when wood is constantly being used and in doing so light conditions for rejuvenation result. Well-performing protective forest therefore depends on forest management decisions and actions by forest owners. Caring for the protective forests has become a constant task that today the Swiss Confederation is supporting with 60 million francs per year.

A further ecosystem service of the forest, namely biodiversity, entered the spotlight at the 1992 environment summit in Rio de Janeiro. Biodiversity in the forest is supported by the Swiss Confederation with around 10 million francs per year.

In Rio the Convention on Climate Change was founded, which later together with the Kyoto Protocol established the basis for the recognition of forest sinks at the international level. What is not ensured through the global environmental accord are the significance of forests for drinking water quality or as recreational areas for the public.

Regarding ecosystem services other than protective forests, we foresters have long advocated that in the wake of sustainable and near to nature silviculture other forest services are also ensured. This is to a certain degree the case.

However to optimize certain services, forest tending must be specifically tailored to do so. The filter quality of the forest for drinking water is for example the highest when the proportion of broadleaved species is high and thus the soils are as biologically active as possible. Also in order for forest management to contribute to biodiversity, to climate performance, or to recreation, silviculture and management must be optimized.

With the wake theory and the concentration of forest enterprises on wood production as a source of income, the beneficiaries of the diverse other forest services have been treated to a free ride. In this way, today services that are provided by management decisions and actions of forest owners are seen as God-given. Most beneficiaries take it for granted that forest must simply be there. They do not realize that forest must be taken care of in order to sustainably provide the services.

At the same time the demands on the quality of forest services have constantly increased in the past decades. The Environmental Protection Law that was passed in Switzerland in 1983 established far-reaching conditions on the forest area which are constantly being made stricter. An example are the protection zones near drinking water catchment areas. In the outermost protective zones, which in lime soil areas can be hundreds of hectares, not even forest vehicles can be refueled. The vehicles must drive out of the area to refuel.

Those rules that apply to the outermost protection zone result in additional costs of 300 francs per hectare per year for forest owners. These costs are only compensated in extremely rare cases. It is necessary to see this in the following context: in Switzerland approximately 40% of all drinking water originates in forest areas. This water is mineral water quality and normally requires no filtering and can be directly channeled in the supply network. At a filtering cost of 20 cents per cubic meter the water industry saves 80 million francs per year.

The situation is also special in the climate area. The accounting of the CO₂ sink from forest management according to Article 3.4 of the Kyoto Protocol is internationally recognized. Switzerland accounted for this sink, which covered 20% of its Kyoto commitment. Of the many millions of Swiss francs thus saved not even one cent returned back to the forest to support its services.

Allow me to come back to the wake theory. In the meantime in Switzerland and in many areas of Central Europe the structural conditions for forestry and the timber economy have drastically changed. Timber harvest in Switzerland is since decades far under wood stock growth, and our country is in Europe among the richest in wood stock. The forest enterprises have particular sales difficulties with hardwood species. For example Beech, which is about one fifth of Swiss wood stock, hardly sells. Further, the revenues from coniferous wood have plummeted, not least because of the high exchange rate of the Swiss franc over the Euro. The wood market and price are significant reasons that many forest enterprises in Switzerland are in the red.

The wake effect according by which forest services were previously ensured has drastically lost dynamic. In the medium to long term this means that certain forest services are in danger. This can already be because decrease in wood use and rejuvenation of the forest no longer occurs. If for example unstable forest becomes victim to a storm, a sudden decrease in organic material can result in a peak in nitrates in groundwater which could then render it impossible to use the water for drinking for years.

Such scenarios will only increase in the future in conjunction with climate change and its associated impacts.

The economic situation of forest enterprises and the effects of climate change alter the perspective on forest services and their beneficiaries. Wood sales are today no

longer enough for forest businesses to manage forests and regenerate them to a sufficient extent and an integral maintenance of forest services will be increasingly difficult.

The Swiss Forest Policy 2020 takes these circumstances into account. This strategy paper was approved by the Federal Council in 2011. It states as one goal to ensure that the additional efforts of forest managers to provide the desired forest services will be compensated. Forest Policy 2020 gives strategic emphasis to the development of a framework and of tools that will ensure that the services such as recreation, drinking water filtration, or climate performance provided by forest owners are effectively given a value.

Do we give enough back to the forest, this was my initial question. The answer is differentiated. Forest services were always supported in the past when they were no longer sufficiently provided and our quality of life, particularly that of cities, was threatened.

Changing times and new circumstances demand new measures. As I see it, it is neither fair nor strategically wise when beneficiaries refrain from contributing to sustainable forest management. This should especially occur in situations where active steps have to be taken to preserve a certain forest service or where limitations on use are imposed. It should also be possible that beneficiaries contribute to cases where special services, namely for measures for securing or improving particular forest services are actively carried-out.

From our experiences result the following recommendations for countries, the FAO and UNECE:

- Information bases shall be developed and conditions established so that the values of forest services provided by the forest owners can be identified and reported
- Efforts to establish integrated national welfare measurement in the context of the “green economy” should examine and monitor the benefits arising from ecosystem services of the forest at a macro-economic level
- Arrangements to share costs arising from the provision of services between forest owners and the relevant beneficiaries should be organized in a partnership approach
- UNECE representing forests as well as other relevant sectors for forest ecosystem services (water, energy) could build bridges between different actors.