

Who gets the money? What do forest owners in developed countries expect from the Kyoto Protocol?

W. Kägi and H. Schmidtke

Annex I countries can opt to include the carbon effects of forest management in their national greenhouse gas inventories – but how to ensure that the forest sector benefits from the associated credits?

Forest management may allow Annex I countries of the Kyoto Protocol (industrial countries and countries with economies in transition) to produce carbon credits worth hundreds of millions of euros. But who benefits from value generated? The forest owners? The government? And what are the risks involved? This article tackles these questions, making reference to ongoing discussions in Switzerland.

Growing forests are generally net CO₂ sinks; they absorb more carbon than they give off, and thus accumulate carbon. This is true for newly planted forests, but also for established forests if the harvest rate and/or disturbance rate is less than forest growth. Article 3.4 of the Kyoto Protocol allows Annex I countries to include the CO₂ effects of management of existing forests in their national greenhouse gas inventories. In some countries, the CO₂ sequestration effect which can be achieved through forest management is significant. The carbon credits generated help countries to fulfil their Kyoto commitments – which means that they can undertake fewer emission reduction activities in other sectors of the economy, purchase fewer carbon credits from outside the country, or even sell carbon credits on the international market. If the CO₂ sequestration effect achieved through forest management is translated into financial terms, the forestry sector can produce CO₂ credits worth hundreds of millions of euros.

INCLUSION OF FOREST MANAGEMENT IN NATIONAL ACCOUNTS

Before discussing the possible distribution of the funds potentially generated

through forest management, it is necessary to analyse the general implications and risks of selecting to include forest management in national greenhouse gas accounting under Article 3.4 of the Kyoto Protocol.

Two articles of the Kyoto Protocol refer to the forest sector in Annex I countries. Article 3.3 requests these countries to take into account the greenhouse gas effect of “direct human-induced ... afforestation, reforestation and deforestation since 1990”. Under Article 3.4, effects of additional measures in the land-use sector may also be added to national accounts. The Marrakesh Accords specify that effects of forest management in forests that existed before 1990 can be included, defining forest management as a “system of practices for stewardship and use of forest land aimed at fulfilling relevant ecological (including biological diversity), economic and social functions of the forest in a sustainable manner”.

According to Article 3.3, the CO₂ effects of deforestation, afforestation and reforestation must be taken into account in the national greenhouse gas balance. However, including forest management under Article 3.4 is voluntary. Governments are obliged to inform the Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC) whether they wish to opt for including forest management by the end of 2006, with the exception of European Union (EU) governments which have to make this decision by 15 January 2006. Once a country has decided to account for forest management under Article 3.4, it has to communicate how it will define which forests are under forest management.

Wolfram Kägi is a partner of B.S.S. Economic Consultants in Basle, Switzerland. He specializes in climate policy and forestry issues.

Hubertus Schmidtke is owner of Silvaconsult in Winterthur, Switzerland.

For many industrialized countries where forest density is increasing, including forest management in national accounting appears to be a relatively low-cost way to gain carbon credits. Choosing this option under Article 3.4, however, also involves a risk: If forest management is chosen now, the effects will also have to be accounted for in current and subsequent commitment periods. If the forests considered to be under forest management turn out to be a source of CO₂ rather than a sink during present or future commitment periods, the countries in question will have to declare a carbon debit instead of a credit in their national greenhouse gas accounts. That said, Article 3.4 may become compulsory as of the second commitment period, and, if so, countries will have no choice in the matter.

Also to consider are the limits on the quantity of greenhouse gas credits to be produced under Article 3.4. Specific limits for each of the Annex I countries are stipulated in Annex Z and range from less than 5 million tonnes of CO₂ per year in many countries to 121 million tonnes of CO₂ per year in the Russian Federation.

Before going into further technicalities on forest management under Article 3.4, a few details about forests and carbon accounting should be clarified. First, the effects of an increasing forest area are taken into account under Article 3.3, not under Article 3.4. Second, carbon storage effects of wood products are not taken into consideration at all during the first commitment period of the Kyoto Protocol. Once biomass leaves the forest, it has to be taken off the national carbon accounts. Durable wood products do, of course, store carbon, but these effects are not taken into account under the international carbon accounting rules. Finally, the effects of using woodfuel as a replacement for fossil fuel are not attributed directly to the forest under the Kyoto accounting rules. However, the effects are still included in the national

carbon balance, through consideration of the reductions in emissions from fossil fuel combustion that result from replacement by woodfuel.

Governments now have to decide whether they opt to include forest management in their accounting under Article 3.4. In spring 2005, policy-makers and experts from 16 Annex I countries surveyed at a workshop on the subject (Joanneum Research, 2005) expressed uncertainty regarding the likelihood that countries would include forest management. Regarding how countries would define forests under management, there was greater agreement: most countries would include most or all of the forest defined as "managed forest" under UNFCCC. In this way data used for the national communications produced for UNFCCC could also be used for accounting under Article 3.4 of the Kyoto Protocol.

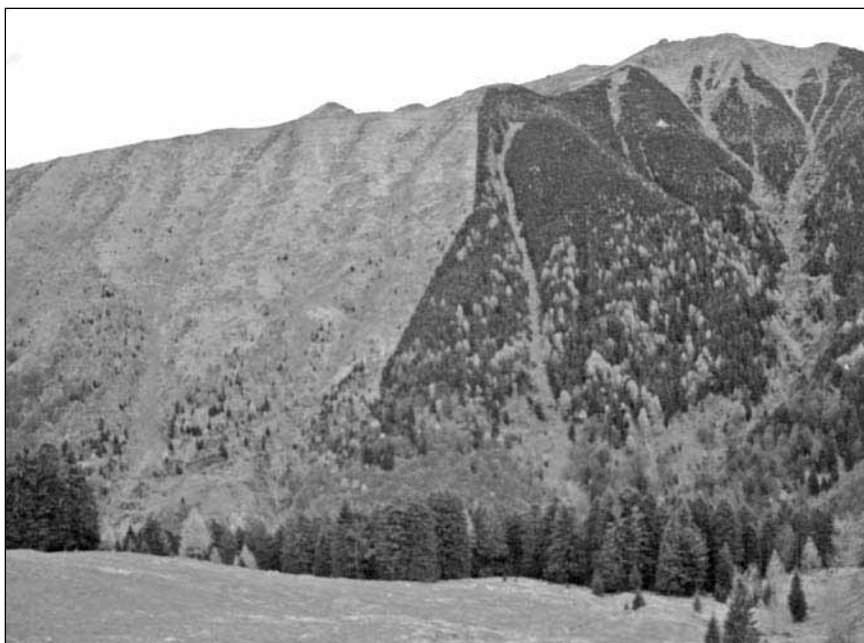
Switzerland has clearly voiced an interest to make use of forest management under the Kyoto Protocol. Currently, the country appears to have little to lose by doing so. During the 1990s Switzerland's forests sequestered an average of 3 million tonnes of CO₂ per year. According

to Annex Z, 1.8 million tonnes per year may be credited. It is expected that this quantity will be reached without any specific changes in forest policy or forest management.

WHO GETS THE CREDITS FROM FOREST MANAGEMENT?

Once a country has taken the decision to include forest management in its national carbon accounts, it must face the concrete implications of this choice. The central issue is who will receive the CO₂ credits and what conditions would be attached to receiving them. The Swiss Agency for the Environment, Forests and Landscape (Switzerland's environment ministry) has started to look into this question. For the forestry sector, significant revenue is expected. At a conservative estimate of a carbon price of €10 per tonne of CO₂ equivalent, forest management would produce credits worth more than €70 million during

This growing forest in the Canton of Ticino, southern Switzerland, reforested before 1990, is a CO₂ sink as long as it is not harvested; the CO₂ effects would be accounted for under Article 3.4



H. SCHMIDTKE

the first commitment period. Considering that Switzerland wishes to fulfil its Kyoto commitment to a large extent through very costly domestic measures, the costs saved by taking into account the CO₂ sequestration effects of forest management under Article 3.4 may well be significantly higher than €10 per tonne of CO₂ equivalent.

In concept, credits earned through forest management would not automatically go to forest owners, but would appear in the national greenhouse gas account. As such, CO₂ credits are a very different commodity from a product such as timber. If no specific rules are put into place, the credits thus belong to the State and simply help the country to reach its Kyoto commitments.

However, this approach may not be politically acceptable and could also lead to adverse effects arising from flawed incentives. First of all, forest owners may not find it acceptable that credits earned through their forest management efforts are simply taken up by the State. In Switzerland, forest owners have started to organize themselves to make their voice heard on this subject.

Environmental groups will also be concerned about the State using forest management credits to make up for not being able to reduce greenhouse gas emissions in other sectors of the economy.

Finally, and perhaps most importantly, there is the economic argument: forest owners opt for the forest management regime that is economically most attractive to them. The timber price is currently low in Switzerland, so extraction rates are low and forests are growing, absorbing CO₂. However this might change, especially if the oil price continues to rise. If forest owners do not benefit from the carbon sequestration services of their forest, they will not take this aspect into account when optimizing their strategies. They might increase their harvesting rates, in which case the country would lose forest management carbon credits. The best way to avoid this

is to allow forest owners to share in the value generated through carbon credits so that they will consider the value of carbon sequestration when making decisions about harvesting.

There are also difficulties involved in distributing carbon credits (or the value associated with them) to forest owners. First, it may be seen as an unjust windfall profit for forest owners, who could receive significant funds without changing their mode of behaviour (although the situation might change in the future, as discussed above). Second, the method of distributing the credits among forest owners is problematic. The option that appears at first glance to be most straightforward is to measure the carbon changes for each forest holding and to distribute the carbon credits according to the carbon effect actually produced. However, this would be a very costly exercise, especially in a country like Switzerland where landholdings are small and the landscape is highly diversified. Alternatively, rather than measuring the carbon effects, it would be possible to distribute the funds according to the implementation of certain predefined activities, such as creating forest reserves or reducing harvesting. Any distribution rule would also have to take into account the threshold in Annex Z, which will keep Switzerland and many other Annex I countries from receiving enough carbon credits to compensate for all the carbon sequestered in the existing forests. Thus, the rule also needs to provide a mechanism either to discount the credits accordingly or to select forest owners to receive the credits.

... AND WHO CARRIES THE RISKS?

Whatever the rules of distribution are, what happens if the forest becomes a source of carbon emissions now or in the future? Surely the government should not take the risk, while the forest owners claim the benefit. But will individual forest owners be able to take and man-

age this risk? One suggestion is that individual forest owners be given the choice whether to opt for "carbon forestry", such that those who opt to claim the credits would also have to accept the risk. In this case the rules could be designed to favour activities that produce multiple environmental benefits such as establishing a forestry reserve. This option might also solve the problem of there not being enough carbon credits to compensate all forest owners.

However, such an insulated carbon project approach conflicts with the spirit of Article 3.4 and could well lead to problems. The effects of forest management under Article 3.4 are calculated on a country basis. If an individual forest owner sequesters carbon but the remaining forest becomes a source, the country as a whole will be assigned a debit, irrespective of the success of small individual carbon projects. In this case, the country might be better off choosing not to consider forest management at all. A project-based, insulated carbon forestry approach is a risky undertaking from a national perspective if there is any possibility of forests becoming a source at the country level.

An idea emerging in Switzerland is that forest owners could organize themselves and claim the carbon credits together, sharing not only the benefits, but also the risk of forests becoming a source. Forest owners would in this system have a financial interest to prevent forests becoming a CO₂ source. Together they could obtain insurance to cover the risk of losing a large forest area to natural disasters, which would release large quantities of CO₂ into the atmosphere. National grassroots-driven organization of carbon sequestration under Article 3.4 by forest owners themselves would have the advantage of not being imposed on them.

WHAT WOULD FOREST OWNERS DO WITH CARBON CREDITS?

Forest management under Article 3.4 produces a specific kind of carbon credit,

so-called removal units (RMUs). For the use of these credits some special rules apply. Removal units cannot be transferred to the next commitment period and are not accepted under the EU emissions trading system. The credits may, depending on the timing of monitoring and reporting, only be available after 2013. For these reasons, the market value of these credits is uncertain at present. Countries may still be in demand of credits once the RMUs become available, but predictions of the prices of such future credits differ greatly.

A potential way out of this dilemma is for countries to use RMUs for Kyoto compliance and to hand out so-called assigned amount units (AAUs), carbon credits that are assigned to governments and are internationally tradable. Future RMUs could be exchanged for AAUs at a time when the international carbon market is still liquid. A country could also offer to trade RMUs against future contracts on so-called certified emission reductions (CERs) or emission reduction units (ERUs) – internationally tradable carbon credits that are generated through emission reduction projects under Joint Implementation or the Clean Development Mechanism. Many countries will have some CERs and ERUs in their national registries, bought either by the State or by firms for their own compliance. In summary, countries could use RMUs for their own compliance and hand out other types of credits to forest owners in exchange.

The most pragmatic and easiest option, however, would be for the State to offer forest owners a cash payment for each removal unit produced through forest management under Article 3.4. In this way forest owners would not have to engage in CO₂ credit trading; as for the price per tonne of CO₂, the carbon market could still serve as an orientation. For countries, removal units have a real value, because countries can use the units for their own compliance. If they have RMUs at their disposal, they can

purchase fewer other credits or can even sell a part of their AAUs.

CONCLUSION

The ideas expressed in this article are just potential solutions and remain speculative. However, it is time for countries to decide whether they will include forest management activities under Article 3.4. The forest sector must ensure that it will actually receive credits or at least benefit from the value associated with the service of carbon sequestration. At the same time, the sector must find solutions regarding the distribution of credits and risk management. ♦



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