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1 Management

The 90s saw the emergence of a new approach to forestry. Behind the approach was the realisation that annual growth was higher than annual harvest, and that fears of declining wood supplies in the early 21st century proved unfounded. The environmental movement and environmental concerns within the forest sector had also gathered momentum, and time was ripe to strengthen the environmental component of Swedish forest policy. In society in general, public regulations were dismantled in sector after sector. That, of course, had an impact on forest policy, and the new guideline was “Freedom with Responsibility.” The Forest Policy of 1993 was a response to these changes in society.

Environmental commitments went from words to action during the 90s, in line with the ambitions of the new forest policy. Inventories and research helped identify areas in particular need of protection, and improved knowledge on how forestry affects the forest ecosystem. Information and advisory services improved knowledge among forestry staff at all levels, and created awareness that the dual objectives of production and environment can be combined.

The 90s saw a substantial increase of forest areas under protection, either officially gazetted or voluntarily set aside. Much more attention is paid to environmental considerations in today’s logging operations. The linkage between this development and advisory services provided is clear.

An increased environmental awareness and discussions between forestry and the environmental movement lead to a large-scale certification of Swedish forestry. Certification confirms that environmental goals are attained, and contributes to securing, and expanding, areas voluntarily set aside for protection.

The new forest policy was formulated at a time when the economics were poor and spirits low in Swedish forestry. Regeneration work could have asked for a better start. Despite that it has to be acknowledged that the regeneration of today are better than those of the 70s , by a comfortable margin, even if they are not up to the standards of the 80s in terms of production.

The regeneration work though is far from satisfactory. The recent evaluation by the National Board of Forestry of the effects of forest policy draws conclusions on unsatisfactory regeneration results. The situation that was obvious and discouraging already at the evaluation four years ago, has not only continued, it has rather gathered momentum.

The share of regenerated areas judged to be of sufficient in terms of density and quality has dropped from 83 % in 1995 to 74 % in 1999/2000. A wider acceptance of broadleaves as regeneration has not helped. The deterioration can be partly explained by the increased use of natural regeneration (using seed trees), even on sites where natural regeneration is not suitable (often with too few seed trees). And that scarification of regeneration areas decreased at the start of the 90s. For natural regeneration it is also true to say that the method has not been used on sites where it would have been appropriate. Browsing by wildlife, insects and fungi also cause considerable damage to regeneration sites. The poor results could have been improved by supplementary planting. Unfortunately this is a treatment whose use has also decreased during the 90s.

In recent years the use of natural regenerations has decreased, and the area scarified has increased, now reaching the same level as that of the late 80s. Thus, there is hope that in the future we will be able to see better regeneration results.

Extensive advisory and extension work will be needed in the future, especially since the use of the insecticide Permetrin to control pine weevils will be banned in 2004. This ban will necessitate more scarification and the use of alternative silvicultural methods.

2 Technology

The major forest companies have been at the forefront in technical development, and this particularly true for information technology. They have rational operational steering and a good control over timber flows and forest management. Structural changes have meant cuts in staff. The ranks of forest labourers in the major forest companies have been shrinking for decades now.

Contractors do most logging operations and other forest operations. In fact, contractor work accounts for more working hours than company field staff. Most contractors are small companies, but larger companies owning more and more machinery have become more common.

There has been a number of changes in small scale forestry. It accounts for an increasing share of Swedish forest land. The number of forest owners has increased and the number of estates of deceased persons has been reduced. It has become increasingly common for people to own forests far from their place of residence. It has become more common for estates to have more than one owner, and there is an increased share of female forest owners. The incomes generated by private forest estates account for a smaller share of the owners' total income than before. 60 – 70 % claim that the forest estate

accounts for less than 10 % of their total income, but many see the forest as a source of important marginal incomes. It can be assumed that many owners see their estates as a capital investment. The changes accounted for above are not major, but put together they may exercise influence on how private forestry is pursued. Regeneration and silvicultural work dominate among field activities done by estate owners themselves, while logging is normally contracted. In general, forest owners are responsible people who take the welfare of their estates seriously, this is true also for times past.

Economic trend in forestry is strongly correlated to timber price trends, which are in turn correlated to market trends for forest products. However, the 90s showed that timber prices are not the only factor affecting forestry activities. Timber prices decreased substantially, but net stumpage values could be maintained. The explanation to this is lower costs, primarily costs for logging operations. Swedish forestry saw major staff cuts. The number of people directly employed by forestry is now well below 20 000, excluding active private estate owners. Costs were also cut by lower investments in regeneration and silviculture. It is thus evident that ambitions in forestry depend on short term economics.

The nature of forestry at a given point in time is also influenced by the tax policy that happens to be in force. Today's tax policy tends to stimulate harvesting operations while discouraging silviculture, which has led to poorer regenerations and less pre-commercial thinning. Prevalent tax policies have also stimulated interest in acquisition of forest estates, even among groups traditionally not interested in that. Prices of forest estates have thus increased.

There has been a marked improvement of forest operations in riparian zones. Brooks, streams and rivers not surrounded by protected zones that are drained of their rich and diverse insect and fish fauna are no longer as common as following the felling and road constructions during the 1980s. But felling is still done close to smaller watercourses. So there is still scope for improvement.

Ever since trucks replaced river floating as the main means of wood transports, road construction has been seen as something that should be done to ensure mutual benefits among forest owners. There was also state subsidies to be had for the construction of such roads, which were abolished in the early 90s. In 1990 the national annual need for new forest roads was estimated at 2200 km, and the need for upgrading at 2700 km. The northern part of the country needs more new roads, and the south needs more upgraded roads.

The forest road network has developed slower than the estimated needs. Nowadays new roads and major upgrading total only some 1500 km annually, with almost no activity in the southernmost regions. The average length of new forest roads has shrunk from 3.3 to 1.1 km.

Co-operation between forest owners in road construction has become rare. The typical road project of today encompasses only one forest owner, or estate, it used to average 13. A national plan made in 1990 for the road

network concluded that it would be desirable to have 80 % of all road projects done in co-operation between land owners.

The evaluation concludes that this would imply that roads built today are not environmentally benign in a long-term perspective, and that their economic efficiency is questionable. Reductions in public incentives have led to roads of poorer standard during the 90s. Maintenance and its costs have been postponed to the future.

All in all, the country now has a forest road network unlike that desired by the forest sector. One positive development is that road alignment has been improved, and that roads are not wider than needed. Environmental aspects of roading are more seriously taken into consideration today, this is especially true for culverting. Nevertheless there is a need to raise environmental competence in road construction among planners, contractors and machine operators.

3 Training

Many forest owners experience difficulties in striking a good balance between the production and the environmental goal. Inventories of environmental values, "green" management plans and forest certification have proven to be efficient tools to show ways of attaining the two goals. Extension campaigns like "Greener Forest" have also helped forestry go from words to action in its environmental commitment.

Forest owners value the extensive advisory services available. They prefer personal advice or work in small groups. This is a need that will grow as resources for advisory work are reduced. It seems clear that the internet will prove itself as a means of communication in the future.

Green Forest Management Plans are appreciated and efficient. They put into action the dual goal of production and protection of today's forest policy and the classification of forest stands into different categories and have thus become an important tool for the forest owner when selecting management regime.

Recommendations in Green Forest Management Plans are often used in practical forestry, partly as a result of the clear descriptions of environmental values in the different sections. The contents of a Green Forest plan, however, have been found to depend largely on the individual responsible for the planning.

The typical Green Forest Management Plan will stipulate that at least 5 % of a forest estate is set aside for protection. Some 15 % of the plans recommend more than 10 %, and 21 % of the plans recommend that less than 5 % is set aside. Forests set aside in the north usually fall into the NO class, seldom into NS. The reverse is true for north Sweden.

Eighty-four per cent of Sweden's population live on one per cent of the land area, i.e., in one of the country's 1938 urban centres. We can increase this figure to ninety-five per cent if we include the rural inhabitants living within five kilometres of an urban centre. It is these 95 per cent of us who, in the forests, are able to make use of "the forest's social values" that are available only a few minutes away from our homes. On average, Swedes visit the forest once a week but the time spent in the forest has decreased between 1977 and 1997, and we now consider that the forest must be within a convenient distance from our home and preferably have a special composition.

Social values are all values found in the forest that are not included in the expressions "production" and "biodiversity": Experiences, recreation, playing, exercise, collecting berries and mushrooms, hunting and cultural sites. The forest we prefer to visit should be richly diversified with numerous massive trees, relatively old, not too closed, and with a large share of broadleaves. Small clearcuts are accepted but definitely not large clearcuts, and neither should residues remain after felling.

Old-growth forest, with fallen trees and dead wood, was ranked higher in 1997 than in 1977, especially among young people. The same study showed that aesthetic values and awareness of environmental qualities has increased during the last two decades.

Public health in Sweden is threatened by the fact that we take increasingly less exercise. At the same time the negative stress many people experience in city environments and in their work, increases with a higher tempo. Several studies suggest that the forest can offer suitable cures in the shape of exercise and well-being.