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SPECIAL TOPIC
RECYCLING, ENERGY AND MARKET INTERACTIONS

(Item 3 of the Provisional Agenda)

Note by the secretariat

The special topic of the Fifty-sixth Session of the Timber Committee will be "Recycling, energy and market interactions" and will be presented by the Committee's team of specialists on the same subject.

Delegations are invited to:

- prepare and contribute relevant country experiences;
- participate in the discussion;
- decide if any follow-up actions are necessary.

Introduction

1. Developments in ECE region forest markets result from interactions of various planned and unplanned factors including market demand, supply of virgin and recovered fibre, legislation, environmental organizations' pressures, substitution of wood, corporate restructuring, etc. The purpose of the special topic discussion is to focus on two increasingly important influences on timber markets:

- energy generation from wood and
- recycling of wood and wood fibre.

2. The Team of Specialists on Recycling, Energy and Market Interactions has discussed the complexities of the issues listed below, which are subsequently discussed separately. Of interest to the Committee may be that policy and legislation, often in "non-forest" sectors play a crucial and often misunderstood role.

3. The purpose of this note is to introduce the subjects of the 56th Session's special topic. There will be an expert presentation on each of the issues below, followed by a panel discussion. (Note that confirmation of all speakers had not been received at the time of writing this note, thus some modification may be necessary.)

The issues

- * The demand for small-diameter roundwood to produce pulp and fibreboard and particle board can be offset by recovered paper and paperboard fibre and recovered solid wood in chip form--this in turn can alter the balance of the entire wood flows system.
- * Governmental policies and associated regulations to control or promote one sector have both direct, planned effects, as well as indirect, unplanned effects on the primary and other parts of the forest and forest industries sector.
- * Energy generation from wood can be an economically viable energy source in some regions where primary or recovered wood fibre supplies exist and can even be economically viable where fibre supplies do not normally exist with government incentives. The economic viability of wood energy depends crucially on the price of competing fuels and on the structure of energy taxation (e.g. carbon dioxide taxes).
- * Countries in transition are affected by some of the same issues, with the addition of specific problems brought about by the changes in wood flows due to privatization of forests and industries.
- * When paper and paperboard recycling achieve their maximum level, additional demands for fibre supply, be they for energy or for products, must come from the original source, i.e. the forest, or the residues of the forest industries.

- * Increased global marketplace competition encourages greater manufacturing efficiencies, especially when either product prices are low, raw material costs are high, or both.

Wood flow system

4. The production of wood products naturally leads to the generation of byproducts, often in considerable quantities. For example, in the case of producing rectangular sawnwood shapes from roundwood, a sawmill will generate bark, slabs and sawdust. When producing straight logs from trees, a logger will produce tops, including foliage, limbs, crooked stems, small diameter stems and stumps. Indeed at each step of consumption as shown on the diagram (annex I), including the final consumer, there are byproducts, some of which are traditionally recycled back into usable products or energy.

5. Today, a greater percentage of these byproducts, including post-consumer waste¹, are being recovered. Perhaps the most visible source to consumers has been the collection of old newspapers and in some ECE member countries the recovery rates for all paper and paperboard now exceed 50%.

6. Two options exist for the recovered wood fibre: 1. recycling back into usable products; 2. burning for energy for process steam, heat and cogeneration of electricity.

7. The increasing collection and reuse of wood fibre has and will continue to alter the wood flow system. The system will be further described during the special topic presentation.

Governmental policies

8. Governmental policies on 1. forest resources management, 2. wood products industries, 3. wood fibre recycling and 4. biomass energy generation have complex interactions which are not always well understood.

9. For example the European Commission has written a white paper on "Energy for the future: renewable sources of energy" (COM(97)599). The goal of the European Union is to double the share of renewable energy, partly wood-based, to reach 12% by the year 2010. Such a policy will have both planned impacts, e.g. job creation, as well as possible unplanned repercussions on the forest and forest industry sector.

Energy generation from wood

10. Partly through government support, modern energy generation from wood-based fuels has evolved to an efficient means of generating heat, steam, hot water and through cogeneration, electricity. This is not new, especially in the forest industries. But what is new is the use of an increasing variety of fuels. In

¹ "Waste" is an ambiguous term which should be reserved for those materials which have no further use and therefore traditionally go to a landfill.

the Nordic Countries there is a tradition of burning biomass fuels, which since the oil crisis in the 1970s, has regained emphasis. The use of biomass fuels, including waste wood and paper, has been encouraged through a variety of governmental policies in a few countries.

11. One unique example in the ECE region is the strong incentives towards alternative fuels in Sweden as a result of energy policy and especially the energy tax system (i.e. the carbon dioxide tax). These taxes penalize fossil fuels. Combined with additional government-funded projects, the use of wood fuels has received promotion for a wide range of industrial, commercial and residential applications.

12. At the same time as Sweden's development of wood-based energy systems, has been the establishment through legislation of recycling systems in countries like Germany and the Netherlands. The success of these recycling systems in generating new supplies has led to the search for markets for wood and paper residues. The result of these two simultaneous developments, i.e. new demands and excess supplies, has led to new trade patterns.

Energy generation from wood in countries in transition

13. In most countries in transition the price of fossil fuels, especially oil and coal was extremely low before the transition process, and thus there were few incentives to use biomass fuels on a large scale. For example, some sawmills used oil-fuelled boilers to produce heat and steam rather than wood-fuelled systems because of the cost and convenience of fossil fuels as compared to relatively difficult, wet wood residues which require more complicated technology. But since the initiation of the transition process, the price of energy has risen in all countries, both for producers and importers.

14. This has led some countries in transition to investigate increased use of wood-based energy. For instance in Slovakia in 1997, approximately 1% of energy production is based on wood, but according to their Forest Research Institute, the potential sources of wood fuels would allow this percentage to increase to 6.7%. These sources include intermediate and final harvesting, wood-processing residues and eventually energy forests planted on non-forested lands. The countries in transition are *young* markets with tremendous potential for increasing the recovery and recycling of wood and fibre residues for energy and wood fibre-based products.

North American outlook for paper and paperboard demands, recycling and fibre supply

What happens in a "mature" market?

15. The recovered paper supply in the United States and Canada was driven by municipal legislation combined with an environmental awareness which led to an oversupply situation and in some cases negative prices, ie where the consumer (e.g. a paper mill) was paid by the producer (a city) to recycle the recovered paper and paperboard.

16. But growth in domestic demand for paper and paperboard has gradually slowed in recent years, while overseas exports have increased. However it appears that the recovery rate is approaching a theoretical maximum and future increases in paper recycling will be more modest.

17. In the United States, where recycling is reaching its peak, increases in paper and paperboard production will necessitate increased pulpwood harvests. It should be remembered that in the ECE/FAO definitions, "pulpwood" is also used to manufacture wood-based panels, with the exception of plywood. In Canada the proportion of wood residues used in pulp manufacturing is still increasing, however the opposite is happening in the United States. Part of the decrease in the residues' proportion in United States pulp is the significant substitution of oriented strand board (OSB) for plywood. OSB has no "extra" byproducts for pulp manufacture as they are all used for process steam production. In contrast, plywood manufacturing has excess volumes of residues from debarking, rounding of peeler logs, clipping of defects and sizing of panels (also peeler cores are chipped when more lucrative markets do not exist).

Putting the forest products industry into the equation

18. The forest products industry acts within the forces of the markets and legislation as described above. Competition from domestic producers and foreign producers constrains international prices in commodity products like pulp, sawnwood and wood-based panels. If raw materials experience increasing prices, then forest products manufacturers have to become more efficient in order to maintain the same level of profits.

19. One way of controlling costs is to increase capacity utilisation, assuming adequate market demand. For example a sawmill running one shift could double output without doubling costs, by running a second shift. Corporate mergers are a way to control costs, although at a much larger scale. Some recent forest products company mergers have also been made to achieve other goals, for example to access forest resources.

20. Newly constructed mills for OSB, MDF and particle board, plus pulpmills have grown substantially in size in recent years in order to capitalize on economies of scale, especially when producing highly competitive commodity products from small-diameter roundwood, wood residues and recovered paper and recovered wood. The result has been that a large mill needs to increase the radius of its raw material purchases, as well as to sell far beyond the local market, perhaps even to export. In some cases the need for such great production efficiency, and hence large production capacity, has prohibited locating in sites where the uncertainty exists of sufficient future raw materials.

Conclusion: increasing market interactions

21. One conclusion that can be drawn from the issues and questions above is the interaction of market and non-market forces will have increasing ramifications on the entire forest and forest industries sector.

22. Given the above issues, some possible questions for discussion are: What are the resulting impacts on forests and forest products markets?" Will recycling diminish demand for pulpwood? Will pulpwood demand accelerate after widespread initiation of wood and wood fibre recycling systems? Are there forest management ramifications of changing pulpwood demand, either temporarily or in the long term?

23. How are government policies directed at recycling, or wood-based energy generation affecting traditional forest products markets and trade? What are the possible effects on the forest and forest industries sector of government policies such as the promotion of renewable energy sources?

Annex

Source: Team of Specialists on Recycling, Energy and Market Interactions, 1998.