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The forest sector requires social innovations

The importance of the ability to adapt to successfully meet future requirements needs to be given wider recognition in Finland, according to the keynote speaker Esko Aho, in the seminar “From technology to social innovations – new models for operations in forestry” organised by the Future Forum on Forests. To attain this flexibility we require social innovations that facilitate the application of new technologies and skills to develop the operations between people and of infrastructure.

Importance of adaptability

The President of the Finnish National Fund for Research and Development (Sitra) Mr. Esko Aho stressed the importance of being flexible, and adapting to the times thereby enabling a more successful future. In Finland, there is a palpable need for new applications for existing technology. At present the Finns have tended to focus more on the technology itself than its applications. In addition there needs to be a change in people’s attitudes regarding risk. Mr. Aho believes that Finns idealise the risk free life, which inhibits entrepreneurship and innovation.

Strengths and weaknesses within the forest sector – scenario analysis

Professors Pertti Harstela from Finnish Forest Research Institute and Taneli Kolström from the University of Joensuu presented the results of the Silviculture and Forest Technology working groups, including a scenario analysis. The basis for the presentation was four scenarios of the forest sector in 10-20 years time. The four possible scenarios for the forest sector were presented as:

1. Boom in European construction industry
2. World of disturbances
3. Shift in focus to east and south
4. Timber shortage

The working groups compared the current situation regarding forestry, silviculture and wood procurement in the four possible scenarios: highlighting the strengths and weaknesses found. From the viewpoint of wood production, the strengths are the robust forest cluster, an efficient network of machine contractors and a good basic infrastructure. For example the world’s most advanced

logistic system from the stump to the factory and then to the market is clearly a strength, which should be maintained.

Current weaknesses are a lack of coordination between research and development organizations, high cost structure of the sector and the functioning of the forestry promotion system. For example, the working groups thought that the innovation chain of the sector should rather be a process, where basic research, applied research and development work should be done more side by side and they should complement each other, than a series of unconnected operations.

Silviculture in the future

Professor Pasi Puttonen from the University of Helsinki presented views of the working groups on the future of silviculture in Finland. He estimated that silviculture will be affected significantly by two global trends: Firstly, the decreasing use of natural forests and secondly transition from pure wood production forests to multi-product forests. Behind the changes is a requirement of obtaining a “social mandate” to manage and use the forests.

According to Prof. Puttonen, factors affecting the future of silviculture also include more flexible use of forests which will take into account the different objectives of the forest owners, development of quality systems of forest management, improved utilisation of the information systems and growing importance of entrepreneurship in forestry and forest management.

Technical director Altti Keskilohko from Lännen Tehtaat PLC foresaw that future cost savings and new technical solutions will be mainly found in planting and tending of seedling stands. The use of a contractor for all work from planning to implementation will increase. It is also

possible in the future, that forest tree nurseries will sell the seedlings already planted in forest.

Future harvesting

Professor Antti Asikainen from the Finnish Forest Research Institute estimated that the world's most advanced cut-to-length based harvesting technology is found in Finland. The annual demand of forest machines for the cut-to-length method is approximately 2500-3000 machines of which about 1800 machines are manufactured in Finland. The key preconditions for the future success and growth are increasing use of cut-to-length method in other parts of the world, development of more multi-functional harvesters, and the training of skilful drivers especially in importing countries and in new market areas.

Senior researcher Vesa Imponen from Metsäteho believes that in the future the contractor will use more specialised machines for the harvesting than at present. That makes possible a cost saving of five percent over a harvest area of two million cubic meters compared to the use of general machines. The specialised technologies and machines will be used more especially in small clearcutting areas, in areas of valuable natural features, high thinning areas, etc.

Possibilities for entrepreneurship

Industrial counsellor Kimmo Kalela's view that if investments in the forest industry followed the same route of the post 1980s decrease seen in the USA, then the success of the whole forest cluster would be threatened. Vice president (Business Analysis) Jukka Huuskonen from UPM foresaw that the focus of future investments will be outside Europe, even though the company has invested quite heavily in Finland in the last few years. One obstacle for new factory investments is the availability of wood.

Marketing director Mikko Lehikoinen from Kesla Oyj emphasized the possibilities which the forest sector opens for SMEs in internationalization and the export of know-how of information technologies. There are markets for systems focussing on forest management planning, GIS, remote sensing, mobile technologies and logistics, giving a few examples.

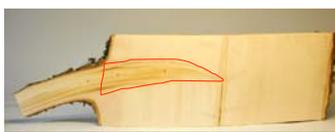
Senior researcher Nuutti Kiljunen from Metla pointed out the trend, highlighting an increased use of service contracts between the service producer and client in the future. In his vision, the service producer is always responsible for the quality of the service and the final result. In forestry this could mean for example that the producer of the forest regeneration services guarantees the result of regeneration to the forest owner.

Interpretation of scenarios

A scenario is a story that connects a description of a possible future to present realities in a series of causal links that illustrate decisions and consequences. A scenario can be desirable or not, likely to happen or not, but it has to be possible to come true.

Descriptions of the possible futures can be utilised in defining the weaknesses and strengths of the present state. The aim is to find actions to strengthen the implementation of the desired future.

Too often scenarios are interpreted through the threats which the changes will bring about. Then the scenarios are seen as threats to the present activities, even though, at least in principle, changes in all scenarios will open new possibilities.



New functional foods from wood!

In his presentation, Professor Bjarne Holmbom from Åbo Akademi, pointed out that the inner knot wood includes notable amounts of lignan, between 6-24% of the weight. Lignan is an effective antioxidant,

which has in trials been found to slow down the growth of breast cancer in rats. Additionally lignan is already used as nutrition supplement in the U.S.A. It is possible to extract about 150-200 tons of lignan annually in the product process of an average pulp plant. Åbo Akademi is studying several other wood components and their possible usage. It is presumable that several other new wood chemistry products suitable for the market will be found in these studies.

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