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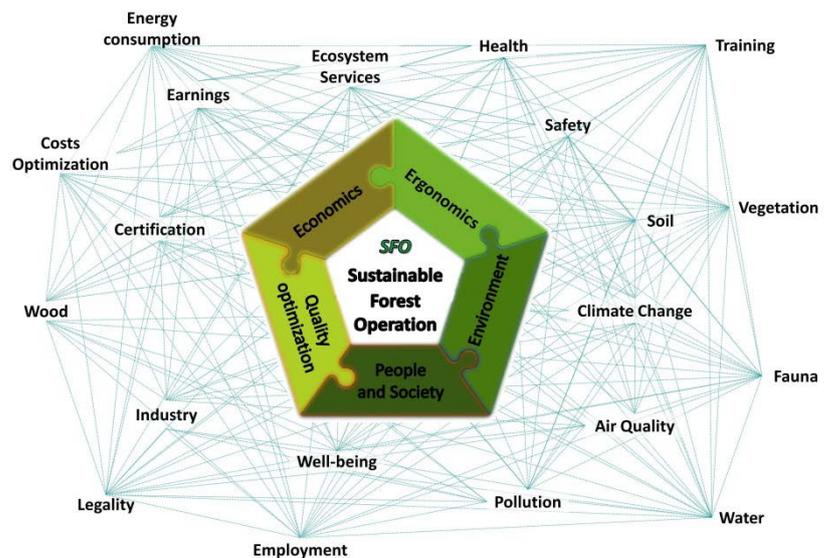
Creating a virtuous circle in forest operations

A newly published study entitled Sustainable Forest Operations (SFO): A new paradigm in a changing world and climate, indicates that “climate change, as well as the increasing demand for forest products, requires a rethinking of forest operations in terms of sustainability.”

The study suggests that the SFO concept provides integrated perspectives and approaches to effectively address ongoing and foreseeable challenges while balancing forest operations performance across economic, environmental and social sustainability objectives.

This new concept emphasizes that forest workers' ergonomics, health and safety, and utilization efficiency and waste management are additional key elements that enrich the understanding of the sustainability in SFO.

In addition, through the promotion of afforestation and reforestation, improved forest management, and green building and furnishing, the SFO concept further emphasizes the role of wood as a renewable and environmentally friendly material.



The complex system of relationships involved in the SFO concept and its five performance areas including: Economics; ergonomics; environment; quality optimization; and people and society. (Credit: Enrico Marchi, Florence University, Italy)

“It is important,” the paper notes, “to understand the major driving factors for the future development of forest operations that promote economic, environmental and social well-being.”

The paper identifies five challenging areas to be addressed through SFO:

- More wood removal from less available forest landbases;
- Promoting wood as a renewable and ecologically friendly raw material;
- Improving forest operations under climate change;
- Minimizing the ecological effects of harvesting; and
- Improving safety and ergonomics for forest operators.

“The innovation behind this new paradigm of SFO is the integrated approach to forest operations,” said Prof Enrico Marchi, of the Department of Agriculture, Food and Forestry Systems at the University of Florence, Italy, and one of the study’s authors. “It aims at reconciling bio-economy, environmental ecology, human factors and society and different scale levels.

“In this context,” he continued, “it is important to highlight that, there is not only one type of sustainable forest operation; it is not an “absolute” concept. Different solutions may be adopted, taking into consideration socio-economic and environmental conditions.”

The five key, interrelated, performance areas necessary to ensure the sustainability of forest operations – environment; ergonomics; economics; quality optimization of products and production; and people and society – “are quite obvious, if you consider them singularly. The real challenge is to find a balance among the performance areas, addressing each of them without negatively affecting the others,” said Prof. Marchi.

“It is workable around the world. Each country, depending on its own socio-economic condition, legislation, needs and management objectives, could apply the principles of SFO to find the best way for them to address the sustainable development approach in forest operations,” he said.

“SFO needs policies able to guarantee the continuity of forests in the future that protect the environment and the included complex dynamics without compromising the profitability of forest operations.”

“Actually, good policies should be applied in order to decrease costs for forest enterprises, because more profitable activity means a higher capacity for businesses to invest in safer machines, healthier equipment and low-impact operations,” said Prof. Marchi.

“Everyone with a stake in wood production, environmental protection, forest-related tourism, forest workers associations, etc., will benefit from SFO. But, in the end, forests are a benefit to everyone. So a correct implementation of SFO principles will, in the long run, benefit everyone,” he said.

As to how SFO would provide benefits, he noted: “Taking into account the five performance areas cited in the text, it is important to create a virtuous circle in forest operations.”

“For example, if a forest enterprise realizes an improvement in work organization or improving the average quality of material extracted, it will have higher income. A part of that income could then be invested in safety improvements for the forest workers, or new machines with better performances and potentially fewer impacts on the environment.”

“Those improvements,” he continued, “could also have positive effects on other aspects of SFO, since they are all related to each other – and that is largely explained in the manuscript.”

The main takeaway from the paper for policy-makers, according to Dr. Marchi is that “forest harvesting is not just cutting trees to build houses or furniture or to provide heat.”

“Forest operation is the final step in a complex process called forest management that allows one to obtain ecosystem services from the forest, including one of the most important renewable raw materials – wood.”

“If we want to develop sustainable forest management,” he concluded, “we need sustainable forest operation.”

The full paper can be found at: <https://www.sciencedirect.com/science/article/pii/S0048969718312488>

Prof Enrico Marchi is a member of the IUFRO Task Force on Climate Change and Forest Health:
<https://www.iufro.org/science/task-forces/climate-change-forest-health/>

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