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Future forest products and sustainability

Pekka Sorapää

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The challenge of research related to forest resources and forest products is related to rapid increases of human population and growing demand of materials and products. The potential for environment changes in our environment and for reaching consequences increases. Indicators of environmental stress include the loss of biodiversity, increasing greenhouse gas emissions, increasing deforestation and shortages of fuel-wood in many parts of the world. Norway spruce and Silver birch are important tree species in Nordic forestry and their bark contains valuable compounds. However, the bark is mainly used for energy production. Part of this important side product is possible to use to improve properties of wood and fibre based products and thus, promote the cascading use of them. For example, birch bark contains substances which could be used to create hydrophobic and antimicrobial surfaces. There are a few examples of the diversity of the future products based on forest biomass. Cellulose based textile fibres are under development and lignin is intensively studied to replace fossil raw materials in various products. The diversity of future forest products and the impact of both environmental, economic, cultural and social sustainability on utilisation of forest biomass will be discussed.

Dipterocarps protected by Jering local wisdom in Jering Mendiyung Nature Recreational Park, Bangka Island, Indonesia

Eddy Nurtjahya, ¹ Akrina Rizaldi, Cindy Ika Putri, Lestari Devi Suganti, Lantia Sabila, Iva Manduar, Tanti Wijayanti

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As part of the oil palm plantation expansion, the Jering Mendiyung Nature Recreational Park has relatively diverse plants. The 3,538 ha park is located at the north west of Bangka Island, Indonesia. The minimum species-area curve was 0.82 ha which is just below Dahl conservation forest that is 1.2 ha, but it is much higher than measurements of several secondary forests in the island that are 0.2 ha. The plot is inhabited by more than 90 plant species. Of 22 tree species, there are 40 individual trees with the average diameter of 15.3 cm, and 64 individual trees with the average diameter of 48.9 cm. The density of *Dipterocarpus graciliflorus* (Blanco) Blanco or krating, is 207 individual ha with the diameter ranges of 12.1 - 212.7 cm or with the average diameter of 69.0 cm. The relatively intact park is supported by the local wisdom of Jering tribe, one of indigenous tribes in the island. People has regulated its cutting trees especially in the cape. The conservation agency designates the park as one of the krating propagules sources in the province. The growing oil palm plantation and the less adoption of local wisdom among the youth is a challenge to forest conservation in the province where its mining activities have been the economic driver for decades. More socialisation from the conservation agency and the involvement of university students in raising environmental awareness is important to be done.

CS+ MOVING TOWARDS SUSTAINABLE FOREST OPERATION FOR A GREENER FUTURE

An overview of forest operations in Europe within the concept of Sustainable Forest Operations (SFO)

Andrea Lucchi¹, Tomas Norrlöf², Piotr Maderki³, Ewain Marchi⁴

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The importance of the concepts "Sustainability" and "Sustainable Development" has increased in recent years in order to meet the changing needs of society. The forest sector and forestry activities should support sustainability to enhance all the benefits from the various functions of forests and the ecosystem. Forest operations play a key role in forest management and wood production, thus leading to an important role in the sustainability of the forest sector. In recent years, within the IUFRO Task Force on Climate Change and Forest Health, the new paradigm of Sustainable Forest Operations - SFO has been developed in order to change the approach to wood harvesting. The aim of this contribution is to give an overview of forest operation issues in Europe, considering the main relations between forest management, wood production, environment and society in the light of the SFO paradigm. Wood production is strategic worldwide, but it cannot compromise the efficiency of forests, increase environmental impact or affect social and economic issues. In this context, Europe with its 105 million hectares of forest is an important geographic area. However, many different social, economic and environmental conditions exist on this continent, from north to south and east to west. Moreover, in most European countries, forests play important roles beyond wood production, for example, hydro-geological protection, recreation, pollutant protection, as well as social and cultural services. For these reasons, forest operations have to guarantee environmental protection and enhance the ecosystem functions related to forests while at the same time respecting social needs.

The "Sustainable Forest Operations" concept: an overview of forest operations in Africa

Andrew McEwan¹, Michal Brisk², Elizabeth Spalber³

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Forest operations in Africa have been associated with unsustainable harvest levels and operations. The deforestation of Africa's tropical forests has been well documented. Simultaneously, the operations need to be the forests have focused on the minimisation of costs with little regard to other social values such as safety and environmental concerns. The exceptions to this include some of the well managed plantations that occur in South Africa and on a smaller scale in certain other African countries. Globally, the concepts of "Sustainability" and "Sustainable Development" have recently received increasing attention to ensure that forest management is practised in a way that meets societal values. Even considering the geographic variability of forests and their uses, African countries have begun to realise the importance of managing their forests according to modern sustainability principles. This is primarily driven by the need to preserve the few remaining tropical forests, the need to ensure that current operations do not jeopardise future growth potential, the need to carry out operations in a way that reflect the more modern principle of "Sustainable Forest Operations" - SFO, the requirements of investors of new plantations or forest operations, and the requirements of markets, often outside the boundaries of the African continent. The aim of this contribution is to give an overview about forest operation issues in Africa, considering the main relations between forest management, wood production, environment and society in the light of the SFO paradigm.

Dipterocarps protected by Jering local wisdom in Jering Menduyung Nature Recreational Park, Bangka Island, Indonesia

by Eddy Nurtjahya

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Future forest products and sustainability

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The challenge of research related to forest resources and forest products is related to rapid increase of human population and growing demand of materials and products. The potential for irreversible changes in our environment and far reaching consequences increases. Indicators of environmental stress include the loss of biodiversity, increasing greenhouse gas emissions, increasing deforestation and shortages of fuel-wood in many parts of the world. Norway spruce and Silver birch are important tree species in Nordic forestry and their bark contains valuable compounds. However, the bark is mainly used for energy production. Part of this important side product is possible to use to improve properties of wood and fibre based products and thus, promote the cascading use of them. For example, birch bark contains suberin which could be used to create hydrophobic and antimicrobial surfaces. These are a few examples of the diversity of the future products based on forest biomass. Cellulose based textile fibres are under development and lignin is intensively studied to replace fossil raw materials in various products. The diversity of future forest products and the impact of both environmental, economic, cultural and social sustainability on utilisation of forest biomass will be discussed.

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Eddy Nurtjahya¹ ; Akrima Risyda¹, Cindy Ika Putri¹, Lastri Dwi Saputri¹, Lanita Sakila¹, Tiwi Mandasari¹, Tuning Wiji Jepari¹

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C3a: MOVING TOWARDS SUSTAINABLE FOREST OPERATION FOR A GREENER FUTURE

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Forest operations in Africa have been associated with unsustainable harvest levels and operations. The deforestation of Africa’s tropical forests has been well documented. Simultaneously, the operations used to log the forests have focussed on the minimisation of costs with little regard to other societal values such as safety and environmental concerns. The exceptions to this include some of the well managed plantations that occur in South Africa and on a smaller scale in certain other African countries. Globally, the concepts of “Sustainability” and “Sustainable Development” have recently received increasing attention to ensure that forest management is practised in a way that meets societal values. Even considering the geographic variability of forests and their uses, African countries have begun to realise the importance of managing their forests according to more modern sustainability principles. This is primarily driven by the need to preserve the few remaining tropical forests, the need to ensure that current operations do not jeopardise future growth potential, the need to carry out operations in a way that reflect the more modern principle of “Sustainable Forest Operations – SFO”, the requirements of investors of new plantations or forest operations, and the requirements of markets, often outside the boundaries of the African continent. The aim of this contribution is to give an overview about forest operation issues in Africa, considering the main relations between forest management, wood production, environment and society in the light of the SFO paradigm.

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