



## INVESTIGATING THE PRODUCTION OF PINE PLANTATION WOOD AND ITS UTILIZATION IN SRI LANKA

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The production of plantation wood has become a significant contributor to Sri Lanka's economy. The State Timber Corporation is the main government organization responsible for harvesting and supplying timber from the forest plantations of Sri Lanka to meet the demands of the timber industries. This study aims to investigate plantation wood production and its utilization in Sri Lanka. Initially, the study evaluated the wood log production used for the borax treatment plant of the State Timber Corporation, and then conducted an industrial survey. This was conducted to investigate pine wood utilization in the wood industry. A company-based survey was conducted at randomly selected 20 mid-large scale wood companies located in Homagama, Moratuwa, Korawalawella, Moratumulla and Soysapura. Results from the State Timber Corporation data shows, pine wood log production is higher than other timber types from 2019 to 2021. Further, wood production percentages in the borax treatment plant are: eu-microcorys 0.93%, eu-grandis 3.2% pine 90.7%, mahogany 2.8%, teak 0.42%, mango 1.67% and Gini Sapu 0.42%. Based on the data, treated pine log production was higher than other wood types. From the industrial survey data, 70% of the sawing mill, wood production plants and treatment plants did not use pine wood. 20% of wood industries use pine wood as construction material, furniture and make craft items and 10% of industries sometimes use pine wood for construction and furniture works. The study has proven that state timber corporations produce a high amount of treated pine wood logs but selected clusters use less pine timber. The study identified that the wood community should be aware of pine wood uses and their utilizations.

Keywords: Industrial survey, wood construction, pinewood, borax treatment, wood industry

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### INTRODUCTION

The production of plantation wood has become a significant contributor to Sri Lanka's economy, with the industry facing a growing demand for high-quality wood products. Natural forest cover in Sri Lanka decreased drastically during the colonial era due to plantation agriculture, and in the 1970s, the Sri Lanka Forest Department (SLFD) established forest plantations and reforested the degraded areas using exotic plantation species such as *Pinus caribaea* and *Pinus patula* (Edirisinghe, 2017). The forests in wet and dry zones have been repeatedly harvested during the past year to meet the timber requirements of the country. The State Timber Corporation (STC) is the main organization harvesting and supplying timber from the forests of Sri Lanka to meet the demands for large quantities of timber for construction, the furniture industry, export-oriented industries and other purposes (Perera, 1976). This study aims to investigate plantation wood production treatment and its utilization in Sri Lanka.

Plantation forestry has become an essential component of the forestry sector in Sri Lanka. Commercial plantations have been established to cater to the needs of wood-based industries. The government plays a regulatory and facilitating role. The main plantation species growing in Sri Lanka include Pine (*Pinus spp.*), Teak (*Tectona grandis*), Mahogany (*Swietenia macrophylla*) and Eucalyptus (*Eucalyptus spp.*). Different wood species have different properties such as density, hardness and grain pattern. Therefore, those are selected for different applications in the wood industry in Sri Lanka (Sudeshika, 2019). When considering pine wood, its physical and mechanical properties have high strength and stiffness, making it suitable for structural applications such as building construction and furniture manufacturing industries (Rabko et al., 2021).

The STC and SLFD revolve around the principles of sustainable forest management and conservation of forest resources including pine forest. They are state-owned enterprises responsible for the sustainable wood production and marketing of timber products. The STC is responsible for the operations designed to ensure that the wood is harvested sustainably. Pinewood harvesting in Sri Lanka is mainly conducted by the STC. The mature pine trees



were selected for the harvest. After the harvested pine logs are transported to the sawmill for processing at the sawmill, the logs are debarked and cut into boards and planks of various sizes, and they undergo several treatment processes, especially, the pressure treatment process and impregnating the wood with boron-based chemicals treatment process. This study focuses on boron-treated logs

### **OBJECTIVES**

The main aim of this study was to identify treated pine wood production and its utilization in the wood industry.

### **METHODOLOGY**

The study initially considered the treated wood log production in the borax treatment plant at State Timber Corporation and then identified what treated wood logs were produced from 2019 to 2021. Then conducted an industrial survey to identify wood production and its utilization in the wood industry. A structured questionnaire survey was used to gather data. This survey was company-based and randomly selected 20 mid-large scale wood companies such as sawmills, wood treatment companies and wood production places located in the Colombo District. These companies were located in Homagama, Moratuwa, Koralawella, Moratumulla Soysapura. Essentially, Moratuwa woodworking industry is a densely populated agglomeration of more than 1,600 small to medium-scale manufacturing and retail facilities in Sri Lanka. The cluster comprises of furniture manufacturers, sawmills and integrated sawmills (Himandi et al., 2021).

### **RESULTS AND DISCUSSION**

The majority of timber for wood-based industries in Sri Lanka comes from Government-owned forest plantations. The State Timber Corporation is the authoritative body for timber harvesting in state-owned forest plantations (Senadheera et al., 2015). From the STC data, boron-treated pine wood log production was higher than other timber types from 2019 to 2021 because the study selected only these years.

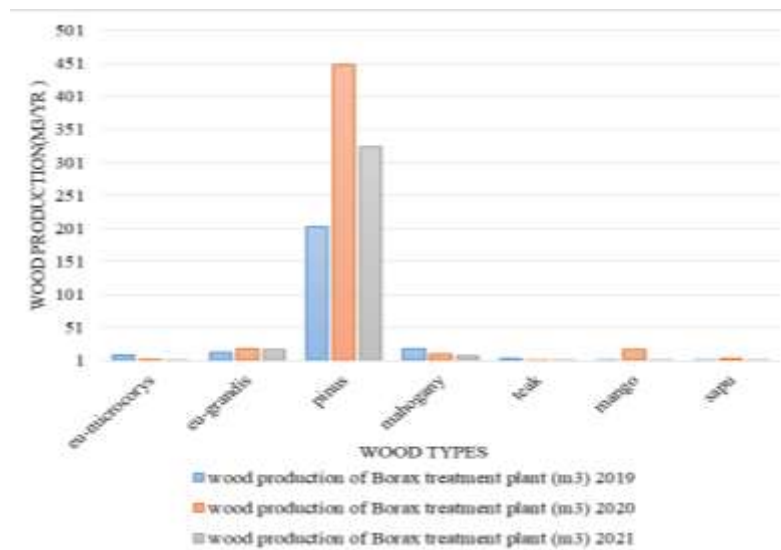


Figure 1: wood production in the borax treatment plant

Treated wood production percentage in the borax treatment plant eu-microcorys 0.93%, eu-grandis 3.2% pine 90.7%, mahogany 2.8%, teak 0.42%, mango 1.67%, and Gini Sapu 0.42%. Based on the data, treated pine log production was higher than other wood types. After that, an industrial survey was conducted to investigate pine wood utilization in the wood industry.

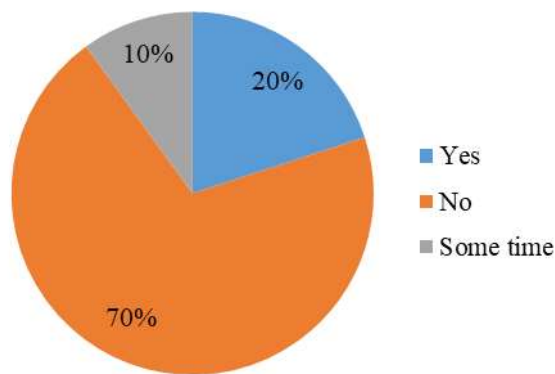


Figure 2: Industrial pine wood usage in the selected sample area

Considering the industrial survey data, 70% of the sawing mill, wood production plants and treatment plants did not use pine wood. 20% of wood industries use pine wood as a construction material, furniture and make craft items and 10% of industries sometimes use pine wood for construction and furniture works. There was a lower demand for pine wood in the local market and if other wood species are preferred for specific applications, the lack of awareness and promotion of pine wood's potential uses and benefits could result in limited demand and utilization, Furthermore, the local culture and tradition prefer emphasising the



use of other wood species, and it could influence the lower utilization of pine wood. These led to reduced production and utilization of pine wood.

## **CONCLUSIONS/RECOMMENDATIONS**

The plantation pine wood forestry sector in Sri Lanka plays a significant role in meeting the demand for wood-based products in Sri Lanka and the study has proven that the State Timber Corporation produces a high amount of treated pine wood logs. However, the wood industries do not use pine wood properly as a product material. This study identifies that the wood community should be aware of the pine wood uses and their utilization. The results can be simplified to the fact that the government and private industries can export excess pine wood. In 1929, the inaugural national forest policy was ratified to procure timber and other forest-based commodities for global exportation (Zoysa. M.D, 2001). Additionally, the government ought to prioritize the scrutiny of the governmental-private sector nexus.

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