

ANALISIS TEKNO-EKONOMI PRODUKSI LAPIS TIPIS BERBASIS  
BAMBU PETUNG (*DENDROCALAMUS ASPER*) SEBAGAI BAHAN  
BIOMASSA BARU DENGAN KINERJA TINGGI

SKRIPSI

diajukan untuk memenuhi salah satu syarat memperoleh gelar Sarjana Sains  
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*ANALISIS TEKNO-EKONOMI PRODUKSI LAPIS TIPIS BERBASIS BAMBU PETUNG (DENDROCALAMUS ASPER) SEBAGAI BAHAN BIOMASSA BARU DENGAN KINERJA TINGGI*

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ANALISIS TEKNO-EKONOMI PEMBUATAN MATERIAL LAPIS TIPIS  
BERBASIS BAMBU PETUNG (*DENDROCALAMUS ASPER*) SEBAGAI  
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## ABSTRAK

Studi tentang bahan lapis tipis telah dikembangkan dalam banyak teknologi, namun penggunaan komponennya sering mengalami kegagalan. Tujuan dari penelitian ini yaitu untuk menganalisis tekno-ekonomi produksi material lapis tipis berbasis bambu petung (*Dendrocalamus asper*) sebagai bahan biomassa baru dengan kinerja tinggi. Metode penelitian dilakukan dengan perspektif rekayasa dan juga evaluasi ekonomi oleh *microsoft excel*. Selain itu, dilakukan studi literatur dan pemodelan berdasarkan struktur cairan ionik. Analisis rekayasa menunjukkan bahwa produksi material lapis tipis berbasis bambu petung dapat dilakukan menggunakan metode ini. Hasil evaluasi ekonomi menunjukkan bahwa produksi material lapis tipis berbasis bambu pada skala besar dapat menguntungkan dalam kondisi tertentu, seperti: fixed cost, total variabel cost, bahan baku, harga jual, gaji pegawai, utilitas, jumlah pegawai dan pajak pemasukan. Semua parameter evaluasi memberikan harga positif. Hasil evaluasi ini berdasarkan CNPV (Cumulative Net Present Value)/investasi selama 20 tahun, BEP (Break Event Point) yang cukup rendah dengan hanya 2 produksi/hari, dan PBP (Pay Back Period) yang cepat kurang dari 3 tahun. Kesimpulan dari penelitian ini yaitu produksi lapis tipis bambu dapat memberikan keuntungan yang menjanjikan dan dapat menarik investor asing untuk bekerja sama dalam produksi lapis tipis bambu. Hasil studi literatur menunjukkan bahwa material lapis tipis bambu dapat memperkuat selulosa dalam pelapisan.

Kata kunci: Material Lapis Tipis, Evaluasi Ekonomi, dan Bambu Petung

## **ABSTRACT**

*The study of thin film materials has been developed in many technologies, but the use of its components often fails. The purpose of this study is to analyze the techno-economic production of thin film based on giant bamboo (*Dendrocalamus asper*) as a new high-performance biomass materials. The research method was conducted with an engineering perspective and also an economic evaluation by Microsoft Excel. In addition, literature studies and modeling are carried out based on the structure of ionic liquids. Engineering analysis shows that the production of prospective based bamboo thin film can be carried out using this method and technology. Economic evaluation results show that the production of thin-film based on bamboo materials on a large scale can be beneficial under certain conditions, such as: fixed costs, total variable costs, raw materials, selling prices, employee salaries, utilities, number of employees and income tax. All evaluation parameters give a positive price. The evaluation results are based on CNPV (Cumulative Net Present Value) / investment for 20 years, BEP (Break Event Point) which is quite low with only 2 production / days, and PBP (Pay Back Period) which is fast in less than 3 years. The conclusion of this research is the production of bamboo thin layers can provide promising benefits and can attract foreign investors to work together in the production of thin film based on bamboo. The results of the literature study show that bamboo thin film materials can strengthen cellulose in the coating.*

*Keywords: Thin Films Materials, Economic Evaluation, and Giant Bamboo*

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