

BAB XII

DISKUSI DAN KESIMPULAN

XII.1. Diskusi

Proses pendirian pabrik p-xylene diperoleh melalui serangkaian proses yang panjang, pemilihan bahan baku biomassa berupa tongkol jagung merupakan hal yang bernilai ekonomis. Berdirinya pabrik p-xylene dengan menggunakan bahan baku biomassa yang terbaharukan ini dapat mendukung hasil produksi p-xylene dalam negeri yang terbilang masih kurang sehingga masih perlu melakukan impor p-xylene. Tidak hanya itu, proses produksi p-xylene yang menggunakan bahan baku berupa biomassa ini juga menjadikan sebagai hal baru yang mana umumnya p-xylene diproduksi dengan menggunakan bahan kimia maupun sumber daya alam yang tidak dapat diperbaharui.

Kelayakan pabrik p-xylene dengan bahan baku biomassa tongkol jagung melalui dapat ditinjau melalui hal berikut:

1. Bahan Baku

Bahan baku berupa tongkol jagung dinilai sangat ekonomis karena banyaknya limbah tongkol jagung yang masih kurang dalam pengolahannya. Tongkol jagung yang umumnya digunakan sebagai bahan bakar pengganti arang ini juga dapat lebih efisien digunakan jika diolah menjadi beberapa bahan baku yang sifatnya sintesis seperti p-xylene ini. Tongkol jagung diperoleh di daerah Jawa yang mana daerah-daerah penghasil jagung dan limbah jagung tertinggi di Indonesia adalah Tuban, Kediri dan daerah Jawa Tengah lainnya.

2. Proses dan Produk yang Dihasilkan

Proses produksi utama terdiri dari yaitu Proses *pre-treatment*, proses konversi selulosa, dan proses filtrasi. Proses *pre-treatment* dengan melakukan pengecilan ukuran dari tongkol jagung kemudian pengeringan dan memecah gugus selulosa, lignin dan hemiselulosa agar lebih mudah diproses selanjutnya. Setelah proses pretreatment adalah proses dimana dilakukan hidrolisis pada komponen untuk mendapatkan senyawa 5-HMF dan proses hidrogenasi untuk memperoleh senyawa 2,5-DMF. Setelah mendapatkan 2,5-DMF maka proses sintesis p-xylene dilakukan,

setelah proses sintesis dilakukan selanjutnya adalah tahapan terakhir yang mana memurnikan p-xylene. Pemurnian p-xylene dilakukan beberapa kali dengan menggunakan alat yang berbeda-beda seperti decanter, PFFP, dan distilasi.

3. Lokasi

Lokasi pendirian pabrik ini ada di daerah Kabupaten Kediri, Jawa Timur hal ini ditinjau berdasarkan segi bahan baku, ekonomi hingga strategis dalam pengolahan limbah. Pemilihan lokasi di bantaran sungai berantas memudahkan pabrik untuk mengolah utilitas air dan limbah air pada proses produksi.

4. Ekonomi

Kelayakan pabrik p-xylene dari tongkol jagung ditinjau dari segi ekonomi, melalui analisa ekonomi dengan metode *discounted cash flow*. Hasil analisa eknomoi menunjukkan:

- a. Laju pengembalian modal (ROI) setelah pajak diatas bunga bank (10%) yaitu 19,45%.
- b. Waktu pengembalian modal (POT) setelah pajak yaitu 4 tahun 8 bulan
- c. Titik impas (*Break Even Point*) berada pada BEP ideal antara 40-60% yaitu 58,50%

Berdasarkan hasil analisa tersebut, dapat disimpulkan bahwa prarencana pabrik p-Xylene dari tongkol jagung layak untuk didirikan.

XII.2. Kesimpulan

Nama Perusahaan : PT. Cornxylene Indonesia

Kapasitas : 85.000 ton/tahun

Bahan Baku : Tongkol Jagung

Sistem Operasi : *Semi-kontinyu*

Mulai Beroperasi tahun : 2027

Utilitas

1. Air : Air Sanitasi = 5,016 m³/hari
- : Air Proses = 18.978,79 m³/hari
- : Air Pendingin = 34.079,50 m³/hari

2. Listrik	: 5.711,40 kW
3. IDO	: 7.589.081,59 L/tahun
4. Solar	: 61.860,93 L/tahun
5. Dowtherm A	: 886.249,88 kg/tahun
Jumlah Tenaga Kerja	: 155 orang
Lokasi Pabrik	: Jl. Tambangan, Kabupaten Kediri, Provinsi Jawa Timur

Analisa Ekonomi dengan Menggunakan Metode *Discounted Cash Flow*

- *Rate of Return Investment (ROI)* sebelum pajak : 29,67%
- *Rate of Return Investment (ROI)* setelah pajak : 21,84%
- *Rate of Return Equity (ROE)* sebelum pajak : 64,53%
- *Rate of Return Equity (ROE)* setelah pajak : 46,81%
- *Pay out Time (POT)* sebelum pajak : 3 tahun 5 bulan
- *Pay out Time (POT)* setelah pajak : 4 tahun 4 bulan
- *Break Even Point (BEP)* : 51,64%

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