BAB XII
DISKUSI DAN KESIMPULAN

XII.1. Diskusi

Pabrik etilen glikol didirikan karena kebutuhan pasar dalam negeri serta luar negeri yang meningkat dari tahun ke tahun. Etilen glikol di Indonesia mayoritas masih impor dari negara lain untuk memenuhi kebutuhan sedangkan pabrik etilen glikol hanya ada satu untuk saat ini. Pendirian pabrik etilen glikol ini diharapkan dapat memenuhi kebutuhan dalam negeri serta meningkatkan lapangan pekerjaan bagi masyarakat Indonesia

Kelayakan pabrik etilen glikol dengan bahan baku ampas tebu dapat dilihat dari beberapa faktor sebagai berikut:

- Aspek bahan baku

  Ampas tebu digunakan sebagai bahan baku dalam pembuatan etilen glikol dengan katalis nikel tungsten karbit. Ampas tebu dipilih sebagai bahan baku karena jumlah yang melimpah serta masih jarang untuk dimanfaatkan kembali.

- Aspek proses dan produk

  Selulosa didapatkan dari ampas tebu yang melalui proses *wet oxidation* dan delignifikasi. Kemudian selulosa dilakukan proses hidrolisis hidrogenasi menjadi etilen glikol dan beberapa produk samping. Etilen glikol didapatkan dengan memurnikan hasil hidrolisis hidrogenasi dengan distilasi dan kristalisasi. Etilen glikol yang dihasilkan memiliki kemurnian sebesar 99,%% yang digunakan pada berbagai industri seperti industri PET, dan tekstil.

- Aspek lokasi

  Pabrik etilen glikol ini didirikan di Desa Brumbungan Lor, Kecamatan Gending, Kabupaten Probolonggo, Jawa Timur. Lokasi ini dipilih karena meninjau dari beberapa aspek seperti ketersediaan bahan baku, logistik, sumber daya manusia serta letak geografis.

- Aspek ekonomi

Pabrik etilen glikol ini memiliki kelayakan dari segi ekonomi yang didasari dari hasil perhitungan dengan metode *discounted cash flow*. Hasil analisa tersebut menunjukkan:

- Laju Pengembalian Modal Investasi (ROR) sesudah pajak memiliki nilai sebesar 9,15% yang mana lebih besar dari suku bunga bank yaitu 5,75%
- Laju Pengembalian Modal Ekuitas (ROE) sesudah pajak memiliki nilai sebesar 18,80% yang mana lebih besar rata-rata ROE yaitu 10%
- Waktu Pengembalian Modal (POT) sesudah pajak diperkirakan selama 5 tahun 7 bulan yang mana lebih kecil dari umur pabrik yaitu 10 tahun.
- Titik impas (BEP) memiliki nilai sebesar 41,12% yang mana masuk pada rentang BEP ideal yaitu 40%-60%.

XII.2. Kesimpulan

Pabrik : Etilen Glikol (EG)

Kapasitas : 100.000 ton/tahun

Bahan baku : Ampas tebu

Sistem operasi : Semi-batch

Utilitas :

- Air : Air sanitasi = 12 ton/hari
  Air proses = 48.378,73 ton/hari
  Air pendingin = 34.937,71 ton/hari
  Air umpan boiler = 2612,49 ton/hari
- Listrik : 41.241,9 kW
- Bahan bakar : Metana dan etana

Jumlah tenaga kerja : 200 orang

Lokasi pabrik : Desa Brumbungan Lor, Kecamatan Gending, Kabupaten Probolonggo, Jawa Timur

Analisa ekonomi dengan metode *Discounted Cash Flow*:

- *Rate of Return* (ROR) sebelum pajak : 15,03%
- *Rate of Return* (ROR) sesudah pajak : 9,15%
- *Rate of Equity* (ROE) sebelum pajak : 30,11%

- *Rate of Equity* (ROE) sesudah pajak : 18,80%
- *Pay Out Time* (POT) sebelum pajak : 4 tahun 7 bulan
- *Pay Out Time* (POT) sesudah pajak : 5 tahun 7 bulan
- *Break Even Point* (BEP) : 41,12%

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