

CHAPTER I

INTRODUCTION

In traditional process design, most engineers usually try to design process that gives only the best profit but overlook the consequent environmental problem. Nowadays, an environmental topic becomes a worldwide serious issue. Most new designs are not only concentrated on financial return but also paid more attention on environmental subject.

Even, an environmental problem is often considered in designing process but an environmental risk is rarely focused in any work, unlike a financial risk.

In this work, the catalytic reforming process is used as basis in studying financial and environmental risk management. The plant capacity, heat exchanger network type, operating temperature will be investigated to find a proper design, based on a commercial process flow sheet. On the ground that the new plant will be constructed and start manufacturing in year 2009 and has a life time, 10 years. By means of prospective data of Thailand, both the profit and environmental impact risk curves of each design will be obtained. Consequently, the optimization background will be used to select an optimum plant design that will operate in year 2009-2018.

For this work, a simulation program, PROII, is used as a tool in modelling plant. Moreover, Excel and GAMS is used in dealing with uncertainties of data, risk management, to create a risk curve.