

# CHAPTER 1

## INTRODUCTION



### 1.1 STATEMENT OF PROBLEM

The Aromatics (Thailand) Public Company Ltd., (ATC), the first aromatic and reformer plant in Thailand, successfully started of commercial operation on February 1, 1997. The plant is located in Map Ta Phut, Rayong and engages in the production and sales of aromatic products for sale to intermediate and downstream petrochemical. The products are classified in to two categories which are main aromatic product and its by-product. Main aromatic products are Benzene, Toluene, Orthoxylene, para-Xylene and Mixed Xylenes. And its by-products are Light Naphtha, Raffinate, Liquefied Petroleum Gas, Hydrogen-Rich Gas, Condensate Residue and Heavy Aromatic.

Since the Aromatics (Thailand) Public Company Ltd. has been putting into the commercial operation for almost two years, the para-Xylene price always goes down over the period of time. Therefore, ATC is looking for new strategies to build up the value added to its products. Lately, the company comes up with a new project dealing with "PTA". ATC's PTA is a project that can fully utilize para-Xylene, which is one of major downstream product of the company. Moreover, the integration of para-Xylene raw material with polyester industry is expected to make ATC a low cost producer of PTA. Though a legally long term contracts, this will support the long-term growth and competitiveness of Thailand's polyester industry and also such long-term contract of PTA will guarantee the demand.

### 1.2 PROJECT BACKGROUND

Para-Xylene is mainly used as a raw material for PTA industry, which is used for polyester industry to produce textile and garment products. Moreover, PTA is still used as a raw material for PET, which is a raw material for blow-molded carbonated soft drink (CSD) and mineral water bottles and custom container.

Textile and garments are an historical important sector of the Thai economy, and local production of polyester fiber is projected to continue expanding to the future. Therefore, the demand of PTA will depend on the growth of polyester industry. Then, there is an unavoidable need for a study of polyester industry in order for the company to obtain enough information about the precise demand of PTA. Moreover, demand and supply of PTA in Asia is highly influence to the PTA project in Thailand.

It is expected that ATC's PTA will be developed as a project jointly financed by the company and one of the key local polyester producers. In addition, long-term offtake commitment based on ATC's relationship with the number of key polyester producers should provide ATC with high operating rates thereby reducing volume risk for potential lender to the project and contributing to ATC low-cost position.

### 1.3 OBJECTIVE OF RESEARCH

As ATC's PTA project can increase the value added to ATC products and also can decrease the problem of searching for the outlet of para-Xylene, it is more likely that ATC's management will review this project in near future. Therefore, the objective of this research is to be a guideline for ATC management in making decision on PTA project.

### 1.4 SCOPE OF RESEARCH

This research will be studied to specify, analyze, and evaluate the parameters which have direct and also indirect impact to success or failure to build up PTA project by using sensitivity analysis method. As from the aforesaid, all the parameters shall be extracted from INCA process technology which is the selected technology, demand and supply of raw material to produce PTA, PTA, and polyester in Thailand and also Asean region, PTA pricing and sale forecasting, management aspect, and financial aspect on PTA project.

### 1.5 PROCEDURES AND METHODOLOGY OF RESEARCH

In order to fulfill the scope of research, this study need to be concentrated on the following items as stated below.

1. Technical area Assessment of both technical and commercial perspectives of INCA processes technology that chosen by ATC already. Once the technology is selected, the description of the process in detail will be provided.
2. Marketing area Market research will study on the development and structure of polyester industry, which will be the main customer of ATC's PTA product. Moreover, the demand and supply of para-Xylene, acetic acid, and PTA will be analyzed and forecast in term of sale quantity and prices.
3. Management area Organization structure will be prepared by means of organization chart, qualification for the position needed, and its manpower planning. The idea on job descriptions on each position will be described, and also, wages and salary will be estimated.
4. Financial area Definition and description of Project financial term will be provided. It included manufacturing costs, the assumption on financial model and the model itself. Once the results can be derived, the analysis on the specific financial term will be made. Finally, the recommendation on the term of economic and financial aspect will be given.
5. Define all the parameters which have direct and also indirect impact to success or failure of PTA project from four major areas as stated above. *Such parameter can be continuously extracted in the same time of study in each area.*
6. Study on all the impact of these parameters by using sensitivity analysis method and make such recommendation on all the components which also have pro&con impact to PTA project and suggestion on how this project can success or failure.
7. Analyze and conclude all data and information.
8. Making a thesis report and prepare for the presentation.

## **1.6 EXPECTED BENEFIT**

1. The potential participants, including domestic and international bankers, can use this feasibility study to be the information in making their decision on the project.
2. Build up more opportunity for ATC on having more choices of selling its products to the market.
3. Create job opportunity for Thai people.
4. Decrease importing PTA and increase the opportunity to export PTA, which can give an opportunity to get more foreign currency.
5. Get more value added to the product.

## **1.7 METHODOLOGY AND THEORY USED IN RESEARCH**

This study will be conducted as a standard feasibility study which can apply the following theories.

1. Demand & Supply analysis and forecasting
2. Discount cashflow and financial ratio analysis
3. Organization Structure
4. Sensitivity Analysis