



# PP Corrugated Sheet Market Research

By

Somnuek Thanasuwnditee

A PROJECT

Presented to the Faculty of Graduate School of  
Computer and Engineering Management

In Partial Fulfillment of the Requirements for the Degree

MASTER OF SCIENCE

in

COMPUTER AND ENGINEERING MANAGEMENT

ASSUMPTION UNIVERSITY

December, 1998



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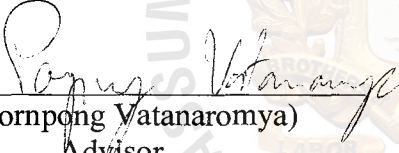
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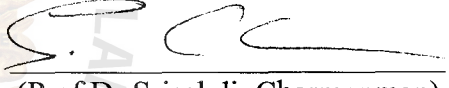
Project Title : A PP Corrugated Sheet Market Survey  
Name : Mr.Somnuek Thanasuwanditee  
Project Advisor : A.Pornpong Vatanaromya  
Academic Year : 1998

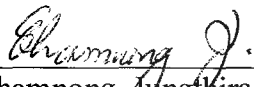
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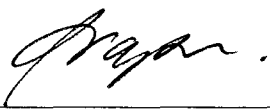
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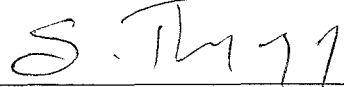
  
(A.Pornpong Vatanaromya)  
Advisor

  
(Prof.Dr.Srisakdi Charmonman)  
Chairman

  
(Dr.Chamnong Jungthirapanich)  
Dean and Co-advisor

  
(Assist.Prof.Dr.Boonmark Sirinaovakul)  
Member

  
(Assoc.Prof.Dr.Prapon Phasukyud)  
Member

  
(Assoc.Prof.Somchai Thayarnyong)  
MUA Representative

December 1998

## **ABSTRACT**

This project, PP Corrugated Sheet Market Research, is to study the industrial market information of PP Corrugated Sheet Market, potential, direction, consumption, attitude, and customer's need including analysis of PP industrial marketing plan of Thai Petrochemical Industry Public Company Limited (TPI) for supporting decision making of PP Product Manager of TPI in marketing planning, sales forecasting, production planning, developing of product and service including gaining competitive advantage.

This project is divided to two parts such as the part of analysis of PP marketing plan of TPI by using face to face interviews with PP product manager of TPI and the part of PP Corrugated Sheet Market Research. The market research is divided to two levels of survey such as sheet manufacturers by using face to face interviews for 100 percent of sheet manufacturers and sheet converters by using telephone interview for random converters including using the structured questionnaire which is designed to cover all the objectives.

After studying this project, we will know the potential, the future consumption, and customer's need for PP Corrugated Sheet Market. This project is accomplished for the utilization of PP sales forecasting and production planning including developing of product and service of TPI.

## ACKNOWLEDGEMENTS

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## I. INTRODUCTION

### A. Significance of the Project

As human progress evolves in societies, changes in the way of living follow naturally. In the process, one obvious phenomenon emerges, i.e. that man uses less and less natural materials in daily life, while he turns to other objects as substitute. Plastics have since then begun to prevail as nature's substitute, thus launching the development of petrochemical industry.

Despite the fact that the industry has high impact on the country's economy, only too few people know what crucial role it plays in man's daily life.

Today, petrochemical industry has become a solid part of our daily lives for the very reason that it has been developed to produce nature's substitute for metal, wood, minerals, etc. Basic petrochemical products include plastics which are widely used in packaging, construction, electronics, automobile, furniture, toy, synthetic leather and rubber and also in many other industries.

Looking around us, we cannot help but come into contact daily with a multitude of petrochemical products, be they plastic bags, toys, bottles, electrical appliances, automobile parts, etc. This is because petrochemical products are cheap and easily obtainable synthetic substance that has gained more and more popularity, just as our natural resources are becoming fast depleted.

Today, a basic industry such as the petrochemical industry has turned out to be very instrumental to the country's steady economic growth.

PP corrugated sheet is Polypropylene corrugated plastic sheet which is made from specially formulated high impact polypropylene copolymer by using the most advanced extrusion process technology from Europe.

It is an industrial market that has potential and effects PP manufacturers such as TPI, TPP, HMC, and Importer. It can replace natural materials such as corrugated paper, paper board, wood, metal and it has advantageous properties such as being strong, tough, tear resistant, resistant to water, oil and various chemicals, easy to clean, light weight, versatile, high impact resistance and simple screen printing process.

In addition, it can be converted to many products and applications such as container, packaging, advertising board, construction, stationery, and many other miscellaneous products.

#### **B. Objectives of the Project**

The market research project of PP corrugated sheet has been conducted under the support of Thai Petrochemical Industry Public Company Limited (TPI) and PP Product Manager of TPI. This research will support the decision making and provide information for PP Product Manager of TPI. The management objective assigned in this research is to find out the following objectives:

- To analyze PP industrial marketing plan of TPI for supporting PP Product Manager.
- To study potential and direction of PP corrugated sheet market.
- To support the decision making of PP sales forecasting and production planning of PP plastic resin for corrugated plastic sheet.
- To analyze competitor strategies for PP corrugated sheet market.
- To support TPI for development of product and service.

### C. Methodology of the Project

The methodology of the project covers the research methodology of industrial market research in order to achieve the objectives of this research. The information is sought from the collection of primary data and the collection of secondary data.

Under this area of research, the descriptive research was conducted to know more about industrial market information of PP corrugated sheet , potential, direction, consumption, attitude, and customer's need toward of PP of TPI. The secondary data concerning the topic would be done as a reference.

There are two levels for survey or field work as following:

- Level of sheet manufacturers, face to face interviews were made for all manufacturers and the use of structured questionnaire which is designed to cover all the objectives (Hague and Jackson, 1996). All PP corrugated sheet manufacturers who have been interviewed are as follows:



- Emstrade
- The Pet
- Material Plast
- Thai Polyacrylic
- Geoplast
- Level of sheet converters, telephone interviews were made for random converters and the use of structured questionnaire which is designed to cover all the objectives. A random choice of 10 companies was made from a total of 40 companies. The target was 60 percent for advertising board producing companies or 6 companies and 40 percent for container & packaging producing companies or 4 companies. The names of the companies which were interviewed are as follows:

There are 6 companies which mainly produce in advertising board.

- Media of Art
- Sign & Silk Screen
- Scan Print Work
- Leela Advertising
- Alif Advertising
- Four Art (1994)

There are 4 companies which mainly produce in container & packaging.

- KC Product
- NP Company
- Popular Products
- Dreamer House

## **II. ANALYSIS OF PP INDUSTRIAL MARKETING SYSTEM OF TPI**

### **A. PP Plastic Market Overview**

Polypropylene (PP) plastic is a basic plastic which has consumption to be NO. 2 of plastic in the world (Gachter and Muller, 1990). The market overview can be described into 5 parts as follows:

#### **1. Demand and Supply**

In the past Thailand had to depend on the importing of PP Plastic Resins from overseas. In order to respond to the local consumption, in the year 2533, Thailand had two PP manufacturers that were TPI and HMC Polymer Company Limited. However, the supply of PP that was produced in locally, was not enough for the demand. During the years 2533 to 2536, the demand of PP had expanded rapidly. Its growth rate was about 22 % per year.

The future trend of the demand will continue to expand at a growth rate of about 14 % per year during 2537 to 2540 and the growth rate about 11 % per year during 2541 to 2542. Because Thailand has a lower consumption rate of PP than in developed countries and developing countries, the consumption was 5.0 kilograms per one people per year while USA, Japan, Taiwan, South Korea, and Canada used more PP than Thailand by about 2 times.

#### **2. The Competition in Local Market**

The condition for the competition of PP market has not been an intense status, because Local PP manufacturers have supplies close to demand.

There are 3 local manufacturers for PP as follows:

- TPI is the leader of PP market. TPI has a market share of about 50 %. TPI uses Technology of BASF (Germany).
- TPP or Thai Polypropylene Company Limited is the second in the market. TPP has market share of about 30 %. TPP is a subcompany of Siam Cement Company and uses Technology of MITSUI (Japan).
- HMC Polymer Company Limited is the third. HMC has market share of about 20 %. HMC uses Technology from USA.

### 3. Trend of PP Price

Trend of local PP Price Level will be similar to HDPE. Price of PP will go up-down depending on the condition of Global Market Price (CIF FAR EAST). Time cycle fluctuation of PP Price is between 7 to 9 years (Sachs and Larrain, 1993).

#### 4. Structure of PP Plastic Industry in Thailand

The structure of PP plastic industry can be divided to 5 parts as below:

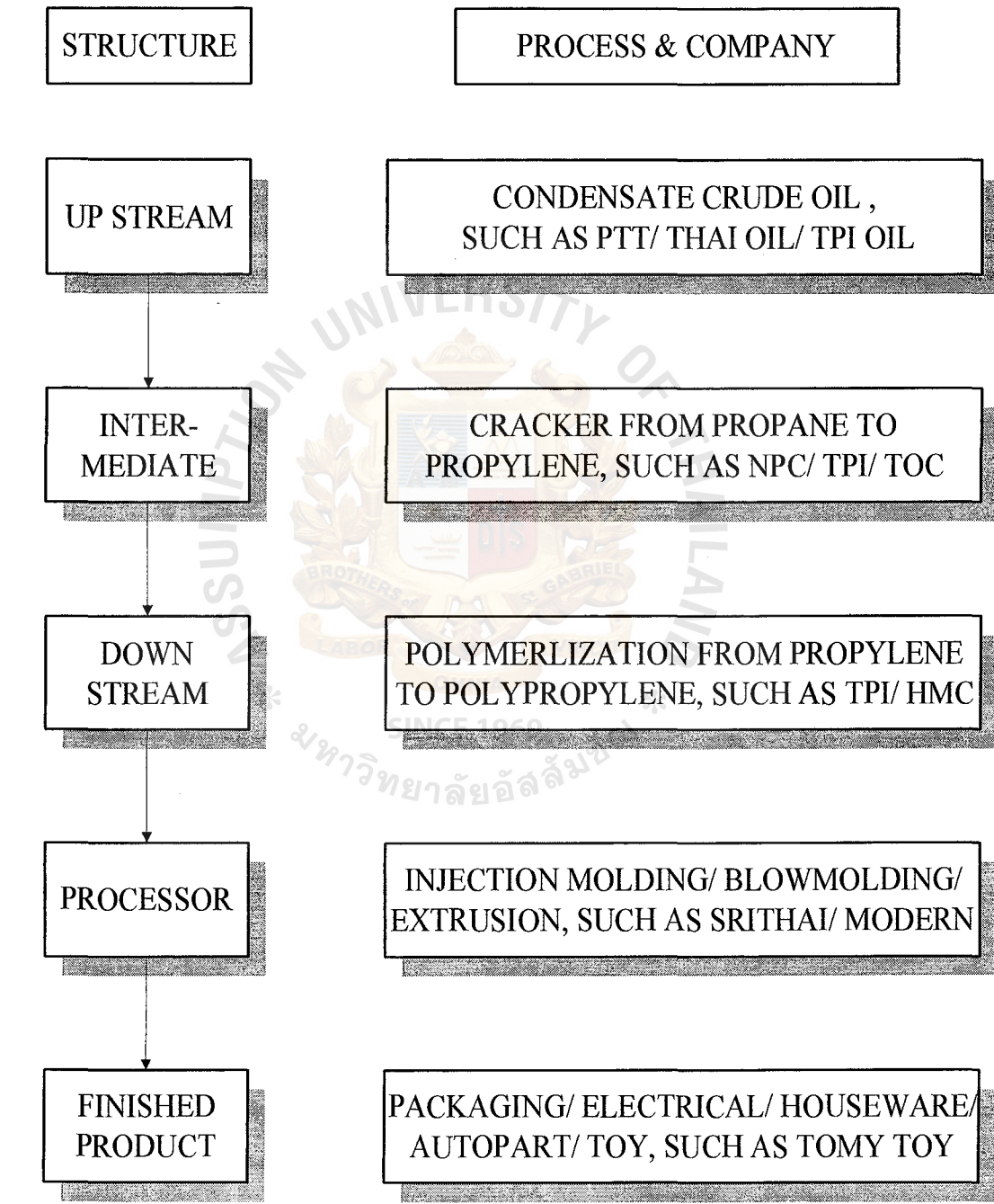


Figure 2.1. Structure of PP Plastic Industry in Thailand



## 5. TPI Background

The first stage of local petrochemical industry development was slow and gradual as the industry still relied heavily on imported raw materials. The discovery of natural gas in the Gulf of Thailand in 1977, however, triggered some major changes which eventually led to the beginning of petrochemical industry development in the country.

Thai Petrochemical Industry Public Company Limited or TPI was registered on August 3, 1978, with the objective to pioneer the petrochemical industry in the country, as the company's founder foresaw the industry's high potentials to develop and become fundamental to the future development of other downstream industries in Thailand.

After its foundation, TPI proceeded to build its first petrochemical plant to produce low density polyethylene (LDPE) resins. It was the first in Thailand as well as in the Southeast Asian region. Production started in 1982. In 1983, the production of high density polyethylene (HDPE) readily followed suit. With the rapidly growing domestic demand for petrochemical products, TPI ventured to produce a wider variety of plastic resins, namely polypropylene (PP), polystyrene (PS), acrylonitrile butadiene styrene (ABS), and is now involved in the project to increase polyethylene (PE) production capacity.

For Thailand to rise and be recognised as one of the world's economic

leaders, production cost has to be kept lowest possible, so as to enable its local products to compete with imported products. This goal can be achieved through economy of scale as well as fully integrated production, which need to go hand in hand with market growth strategies both in terms of trade and investment, with the aim to penetrate the market in countries not belonging to any trading group. At the same time, new markets and innovative measures aiming at expanding trade and investment must quickly be established.

## B. Environmental Scanning

Marketing environment is the actors and forces outside marketing that affect marketing management's ability to develop and maintain successful transactions with its target customers (Kotler and Armstrong, 1996). There are 2 keys of environment for scanning such as external environment and internal environment.

### 1. External Environment

External environment is forces outside the company. It can be divided to societal environment and task environment.

#### a. Societal Environment

Societal or Macro environment is the larger societal forces that affect the whole microenvironment---demographic, economic, natural, technological, political, and cultural forces (Kotler and Armstrong, 1996).

There are 4 forces in societal environment as follows:

- Sociocultural Force, the pattern of the quality of life of Thai consumers has changed to be more luxurious and required higher quality and standards. The convenient and modernize benefits of plastic is required to serve the change in the pattern of customer demands. Plastic has become a substitute raw material for many products i.e. paper, iron, aluminium, etc. so the demand for plastic has increased. The requirements of packaging in plastic forms becomes increased since it has the advantage with standards higher impact, better design and faster production process and rustless materials. Moreover, it can be recycled and has cheaper cost than some other raw materials in production of finished goods.
- Economics Force, Global recession and Thailand's economic recession have caused higher rate of bad debts. Allowing of long term credit to customers must be considered. Moreover, the competition in price tends to increase. Thai purchasing power has decreased and the people have become thrifty in consumption. Since Plastics Industry is Capital intensive it requires a huge amount of investment. The problem of high interest rate is the major factor facial expansion capacity in production. It is the result of high government spending in prime minister Khun Banhan's time. Eventhough, the investors borrow some parts of their capital from abroad, the costs of capital is still high. Moreover, in April 1997 Thai Credit rating was be decreased by S&P, and Moody's. Local investors were required to pay higher interest rates if they wanted to borrow from foreign sources.

- Political Force, by the year 2003, accordingly to AFTA agreement, import tax will decrease to 0-5% In 1996-97 the import tax was reduced from 30% to 27%. The reduction of import tax from 40 % to 30% in 1996 affected the price of Plastic Pellets which decreased. It indicates that market price in Bangkok must be changed with the movement of market price in Asia in order to hinder the customers from foreign import. The research in 1992-1993 found that by the reduction of import tax from 40 % to 30% a stable level of price became possible. Thai manufacturers can still compete the other foreign manufacturer in South East Asia. Severity of effects on the plastic pellets as PE, PP & PVC will not be too badly affected because the products are more developed. Moreover, nearly all Thai local manufacturers control large sectors of the market & have stable positions in production capability to compete against foreign producers. Thai government has been promoting and providing protection to the local plastic pellet industry since the national petrochemical project was launched, so as to develop domestic upstream industry as sources of raw materials for pellet production. Various investment benefits have been offered, i.e. the exemption of import duties on machinery and raw materials and a five year exemption on corporate income tax. The most effective measure in the promotion of Thai plastic pellet industry is the tariff wall set up against imported plastic pellets. The rate is 40 percent advalorem, which is higher than in other ASEAN countries. In addition, when dumping of foreign plastic pellets takes place in the domestic market, the government collects a surcharge at 10-20 percent of the import value. However, this measure has had the effect of increasing production costs, thus



affecting end users. This is because domestic pellet manufacturers often set prices of their products at slightly lower than those of imported products.

- Technology Force, Thailand's economic growth and progress in the industrial sector during the past 5-7 years have led to a shortage of qualified personnel in the management and higher levels as well as skilled staff at the operational level. To alleviate this problem, producers aim to provide training and produce qualified staff in the field of industrial technology. The Thai plastic industry has been continuously developed for over 30 years, evolving from an industry catering to the domestic market and an import substitute industry, to that of an export industry. However, it still has to rely mainly on imported technology. Apart from this, only 20 per cent of plastic pellets, the main raw material, are available from domestic sources, while the rest have to be imported. The duty rates levied on imported pellets are high, hence production costs of this industry are much higher than other competing countries. Singapore is a major competitor in ASEAN since it enjoys more advanced production technology & experienced manpower. Most Thai Manufacturers require to import the advanced technology & machine from developed countries i.e. Germany, etc. to enhance level of production efficiency.

#### b. Task Environment

Task environment is the forces close to the company that affect its ability to serve its customers (Hutt and Speh, 1995). There are 7 forces in task environment as follows:

- Distributors, TPI's distributors offered more experience in providing effective customer service & more understanding of customer needs. These are always

joint training programs at TPI in order to promptly serve the changing in customer's demand pattern. There are some conflicts occurring in the intra channel competition by selling to the same customer.

- Competitors, in Plastic industry, there are a few large local manufacturers i.e.: TPP, HMC, import plastic, etc.
- Creditors, it requires a huge amount of capital investment in machinery & technology from foreign countries as Germany, etc. So, some parts of capital requirement come from loans such as, German Bank, etc.
- Suppliers, TPI has a long term relationship with German suppliers of machinery and technological advancement. They also provide TPI with low cost of capital borrowing as a financial support.
- Customers, TPI has 2 kinds of customers:
  - Agents, they buy the plastic pellet from TPI and resell to the users.
  - Manufacturers, they buy the plastic pellet in order to use it as a part of raw material in producing finished goods i.e. Plastic Packaging, etc.
- Associations, TPI has joined 2 groups of these organizations to increase bargaining power of Thai plastic manufacturers;
  - The Association of Thai Plastic Industry.
  - The Council of Thai Plastic Industry.
- Special Interest Groups, the conservative environment groups try to resist the plastic production and consumption due to the reasons of ozone destruction. This group tries to encourage people to turn to use other substitute products which are environment friendly in process. i.e. paper, etc. TPI has always accentuated the significance of environmental conservation through effective measures, both protective and corrective, to monitor the impact its production

process might have on the people and the environment. TPI has so far upgraded its efforts to ensure a safe and healthy environment by investing such a huge amount of money in having various pollution-control systems installed so that the company can very well be referred to as a leading industrial operator with the largest environment-related investments in Thailand. i.e. Waste Water Treatment System, Electrostatic Precipitator, Regenerative Thermal Oxidizer (RTO), Incinerator.

## 2. Internal Environment

Internal environment is the actors and forces inside the company that affect marketing management's ability (More and Perssemier, 1993) including:

### a. Skilled Personels

TPI's personels have more skill in Plastics industry because TPI is the first manufacturer. It can take the advantage of the foremost in technology. However, TPI still has continuous training program for their employee in order to catch up with the advancements in technology development. TPI Institute of Technology is managed by TPI Technology Company Limited which was founded on February 22, 1995. TPI Petrochemical Industry Public Company Limited holds 99.93% of shares. Practical training is conducted under the supervision of professionals as well as experienced factory personnel. Additionally, the institute operates in consultation with foreign institutions. The decision to open TPI Institute of Technology is directly in line with the government's policy and its move to solve the problem of skilled labor shortage both at the management/executive and operational levels. Through this pilot

project, the company aims at upgrading the country's rural education to accretion extent.

#### b. Management Style

Top management style is autocratic and prefer to make decision by himself. It is quite a centralize decision style.

#### c. Organization Structure

It is a formal structure that requires to pass several channels from top to bottom levels. It consumes more time to follow all channels and leads to some conflicts and message distortion.

#### d. Capital Resources

In 1991-1992 TPI's equity was increased by 23% TPI acquired capital resources by issuing Euro-bond and Exchangable Bond as a source of fund to pay foreign suppliers. TPI's asset was increased by 27% and 19% in 1991 and 1992 respectively. In 1993 current assets decreased by 7.6% due to investment and borrowing source.

#### e. Advanced Technology

TPI imported know-how and technology from foreign countries such as Germany by paying in terms of money return to them or by joint venture dealing. Germany also sent skilled and experienced engineers to train TPI's personnel as a turnkey operation.

### C. SWOT Analysis of TPI

For analysis of strengths, weaknesses, opportunities, and threats of TPI, it can be concluded as follows:

#### 1. Strengths

TPI has 7 strengths as follows:

##### a. Advanced Technology and Production Efficiency

TPI has always innovate new development in R & D and technology that is cause of lower cost of production and higher quality. TPI also enters in ISO 9000 & 14000 quality standard in order to be competitive in world market. Moreover, TPI imports machinery and technology development from Germany which is considered as a famous country in R&D of advanced technology.

##### b. Price

The advantage of economy of scale & learning experience made TPI to be a cost leader and can offer lower product prices to the customers.

##### c. Credit Policy

TPI has a good credit policy to reduce risk by passing responsibility to the agents and selecting the trustworthy customers.

##### d. Skilled Human Resources

TPI's salespersons have more coverage by serving customers in widespread areas. The salesperson of TPI always visit customers in periodical placement of each order and give advice to both agents and customers. Moreover, TPI gives one-stop service duty to salespersons so they can give more advice and faster action in any customer need.

TPI Group decided to establish an educational institution in the form of a model project with the aim to provide training and produce qualified staff in the field of industrial technology. TPI Institute of Technology is the first training institution operating on the school-factory system i.e. on-site and hands-on training in factories which enables them to become familiarized with equipment, machinery and general factory work. It will promote TPI's human resources training to become superb in technical skills and more advanced in knowledge of technology.

#### e. Brand Loyalty

TPI's name is a competitive tool since the customers believe in TPI's quality. TPI is the first mover in Plastic industry and is well known and accepted by many agents and manufacturers.

#### f. Top Management Connection

Since the president of TPI has good relation with some famous politicians and he was able to bargain for reduction of import tax to be slower by only 3% during 1996-1997 on AFTA agreement. Moreover, he also used a aggressive strategy in decision making for rapid growth. It became successful strategy because of his long life experience as a first mover in plastic industry.



g. A Human Resource Department

TPI personnel department screens the enthusiastic, active and fresh personnel and offer quite high return in order to motivate them to put more effort for company effectiveness.

2. Weaknesses

TPI has 3 weaknesses as follows:

a. Management Style

TPI is managed by top management and centralization style (autocratic style) that all order processing pieces must be authorized by top management. Therefore overall systems are not flexible and may be delayed.

b. Delivery

All order processing pieces must be authorized by top management and, there are no TPI's warehouses and storages located in Bangkok which is the major cause of slower delivery than the competitors.

c. A Management Information System

TPI still has no IT and IS system that can help and support faster service in order processing. The existing system is not up to date to facilitate in high competition.

3. Opportunities

There are 3 opportunities as follows:

a. Market Potential

The higher trend of market of plastic consumption rate is due to the change in demand pattern both in local market and export market.

b. Government Support

Thai government gives support to this industry since it is a new industry that can increase jobs for Thai people and also a basis of national development.

c. Suppliers

The long term relationship of TPI can be considered as strong competitive edge over the other competitors. They always provide special benefits to TPI.

4. Threats

There are 4 threats as follows:

a. Economics Recession

Global recession and Thailand economic recession had caused a higher rate of bad debts. Allowing long term credit to customers must be considered. Moreover, the competition in price tends to be increased. Thai purchasing power has decreased and the people have become more thrifty in consumption pattern. Since Plastics Industry is capital intensive it requires huge amount of investment.

The problem of high interest rate is the major factor to expand production capacity. It is a result of high government spending in prime minister Khun Banhan's time. Even though the investors borrow some loans from Foreign countries, the costs of capital is still high. Moreover, in April 1997 Thai Credit rating was decreased by S&P, and Moody's, and the local investors were required to pay higher interest rate if they wanted to borrow from foreign sources.

#### **b. Asean Free Trade Area (AFTA) Agreement**

The effects of reduction in import tax, which will be 0-5% in year 2003 is a major factor of higher intensity in global competition since Thai plastic manufacturers must try to emphasize on their production efficiency and capacity in order to compete against the foreign plastic manufacturers. The price of imported plastic pellets will become cheaper so TPI may lose some market share to them.

#### **c. Distributors**

There are some conflicts occurring in Intra channel competition that requires TPI to solve this problem. For example, if customers have high potential and good finance, many agents of TPI will approach and cause intense competition that requires TPI to solve these conflicts.

#### **d. Special Interest Groups**

They try to resist the production of Plastics and can cause the reduction of productions in Plastics. For example, international plastic producers and international politics do not want Thailand to have large Plastics plants for international competition,

and conservative groups believe that plastic plant cause pollution and are not good for the environment.

#### D. A Marketing Plan of TPI

For a marketing plan of TPI, it can be concluded as follows:

##### 1. Strategy Formulation

The mission statement of TPI company is to maintain market leader position of the plastic resin industry.

##### a. Objectives

TPI's company objectives include the following:

- TPI would increase their sales volume by at least 10% per year.
- To expand international market to gain the position of lowest cost producer within the next 2-3 years.

##### b. Strategies

TPI's company strategies include the following:

- To constantly increase and improve their sales promotion plans. By improving and increasing their sales promotion plans their customers would be constantly promoted and tempted to use TPI's products. Sales promotion also keeps TPI

in the customer's minds. By inducing the customers to be swayed in making their purchasing orders with TPI would help to increase TPI's sales volume. With special sales promotion this would also help promote overseas customers to start business with TPI, thus achieving the globalizing objective as well.

- Another strategy TPI uses to reach its objective is to use full integration strategy. TPI would expand their plant to increase their production capabilities. To gain the competitive advantage of economy of scale and learning experience is TPI's competitive advantage. Moreover, with an expanded plant that could accommodate more orders, this would make sure that TPI would be able to handle the increased sales volume in the future and also ensure that TPI could handle overseas orders.

#### c. Policies

TPI's company policies include the following:

- Provision of product knowledge to customers and agents. The product knowledge provided to customers and agents would help in increasing the sales volume. As customers understand our products better they would in turn apply more usefulness to the company's resins to produce their product lines. This product knowledge could also be given to the customers and agents in forms of sales promotion or any other ways that our specialized sales force deemed would provide the best results.
- To promote an increased sales volume through TPI agents. Increased sales volume through TPI agents would reduce TPI's credit risk. TPI's agents would

be required to chase their own customers payment and TPI would not be held responsible for the agent's customer credit worthiness.

- To offer minimum lead time service to TPI's customers. Customer's in today's world demands to have their orders delivered on time. TPI's policy would be to provide their customers with their best lead time that they can provide. Once customers trusts TPI with the better and improved lead time services, in turn it would increase our sales volume.
- To reduce unnecessary costs. Reducing unnecessary costs would provide TPI better financial budgeting. Once unnecessary costs are reduced this could help the company to save much money and in turn the employees would learn to budget better. By reducing unnecessary costs, these financial funds could be in turn used in other areas reaching objectives of increased sales volume. For example, the money saved from reduced cost could be turned into a sales promotion method that increases sales volume and help TPI achieve their objective of globalization.

## 2. Future Trend

In the next 10 years or after 1993, there is much room for the Thai Plastics industry to grow. This is due to the fact that the present per capita consumption is still low compared to other countries. In 1990, Thai Consumption rate per capita was only 12.1 kg./yr while Singapore's was 78 kg./yr (Parkin, 1993). In 1992, Thai Consumption rate/ Capita increased to be 16.1 kg./yr. The pattern of demand changed to higher quality eventhough at a higher price because of increase in living standards. The future



demand for plastic consumption tends to be increased due to the use of substitute and direct effect of its benefits.

### 3. International Competition

The government accords protection for the plastic industry by setting up a tariff wall of a 60 percent advalorem rate. But for production for export, the manufacturers enjoy the privileges of tax exemptions on the import of machinery and raw materials for two years and five years respectively. In addition, a rebate of 75 percent on the going rate is allowed for raw materials which cannot be manufactured locally. In 1996, PP HOMO exporting volume was 2,329 tons, which decreased from 1995 by 14% ; PP COPO exporting volume was 2,760 tons which increased by 14%.

Despite widely reported good demand since the turn of the year and tight feed stocks, European PP prices have not risen as swiftly as producer initially hoped. ADMO.10/kg price hike sought at the start of January was only reported achieved by The end of February. A further DMO.05/kg was being asked for in March and talk was of a DMO.10.0.12/kg hike again in April to cover an anticipated Q2 propylene price hike. Technical problems at two new plants with capacity totaling 350,000 tones/year put back start up, scheduled for the end of 1996, by some two months, helping to tighten supply.

Asian PP prices have maintained a bullish trend since last spring due to generally tight fundamentals in drising monomer values. Prices are expected to see further higher gains next month as key producers in Japan and Korea enter the spring turnaround

season. With large amounts of new capacity creeping into the U.S.A. system since November, most players predicted pricing weakness. Export prices firmed instead and domestic prices stabilized. After a fiercely competitive December, domestic Homopolymer grade prices dropped to \$0.34/lb for very large buyers and \$0.40/lb in small consumer sectors. December's inventories were drawn down so far they gave producers pricing leverage throughout Q1. Copolymer exports are pegged around \$0.40/lb range, and see little activity. Producers appeared unprepared for the strength in their markets during Q1 and cautiously came out with a \$0.03/lb price increase announcement for start March or mid/end February. BOI gave special right to the manufacturers who imported raw materials for exporting by giving tax refund to them. However, those manufacturers are still required to use sums of money as a guarantee of their performance to re-export. TPI has a future plan to set up a plant for global market in the next 3-5 years even though the project in Philippines was terminated by AFTA agreement.

TPI's expansion is through full integration in anticipation of world trade liberalization in the ASEAN countries. To cope with the situation stemming from the import tariff cut, TPI drew up its investment expansion scheme to enter a fully-integrated petrochemical industry. From the original capacity as producer of the only downstream product, ie. plastic resins, TPI is now diversifying into the upstream and intermediate petrochemical areas as a manufacturer of raw materials, so as to lower production cost, enjoy the economy of scale and enhance its potentials to compete in the international arena within the free trade framework. The full integration of petrochemical industry needs to be consolidated, because this is where plastic resins are produced as raw materials to supply other main industries such as the automobile and

household appliance industries. Without full integration, Thailand's petrochemical industry will never be able to attain a competitive edge at international levels.

#### 4. Sources of Advantage

TPI can be superior over competitors by these reasons:

##### a. Superior Skill

The human resource manager can acquire knowledge and active personnel in each particular field of products.

##### b. Superior Resources

TPI has good long term relationship with foreign suppliers and can be accepted by foreign creditors i.e. Germany, etc.

#### 5. Positions of Advantage of TPI

There are 2 drivers as follows:

##### a. Cost Drivers

TPI has 3 advantages in cost drivers as follows:

- Economy of scale, TPI can take the advantage of lower cost per unit than the competitors since it is the market leader in plastic industry and has large volume of production. TPI's petrochemical industry starts with crude oil all

the way to the production of plastic resins. In the process, production cost will be reduced, while the economy of scale can be realized, enabling the Group to compete with overseas manufacturers.

- **Learning,** TPI has competitive advantage from advanced know-how and technology and being the first mover in plastic industry. This acquired advantage was gained before the others can develop themselves to be efficient manufacturers and can reduce production cost with TPI's cumulative experience.
- **Linkages,** TPI has planned to set up a Petroleum plant to create synergy from by-product of Petrochemical products as a raw material to produce plastic. To take the benefit of this common base by a way of vertical (backward) integration. TPI can solve problem of supply of raw material and its cost in the plastic industry. TPI has decided to become self-reliant and has heightened its competitiveness by entering a fully integrated petrochemical industry. Originally operating in the downstream area as producer of plastic resins only, the company is now diversifying into the upstream and intermediate areas to produce other raw materials. TPI will emerge as Thailand's first operator of fully integrated petrochemical industry having high potentials to compete with other producers both in local and international market.

#### **b. Drivers of differentiation**

To differentiate from competitors in the following:

- After sales service policy, TPI offers better chance of advice service to agents and customers since TPI has more coverage in nearly all geographic areas. They frequently visit and help to solve problems with the customers and agents even though they are not TPI's customers.
- Linkage, TPI always has training program to give more support to agents and ask for the needs that customer requested. This can lead to improve or innovate new idea of product development.
- Timing, TPI was the first mover in plastic industry and can take the advantage of longer period in cumulative experience and faster movement over competitors.

## 6. Assessing the Competitive Environment

Assessing the competitive environment, normally TPI will assess every year or a half of year. There are 5 factors as follows:

### a. Threat of New Entrant

Barrier to entry, since the plastic industry is capital intensive industry it requires a huge amount of money investment in machinery, in research and development and in technological advancement. It is not easy for the new comer to enter this industry. It requires cumulative experience and huge capital resource. This is a competitive edge that TPI has as long term basis and being market leader in this industry. However, TPI needs to improve and maintain its status in this field.

### b. Threat of Substitutions

If the change in the price raw materials of plastic pellets is moved higher, and thus increase in production cost, other substitute products can replace it i.e. paper, aluminium, etc. TPI is required to continuously improve its production process in order to be leader in cost effectiveness and can also be competitive in long run basis both in the local and global market.

#### c. Bargaining Power of Supplier

TPI can reduce the problem of powerful supplier by using backward integration that benefits from by-product of petrochemical product line.

#### d. Bargaining Power of Customer

TPI pays attention to agents and customer treatment. Moreover, the large volume customers can bargain for a special price but require approval from top management.

#### e. Intensity of Competition

Thai plastic industry has the problem of intense price competition. The customers or agents may change to buy from others if their prices are slightly lower.

### 7. Competitive Analysis

There are about 4 major plastic resin companies in the Thai market right now. The company with the largest market share is TPI company with a total of 50% of the resin market share. TPP or Thai Polypropylene company possess the second largest share of 20% of the market share. Coming next in line with a total of 15% of the plastic



resin market share is HMC company. Imported plastic resins consists of another 15% of the total plastic resins in the Thai market.

#### a. TPP Competitive Strategies

TPP company controls the second largest percentage of the plastic resin market share . The company built up such a large share in the market with these major advantages. Major advantage of this company is the image of Siam Cement Co., Ltd. group in firmness, systematicity, and long term business. Besides this, the major advantage that the company had built up is a good solid creditability with its customers. TPP tries to concentrate on its major selected customers. These are customers are those qualified as those with good credit and those that could be highly potential customers. Their major customers are those in the industrial goods segment. These segments include those in the auto part and electrical industries. These segments are those viewed as having high growth potential with lots of expansion along the way. TPP also has a specialist team in handling customer services. This specialist customer service team consists of a sales team that would be specializing in auto parts and another team that specializes in electrical appliances.

#### b. HMC Competitive Strategies

HMC with their 15% of the market shares maintains this market share with the following advantages. HMC's know-how is from the United States. Besides, having this technology advantage , HMC also had a good quality image that came from their headquarters. This is quite an important advantage as consumers believes in the product if the company has a strong quality yield. This is especially true in industrial consumers. Another competitive strategy that HMC has is that their company had

regularly built their relationship with their customers. Their major customers are from Taiwan and HMC could penetrate this market better than other Thai companies as HMC's board of directors are Taiwanese.

### c. Importer Competitive Strategies

Most of the imported plastic resins come from Japan, Europe, USA, and Singapore. Main target customers are international plastic manufacturers that need high Quality products and export finished product to the international market. Most of importers are international trading companies that have experience, technical specialists, and the foreigners.

Strategies of imported plastic resins emphasize on image of very high quality, technical sales of international trading companies and strong relationship (For example, Japanese manufacturers in Thailand prefer to use only Japan plastic resins and contact only with Japanese trading companies.)

## E. Marketing Mix (4-P) Strategies of TPI

### 1. Product Strategies

There are 2 strategies as follows:

#### a. Product Position

TPI had positioned their products, to be in the good quality plastic resin industry. TPI produces plastic resins with their German technical know-how. In positioning, their

product line is in the higher quality level , TPI segments their product line at competitive price, TPI is concentrating more in electrical products which tends to use higher quality plastic resin in producing their product. TPI has more than 20 grades of PP resin provided for customer selection. Customers would find that with the company's huge range of PP resins grades they could easily pick PP resin which is applicable for their product. In case a customers requires a special mixture of resin that is not in the company's resin grade range, then TPI could provide custom made resins that suits the customer's specifications. TPI's customers also chooses to buy from TPI due to TPI's excellent customer services and technical services.

#### **b. Full Product Range**

TPI's group offers more variety in choice of products such as HDPE, LDPE, PP, EPS, ABS, Polyol, PMMA and Polyurethane which is considered as a competitive edge to gain economy of scale and better Agent relationships.

## **2. Pricing Strategies**

There are 2 parts as follows:

#### **a. A Pricing Objective**

TPI is a low cost producer since the company has its own raw material so that it can produce resins at a low cost.

#### **b. Penetration Pricing**

TPI is using penetration pricing, since TPI is a market leader and produces the resin at lower cost than competitors because TPI can produce its own upstream which is the by product from producing Petrochemical. At this stage, TPI can save a lot of cost from the raw material. This will be TPI's competitive advantage over the competitors.

### 3. Promotion Strategies

To create company image and product knowledge to enhance sales efficiency.

#### a. Budget Allocation

The budget will be allocated to the sales advertising and promotion e.g.TPI journal, trade fairs etc. It is not fixed on revenue of sales volume but it depends on company direction (For example, in 1998 plastic business is better than cement, top management will allocate budget for plastic marketing more than cement marketing.).

#### b. Advertising and Sales Promotion

TPI and its public relations mission always recognizes the need to generate mutual understanding between the company and communities, actively participating in all community and social development projects, and works to maintain a dialogue which leads to better understanding and cooperation. In conjunction with these communities, the company has concentrated its activities on the following development and environmental conservation themes:

- Generating public understanding and circulating in formation about TPI activities.

- Supporting and developing occupational projects benefiting local women's groups; generating better quality of life especially for children, women and youth. Generating and nurturing awareness in as well as information to local communities of preventive and corrective measures concerning environmental problems.
- Developing positive relations with the people while presenting the positive image of the company through its participation in charity, traditional and cultural events while cooperating with the government sector, private organizations, state enterprises and educational, religious, art and cultural institutions.
- Making inquiries about keeping abreast of movements of local individuals conducting suspicious activities which might harm the company's business or cause damage to its property.
- Cooperating with and giving support to the government sector, state enterprises and private organizations upon being requested to:
  - TPI journal, the TPI journal will provide information concerning the overall background of the company and product knowledge of the various kinds of resin. The journal will also report customers perception and the most updated on the resin industry.
  - Trade fairs, TPI would participate in trade fairs. Both local and foreign customer would visit the trade fairs and be able to meet TPI first hand. TPI would then provide the customers with updated information about our product line and also the application. The trade fair booth would provide both information and samples for our customers to see and

touch. These samples could be just resins or it may be plastic parts that were made from using the company's resins.

- Customer training program, TPI would provide in house training programs for its new customers. This training program is provided to new customers as they might not be familiar with the company's resin specification as new customers might encounter technical problems.
- The loyal customers, TPI would provide training sessions at the customer's factory so it could help them solve their technical problems that are related in using the company's resins.
- Party meeting, this is to heighten relationship with the company's agents. This will make the agents feel that we are on good terms with them. This is more of a relationship issue.
- Quantity discount, the last promotion is the quantity discount. If a customer buy the resin to a certain amount he will be given a certain percentage of discount. For example a customer buys 100 tons per month will be given discounts at 1 Baht / kg.
- Salesperson as its own promotion, when the salesman approach or visit customers, they will keep update information and also provide product knowledge for the customers, therefore, these will get customers awareness or will increase customers loyalty to company.

#### 4. Distribution Strategies

TPI would emphasize on agents in order to reduce credit risk. They also help in stocking and delivering 90 % of TPI's sales volume which would be sold through



agents and 10 % of the sales would be for customers with special requirements in both prices and quality. TPI would try to have direct sales to those customers who have good credit and are special for the company.

In case the agent could not provide special service e.g. technical advice, quantity discount etc. or the agent could not fulfill the agreement with the customer, final contract details of the agent is to worked out with his customer in order that the problem encountered is solved.

Selected agents will be given special incentive from TPI if they could reach the specified targets that TPI set for them or if they enter into exclusive agreements with TPI. Special incentive for these agents would be to provide discounts for their resin prices or air tickets for overseas trips. This would encourage agents to perform better and thus help TPI to reach its goals.

In approaching a customer, TPI would rather allow the agent to contact the customer and at the same time, TPI would provide a salesman to support and provide service for this customer therefore, the customer will receive a better service from both agent & TPI salesman.

One stop service, after the conclusion of the sales agreement, TPI sales people will start to produce P/O, all operations of documentation, and plan schedule of delivery. Moreover, in case of re-export, salespeople must follow procedures of tax refunds for customers.

III. PP CORRUGATED SHEET MARKET RESEARCH FINDINGS

A. Potential and Direction of PP Corrugated Sheet Market

1. Customer's Idea

Referring to the survey of both manufacturers and converters, all of manufacturers and converters (100 %) describe “PP Corrugated Sheet” is one of the human trials in developing plastic resin to replace natural material which correspond with the customer's idea.

Table 3.1. Manufacturer's Idea about PP Corrugated Sheet

Type Sheet Manufacturer	1.New development of PP plastic resin	2.Lastest researched material for Corrugated Sheet work	3.One of human trial in developing plastic to replace natural material
1.EMSTRADE	0	0	1
2.THE PET	0	0	1
3.MATERIAL PLAST	0	0	1
4.THAI POLYACRYLIC	0	0	1
5.GEOPLAST	X	X	X
Total = 5	0	0	4

Remark: Geoplast has not comment because it produces sheet for niche market.

Table 3.2. Converter's Idea about PP Corrugated Sheet

Type Sheet Converter	1.New development of PP plastic resin	2.Lastest researched material for Corrugated Sheet work	3.One of human trial in developing plastic to replace natural material
1.MEDIA OF ART	0	0	1
2.SIGN&SILK SCREEN	0	0	1
3.SCAN PRINT WORK	0	0	1
4.LEELA ADVERTISING	0	0	1
5.ALIF ADVERTISING	0	0	1
6.FOURART (1994)	0	0	1
7.KC PRODUCT	0	0	1
8.NP COMPANY	0	0	1
9.POPULAR PRODUCTS	0	0	1
10.DREAMER HOUSE	0	0	1
Total = 10	0	0	10

## 2. Percentage of Natural Material Replacement

Most of manufacturers (75%) think that PP Corrugated Sheet can replace other materials such as corrugated paper, paper board, wood, and metal to about 10-40% of replacement and 25% of manufacturer think about 41-70% of replacement. For converters 60% of converters (most in advertising board) think that PP Corrugated Sheet can replace wood and paper to about 71-90% of replacement, but 40% of converters (most in container&packaging) think about 10-40% of replacement.

Table 3.3. Percentage of Natural Material Replacement for Manufacturers

Type Manufacturer	1. 10-40%	2. 41-70%	3. 71-90%	4. Not at all
1.EMSTRADE	1	0	0	0
2.THE PET	0	1	0	0
3.MATERIAL PLAST	1	0	0	0
4.THAI POLYACRYLIC	1	0	0	0
5.GEOPLAST	X	X	X	X
Total = 5	3	1	0	0

Remark: Geoplast has not comment because it produces sheet for niche market.

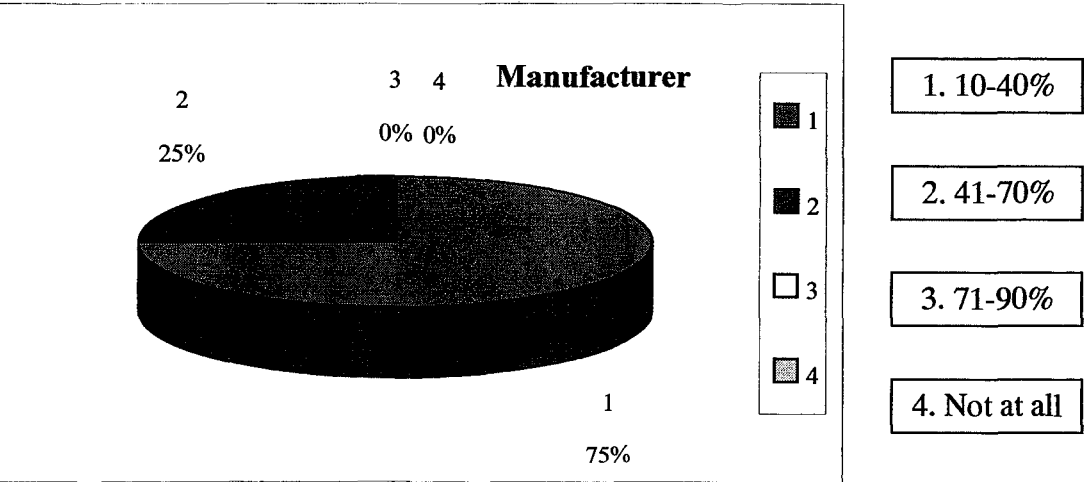


Figure 3.1. Proportion of Percentage of Natural Material Replacement for Manufacturers

Table 3.4. Percentage of Natural Material Replacement for Converters

Type Converter	1. 10-40%	2. 41-70%	3. 71-90%	4. Not at all
1.MEDIA OF ART	0	0	1	0
2.SIGN&SILK SCREEN	0	0	1	0
3.SCAN PRINT WORK	0	0	1	0
4.LEELA ADVERTISING	0	0	1	0
5.ALIF ADVERTISING	0	0	1	0
6.FOURART (1994)	0	0	1	0
7.KC PRODUCT	1	0	0	0
8.NP COMPANY	1	0	0	0
9.POPULAR PRODUCTS	1	0	0	0
10.DREAMER HOUSE	1	0	0	0
Total = 10	4	0	6	0

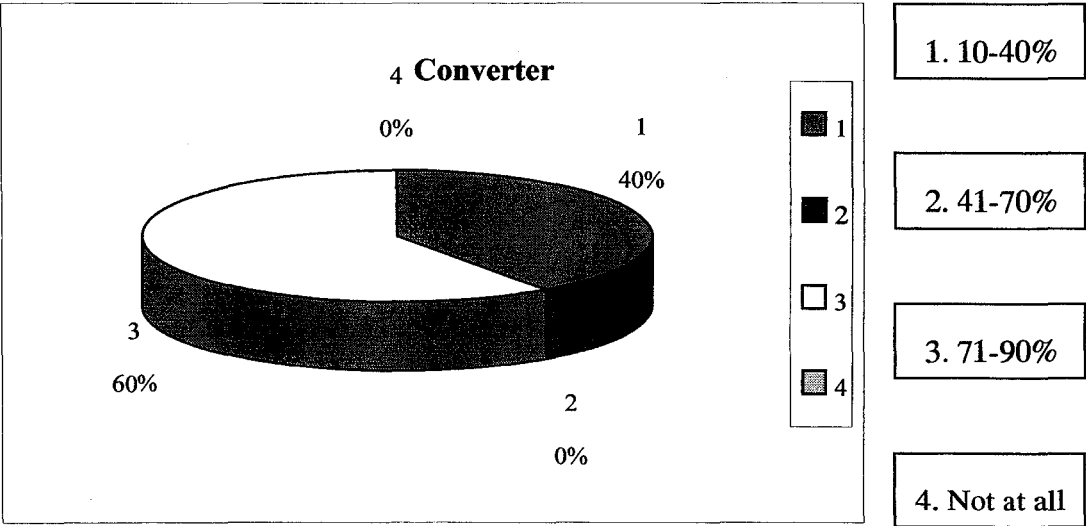


Figure 3.2. Proportion of Percentage of Natural Material Replacement for Converters

3. Level of Trend

For manufacturers, 60% of manufacturers indicate Medium level for the trend of PP Corrugated Sheet in industrial areas and 40% of manufacturers indicate a High level. On the part of converters, 60% of converters (most in advertising board) indicate a High level for the trend and 40% of converters (most in container & packaging) indicate a Medium level.

Table 3.5. Level of Trend for Manufacturers

Type Manufacturer	1. Low	2. Medium	3. High
1.EMSTRADE	0	1	0
2.THE PET	0	1	0
3.MATERIAL PLAST	0	0	1
4.THAI POLYACRYLIC	0	1	0
5.GEOPLAST	0	0	1
Total = 5	0	3	2

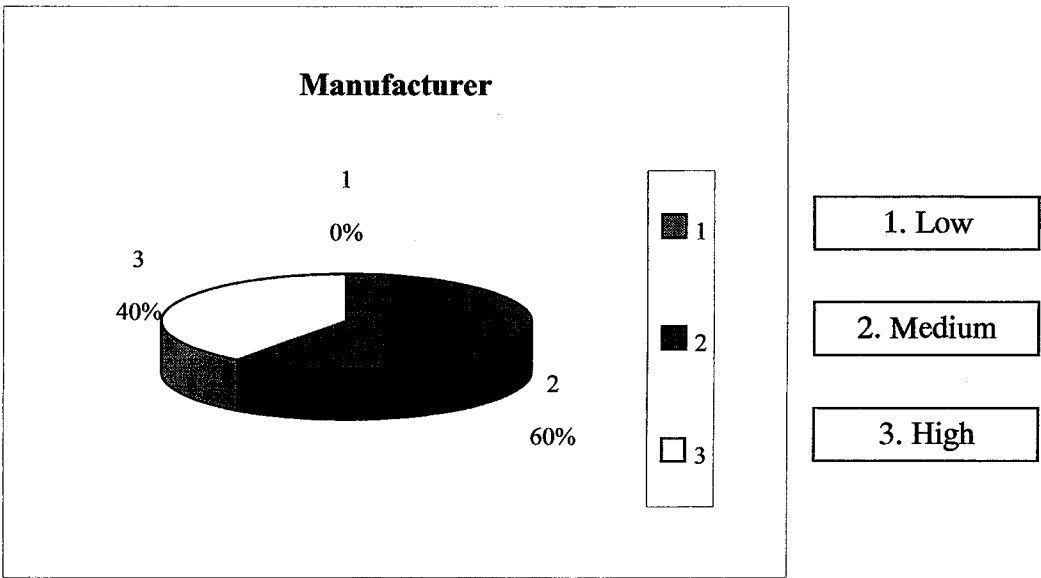


Figure 3.3. Proportion of Level of Trend for Manufacturers



Table 3.6. Level of Trend for Converters

Type Converter	1. Low	2. Medium	3. High
1.MEDIA OF ART	0	0	1
2.SIGN&SILK SCREEN	0	0	1
3.SCAN PRINT WORK	0	0	1
4.LEELA ADVERTISING	0	0	1
5.ALIF ADVERTISING	0	0	1
6.FOURART (1994)	0	0	1
7.KC PRODUCT	0	1	0
8.NP COMPANY	0	1	0
9.POPULAR PRODUCTS	0	1	0
10.DREAMER HOUSE	0	1	0
Total = 10	0	4	6

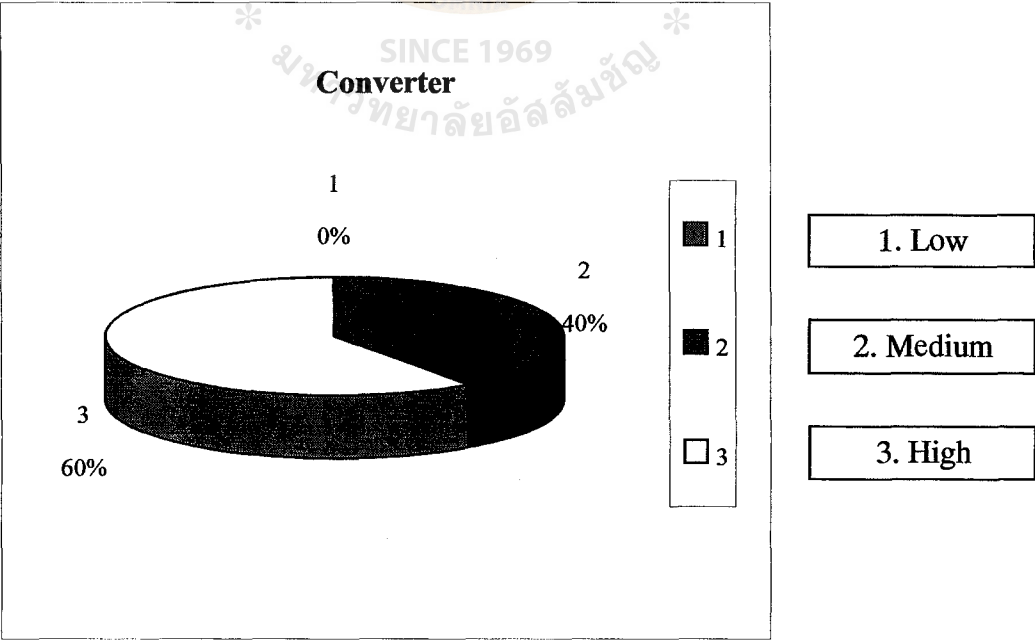


Figure 3.4. Proportion of Level of Trend for Converters

#### 4. Domestic Market Stage

All of the manufacturers (100%) identify that the role of PP corrugated sheet in Domestic market is in the Growth stage. On the part of converters, 60% of converters identify it in the Growth stage but 40% of converters identify it in the Mature stage.

Table 3.7. Domestic Market Stage for Manufacturers

Type Manufacturer	1. New	2. Growth	3. Mature	4. Decline
1.EMSTRADE	0	1	0	0
2.THE PET	0	1	0	0
3.MATERIAL PLAST	0	1	0	0
4.THAI POLYACRYLIC	0	1	0	0
5.GEOPLAST	0	1	0	0
Total = 5	0	5	0	0

Table 3.8. Domestic Market Stage for Converters

Type Converter	1. New	2. Growth	3. Mature	4. Decline
1.MEDIA OF ART	0	1	0	0
2.SIGN&SILK SCREEN	0	0	1	0
3.SCAN PRINT WORK	0	0	1	0
4.LEELA ADVERTISING	0	0	1	0
5.ALIF ADVERTISING	0	0	1	0
6.FOURART (1994)	0	1	0	0
7.KC PRODUCT	0	1	0	0
8.NP COMPANY	0	1	0	0
9.POPULAR PRODUCTS	0	1	0	0
10.DREAMER HOUSE	0	1	0	0
Total = 10	0	6	4	0

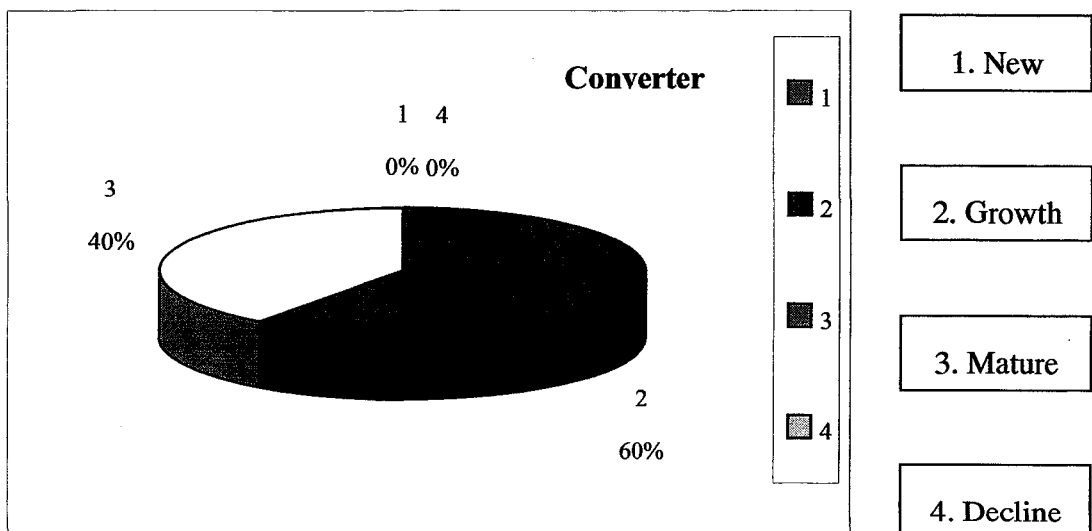


Figure 3.5. Proportion of Domestic Market Stage for Converters

## 5. Global Market Stage

All of manufacturers and converters (100%) identify the role of PP Corrugated Sheet in Global market to be the Mature stage.

Table 3.9. Global Market Stage for Manufacturers

Type Manufacturer	1. New	2. Growth	3. Mature	4. Decline
1.EMSTRADE	0	0	1	0
2.THE PET	0	0	1	0
3.MATERIAL PLAST	0	0	1	0
4.THAI POLYACRYLIC	0	0	1	0
5.GEOPLAST	0	0	1	0
Total = 5	0	0	5	0

Table 3.10. Global Market Stage for Converters

Type Converter	1. New	2. Growth	3. Mature	4. Decline
1.MEDIA OF ART	0	0	1	0
2.SIGN&SILK SCREEN	0	0	1	0
3.SCAN PRINT WORK	0	0	1	0
4.LEELA ADVERTISING	0	0	1	0
5.ALIF ADVERTISING	0	0	1	0
6.FOURART (1994)	0	0	1	0
7.KC PRODUCT	0	0	1	0
8.NP COMPANY	0	0	1	0
9.POPULAR PRODUCTS	0	0	1	0
10.DREAMER HOUSE	0	0	1	0
Total = 10	0	0	10	0

## 6. Expansion in year 2000

100% Positive indication is given. 47% of manufacturers and converters are sure that PP Corrugated Sheet will dramatically expand in plastic products and 53% identify that it may dramatically expand.

Table 3.11. Expansion in Year 2000 for Manufacturers

Type Manufacturer	1. Yes	2. No	3. May be	4. Not at all
1.EMSTRADE	1	0	0	0
2.THE PET	0	0	1	0
3.MATERIAL PLAST	1	0	0	0
4.THAI POLYACRYLIC	0	0	1	0
5.GEOPLAST	1	0	0	0
Total = 5	3	0	2	0

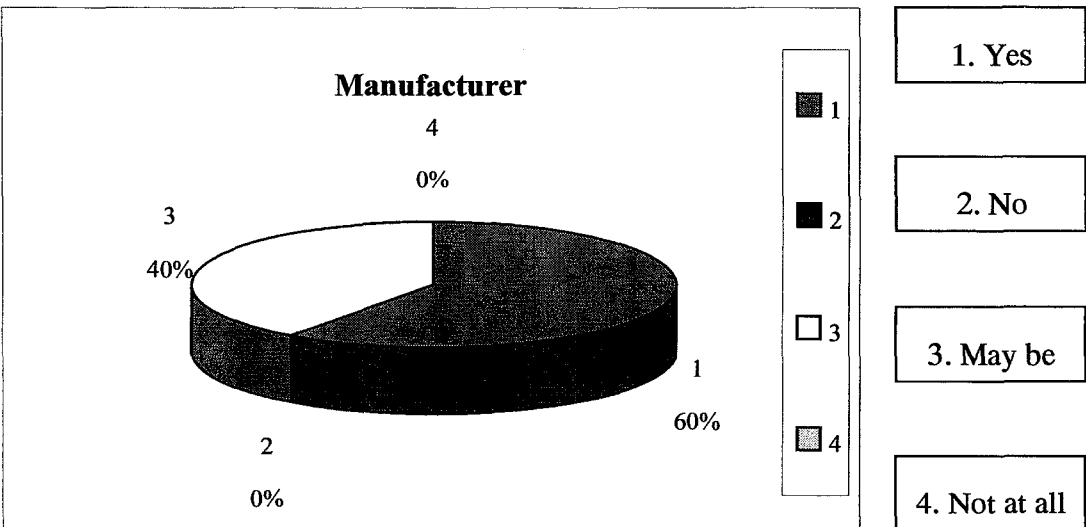


Figure 3.6. Proportion of Expansion in Year 2000 for Manufacturers



Table 3.12. Expansion in Year 2000 for Converters

Type Converter	1. Yes	2. No	3. May be	4. Not at all
1.MEDIA OF ART	1	0	0	0
2.SIGN&SILK SCREEN	0	0	1	0
3.SCAN PRINT WORK	1	0	0	0
4.LEELA ADVERTISING	0	0	1	0
5.ALIF ADVERTISING	1	0	0	0
6.FOURART (1994)	1	0	0	0
7.KC PRODUCT	0	0	1	0
8.NP COMPANY	0	0	1	0
9.POPULAR PRODUCTS	0	0	1	0
10.DREAMER HOUSE	0	0	1	0
Total = 10	4	0	6	0

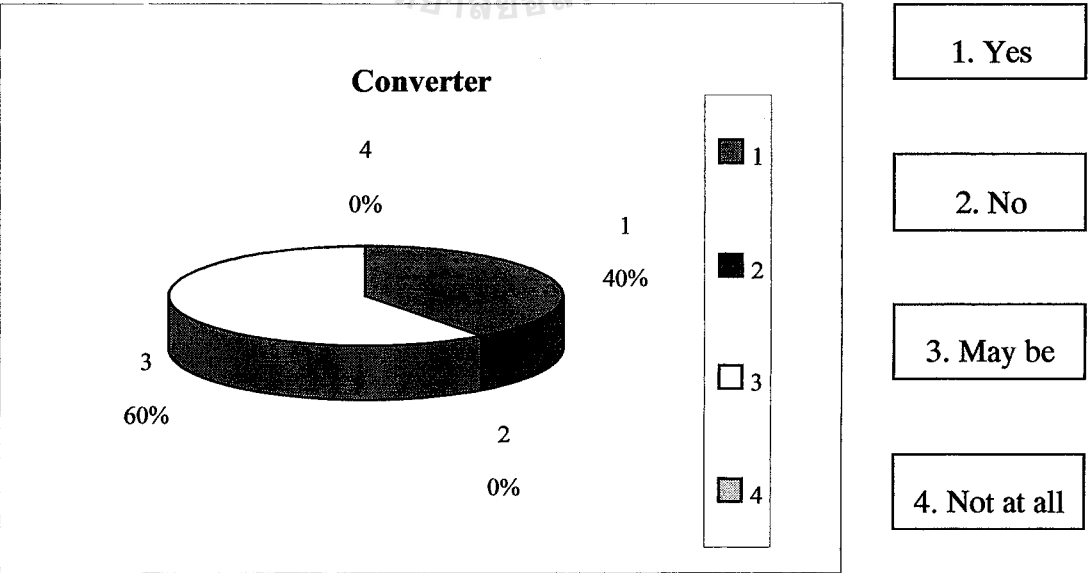


Figure 3.7. Proportion of Expansion in Year 2000 for Converters

## 7. Percentage Upward

From item 6 , 100% positive identification. 60% of manufacturers identify expansion to be about 10-40% upwards and 40% of manufacturers identify expansion to be about 41-70% upward. For converters, all of converters identify expansion to be about 10-40% upward.

Table 3.13. Percentage Upward for Manufacturers

Type Manufacturer	1. 10-40%	2. 41-70%	3. 71-100%	4. More than 100%
1.EMSTRADE	0	1	0	0
2.THE PET	1	0	0	0
3.MATERIAL PLAST	0	1	0	0
4.THAI POLYACRYLIC	1	0	0	0
5.GEOPLAST	1	0	0	0
Total = 5	3	2	0	0

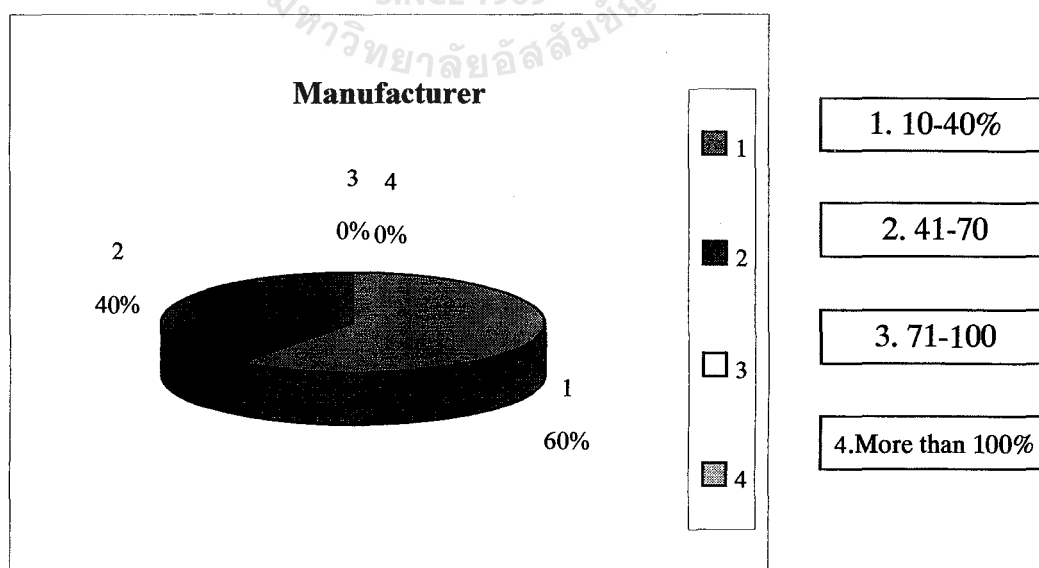


Figure 3.8. Proportion of Percentage Upward for Manufacturers

Table 3.14. Percentage Upward for Converters

Type Converter	1. 10-40%	2. 41-70%	3. 71-100%	4. More than 100%
1. MEDIA OF ART	1	0	0	0
2. SIGN&SILK SCREEN	1	0	0	0
3. SCAN PRINT WORK	1	0	0	0
4. LEELA ADVERTISING	1	0	0	0
5. ALIF ADVERTISING	1	0	0	0
6. FOURART (1994)	1	0	0	0
7. KC PRODUCT	1	0	0	0
8. NP COMPANY	1	0	0	0
9. POPULAR PRODUCTS	1	0	0	0
10. DREAMER HOUSE	1	0	0	0
Total = 10	10	0	0	0

## 8. Applications

Referring to all questionnaires. The applications of PP Corrugated Sheet can be divided as following :

### a. Containers & Packaging products

- Reused Packing Boxes
- Water-Proof Packing Boxes
- Various Recycling Boxes
- Static Electricity Eliminating Packing Boxes

### b. Folding & Stationery products

- Assembly Cabinets
- Cloth Cabinets
- Official Cabinets
- Stationery Boxes, Bookbags
- Stationery Files

### c. Advertising & Display board

- Bulletin boards
- Posters
- Displaying boards
- Fair boards
- Adhesive boards

#### d. Construction

- Vertical drainage for soil improvement
- Partitions
- Light weight walls
- Light diffusers
- Showers screen

#### e. Miscellaneous

- Water-Proof Bottom Board of Cases
- Hot-Proof Boards
- Convinient Flower Stands & Shelves
- Store Remodeltings
- Interior / Window Decoration
- Toy (jig saw)

9. The Highest Potential Application in Year 2000

For the application which will have highest potential in year 2000  
is described in 2 applications as follows :

a. Container and Packaging, they are NO.1 from all (100%) of manufacturers and  
40% of converters. (most of converters aim to produce container and packaging)

b. Advertising board, it is NO.2 from 60% of converters (mostly aim to produce  
advertising board)

Table 3.15. The Highest Potential Application in Year 2000 for Manufacturers

Type Manufacturer	1. Advertising Board	2. Container & Packaging	3. Tray	4. Stationary
1.EMSTRADE	0	1	0	0
2.THE PET	0	1	0	0
3.MATERIAL PLAST	0	1	0	0
4.THAI POLYACRYLIC	0	1	0	0
5.GEOPLAST	X	X	X	X
Total = 5	0	4	0	0

Remark: Geoplast has not comment because it produces sheet for niche market.



Table 3.16. The Highest Potential Application in Year 2000 for Converters

Type Converter	1. Advertising Board	2. Container & Packaging	3. Tray	4. Stationary
1.MEDIA OF ART	1	0	0	0
2.SIGN&SILK SCREEN	1	0	0	0
3.SCAN PRINT WORK	1	0	0	0
4.LEELA ADVERTISING	1	0	0	0
5.ALIF ADVERTISING	1	0	0	0
6.FOURART (1994)	1	0	0	0
7.KC PRODUCT	0	1	0	0
8.NP COMPANY	0	1	0	0
9.POPULAR PRODUCTS	0	1	0	0
10.DREAMER HOUSE	0	1	0	0
Total = 10	6	4	0	0

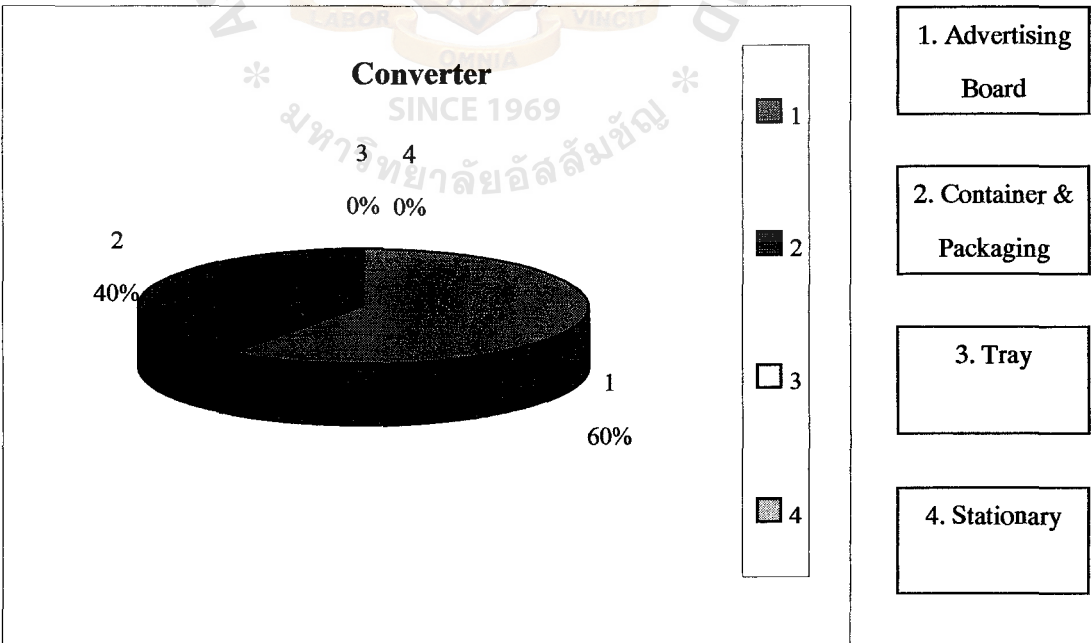


Figure 3.9. Proportion of the Highest Potential Application in Year 2000 for Converters

## 10. Customer's Vision for Direction and Trend

There are 15 visions from total companies that were interviewed as below:

### i. Emstrade

“We will expand export market to Myanmar and Vietnam. We are improving packaging and box application that will have potential in the future.”

### ii. The Pet

“In Thailand, wood and paper still have lower cost than PP corrugated sheet but in the future if the government can strict law and conserve natural, PP corrugated sheet will have the highest potential in Thailand.”

### iii. Material Plast

“We are trying expand market to South East Asia and USA. Container and Packaging have high potential because Japan and USA use them replace all paper and wood including high technology of design ( For example : Box of finished product can adjust to book bag.)”

### iv. Geoplast

“We are Niche market for road construction. We are center production of vertical drainage for soil improvement in order to export in South East Asia. Philipines, Vietnam, and Thailand projects are high potential customers.”

v. Thai Polyacrylic

“This market has high competition because the capacity of all of local suppliers are oversupply and can cover demand of Thailand. The suppliers try to expand export market and forward integration.”

vi. Media of Art

“It is the best material for silk screening of advertising board. It can replace wood and still not have other materials that are better than it.”

vii. Sign & Silk Screen

“In the future, it will be used for all of advertising board market. PP plastic resins are cheap and match with silk screen more than other raw materials. (Now, it is popular in agricultural chemical advertising board.)”

viii. Scan Print Work

“Trend of PP plastic resins price will be dramatically decrease , so it has potential more than paper and wood.”

ix. Leela Advertising

“Resistance of water and impact will be main functions that are interesting for advertising market.”

x. Alif Advertising

“Wood and paper will be dramatically reduce role because of environment law and replacement of PP corrugated sheet.”

xi. Fourart (1994)

“After recover of Thai economic, advertising market will boom again including PP corrugated sheet.”

xii. KC Product

“For value-added products are interesting it more than paper because of design and value of package.”

xiii. NP Company

“It has high potential in autopart and electronics container because it save cost more than injection molding container for spot lot.”

xiv. Popular Products

“We are developing new packaging for appliances and high value products because export market prefer PP corrugated sheet packaging.”

xv. Dreamer-House

“Value-Added and Impact resistance are sales point of PP corrugated sheet for container and packaging market.”

## **B. Consumption Forecasting**

This part is forecasting of PP plastic resins by manufacturers which can be described as raw materials, proportion, consumption, market share, trend of each application, and seasonality of PP corrugated sheet. From these information, TPI can apply to allocate production of PP plastic resins for corrugated plastic sheet

### **1. Raw materials**

80 % of the manufacturers use three main raw materials as following :

- i. PP Blockcopolymer about 38-60%
- ii. PP Homopolymer about 38-60%
- iii. Colorant & Additives about 2%

And another manufacturer (GEOPLAST) uses 100% imported PP Blockcopolymer or PP of TPI (PP Blockcopolymer 50% : PP Homopolymer 50%).

2. Forecast Consumption (Tons/Month) in Year 1998-2000

Table 3.17. Forecast Total Consumption in 1998-2000 by Manufacturers

Type Manufacturer	1. 1998 (T/M)	2. 1999 (T/M)	3. 2000 (T/M)
	Total	Total	Total
1.EMSTRADE	60	80	120
2.THE PET	50	60	120
3.MATERIAL PLAST	60	80	120
4.THAI POLYACRYLIC	30	40	65
5.GEOPLAST	50	60	70
Total = 5	250	320	495

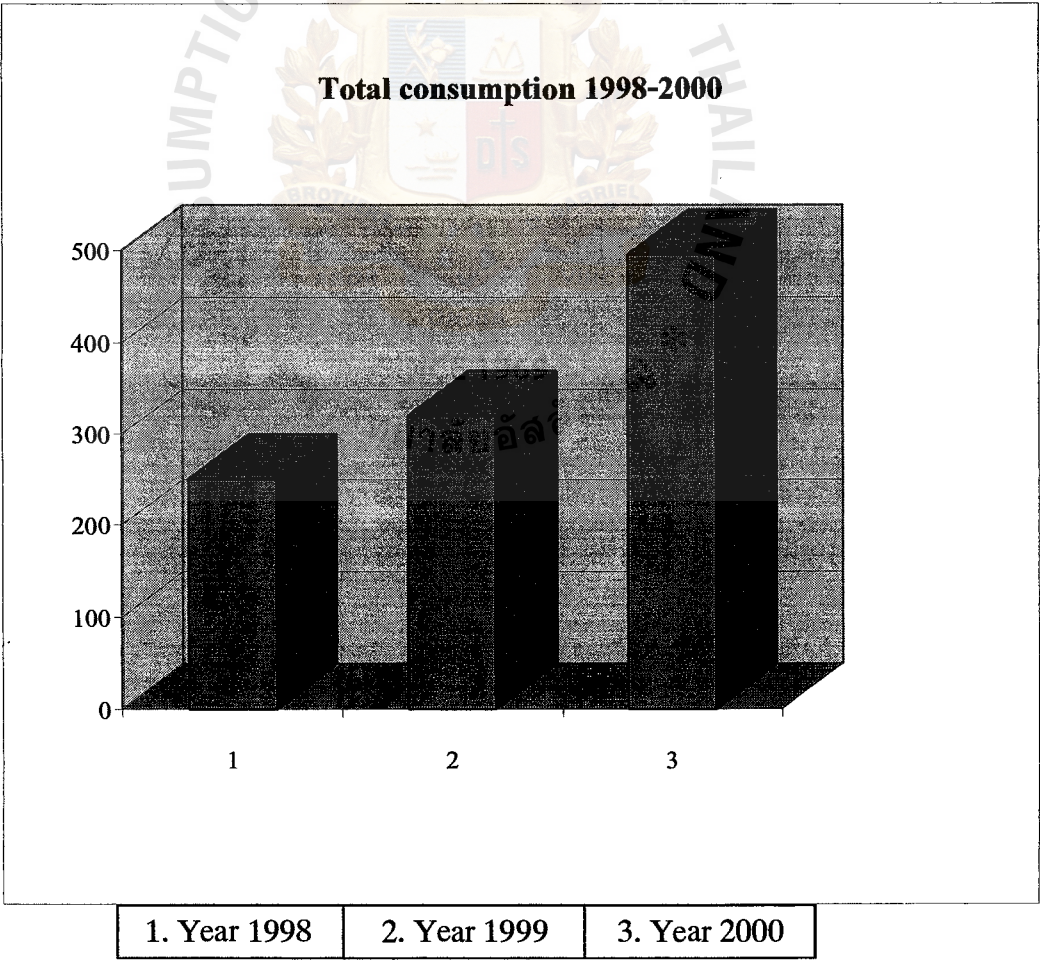


Figure 3.10. Graph of Total Consumption in 1998-2000 by Manufacturers Forecast



Table 3.18. Forecast Consumption of PP of TPI in 1998-2000 by Manufacturers

Type Manufacturer	1. 1998 (T/M)	2. 1999 (T/M)	3. 2000 (T/M)
	TPI	TPI	TPI
1.EMSTRADE	30	40	60
2.THE PET	32.5	39	78
3.MATERIAL PLAST	48	64	96
4.THAI POLYACRYLIC	21	28	45.5
5.GEOPLAST	25	30	35
Total = 5	156.5	201	314.5

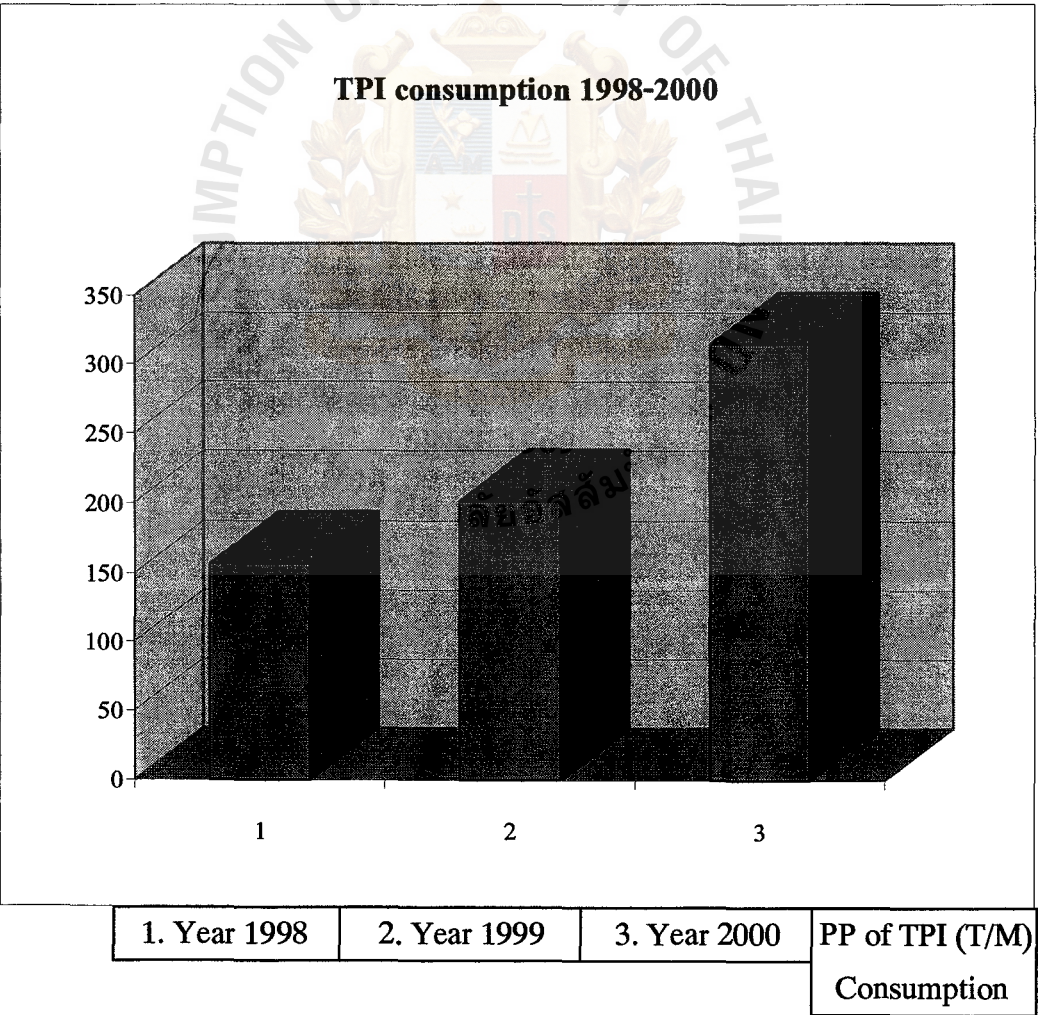


Figure 3.11. Graph of TPI Consumption in 1998-2000 by Manufacturers Forecast

Table 3.19. Marketshare of PP Plastic Resins for Corrugated Plastic Sheet in 1998

Type Manufacturer	TPI (T/M)	TPP (T/M)	HMC (T/M)	IMP (T/M)	Total (T/M)
1.EMSTRADE	30	18	12	0	60
2.THE PET	32.5	17.5	0	0	50
3.MATERIAL PLAST	48	0	12	0	60
4.THAI POLYACRYLIC	21	9	0	0	30
5.GEOPLAST	25	0	0	25	50
Total = 5	156.5	44.5	24	25	250

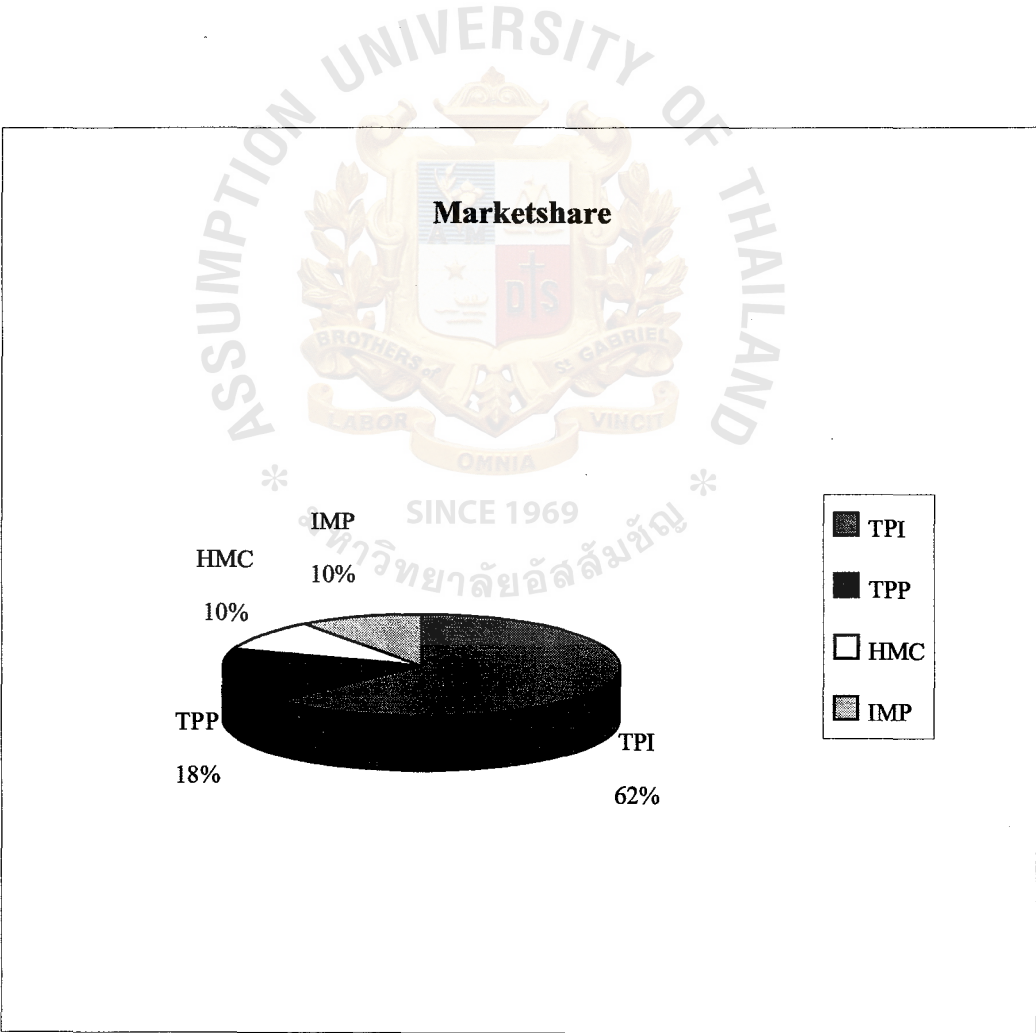


Figure 3.12. Proportion of Marketshare of PP for Corrugated Plastic Sheet in 1998

### 3. Forecast Consumption by Separating each Application

Table 3.20. Forecast Consumption by Separating each Application in 1998

Type Manufacturer	1. Advertising Board	2. Container & Packaging	Construct.	Stationery
1.EMSTRADE	30	25	5	0
2.THE PET	30	15	0	5
3.MATERIAL PLAST	40	15	0	5
4.THAI POLYACRYLIC	27	3	0	0
5.GEOPLAST	0	0	50	0
Total = 5	127	58	55	10

Table 3.21. Forecast Consumption by Separating each Application in 1999

Type Manufacturer	1. Advertising Board	2. Container & Packaging	Construct.	Stationery
1.EMSTRADE	40	35	5	0
2.THE PET	30	25	0	5
3.MATERIAL PLAST	50	25	0	5
4.THAI POLYACRYLIC	30	10	0	0
5.GEOPLAST	0	0	60	0
Total = 5	150	95	65	10

Table 3.22. Forecast Consumption by Separating each Application in 2000

Type Manufacturer	1. Advertising Board	2. Container & Packaging	Construct.	Stationery
1.EMSTRADE	45	60	10	5
2.THE PET	50	55	0	15
3.MATERIAL PLAST	50	60	0	10
4.THAI POLYACRYLIC	40	25	0	0
5.GEOPLAST	0	0	70	0
Total = 5	185	200	80	30

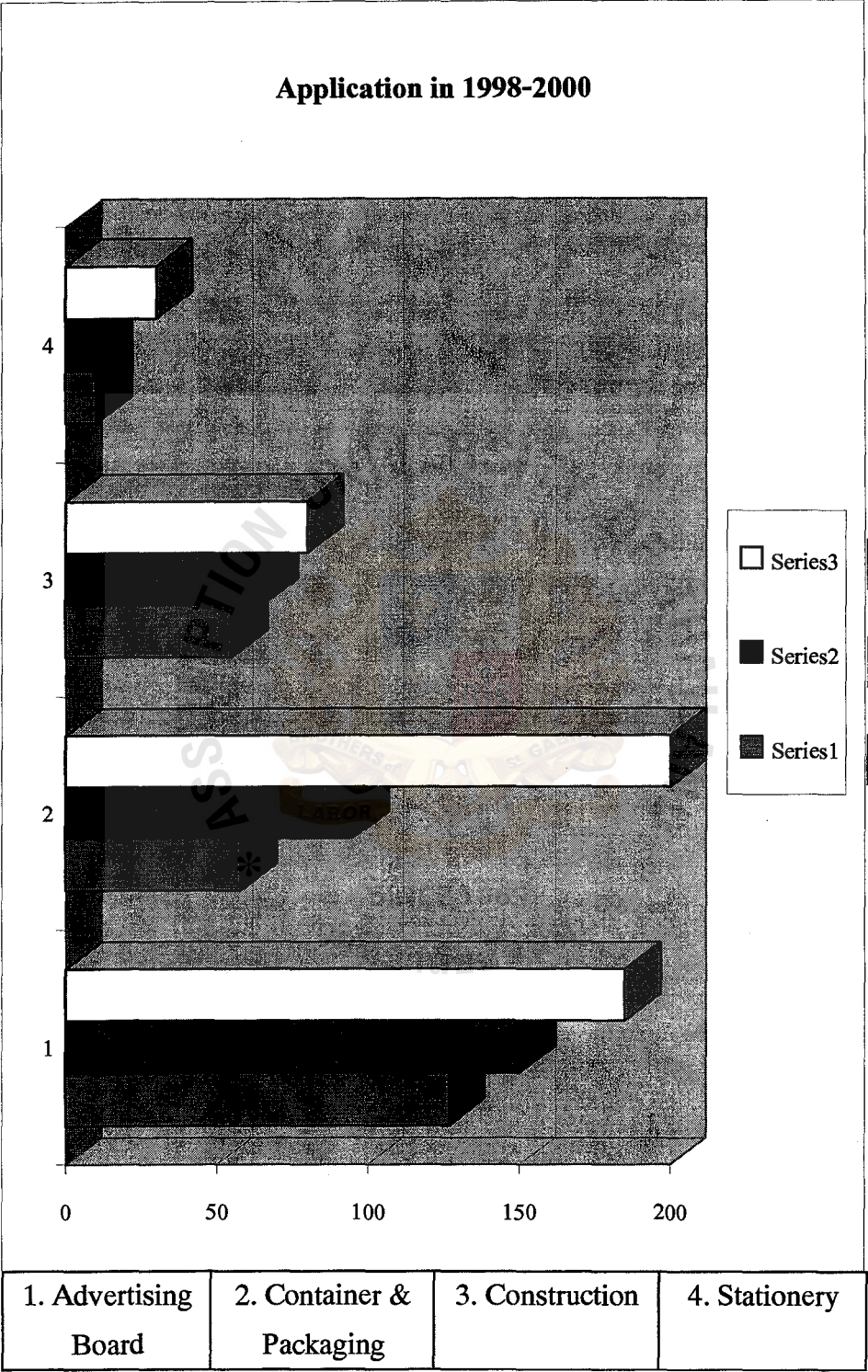


Figure 3.13. Graph of Consumption by Separating each Application in 1998-2000

#### 4. Seasonality

Most of manufacturers and converters indicate advertising board market will boom in the election period, rainy season, and the time of agricultural development.





### C. Competitor Strategies

#### 1. PP Suppliers vs Sheet Manufacturers

PP Suppliers which manufacturers contact for Corrugated plastic sheet

They can be concluded as below:

Table 3.23. Suppliers of PP which Manufacturers Contact for Corrugated Plastic Sheet

Type Manufacturer	TPI	TPP	HMC	IMP.
1.ESTRADE	X	X	X	
2.THE PET	X	X	X	
3.MATERIAL PLAST	X		X	
4.THAI POLYACRYLIC	X	X		
5.GEOPLAST	X			X
RANK	1	2	2	4

#### 2. Strategies of each Supplier

There are 4 suppliers which can describe strategies as follows:

- TPI: Emphasize on cooperation between sales of TPI and agency of TPI,  
quantity discount, lower price, and controlling price&service.
- TPP: Emphasize on direct sales , quantity discount  
lower price, and controlling price&service.
- HMC: Emphasize on quality image and sole agency.
- Import: Emphasize on international trader and high quality or specific grade of PP.

#### D. Product and Service Development

##### 1. Importance of Purchasing of Manufacturers

Table 3.24. Importance of Purchasing of Manufacturers

Type Manufacturer	Quality	Price	Service
1.EMSTRADE	2	1	3
2.THE PET	1	2	3
3.MATERIAL PLAST	1	2	3
4.THAI POLYACRYLIC	2	1	3
5.GEOPLAST	1	2	3
IMPORTANCE RANK	1	2	3

Remark: 1 = First importance, 2 = Second importance, and 3 = Third importance

##### 2. Comment PP of each Supplier

Table 3.25. Comment PP of each Supplier

Supplier	Quality	Price	Service
TPI	GOOD	FAIR	FAIR
TPP	GOOD	FAIR	GOOD
HMC	VERY GOOD	Should improve	FAIR
IMPORT	VERY GOOD	Should improve	FAIR



## IV. CONCLUSION

### A. Research Analysis

There are 4 parts in research analysis as follows:

#### 1. Potential and Direction of PP Corrugated Sheet Market

Referring to research findings, Part A can be analyzed that PP corrugated sheet is one of human trials in developing plastic resin to replace natural material and it can replace other materials such as corrugated paper, paper board, wood, and metal to about 10-40% of replacement including about 71-90% in advertising board market.

The trend of PP Corrugated sheet in industrial market is indicated in HIGH LEVEL, in Growth stage for domestic market, and in Mature stage for Global market. For expansion in year 2000, plastic products will dramatically expand about 10-40% upward.

For the applications it can be divided into 5 applications such as containers packing, folding & stationery, advertisings & display, construction, and miscellaneous. The highest potential applications in year 2000 are Container & Packaging (NO.1) and Advertising board (NO.2).

## 2. Consumption Forecasting

The raw materials of PP corrugated sheet are PP Blockcopolymer (38-60%), PP Homopolymer (38-60%), and colorant&additives (2%). The manufacturers forecast total consumption of raw material of about 250 T/M in year 1998, 320 T/M in year 1999, and 495 T/M in year 2000. Percentage in Growth rate will increase 28% from 1998 to 1999, 55% from 1999 to 2000, and 98% from 1998 to 2000. And total manufacturers forecast of consumption of PP of TPI is about 156.5 T/M in year 1998, 201 T/M in year 1999, and 314.5 T/M in year 2000. Percentage in Growth rate will increase 29% from 1998 to 1999, 57% from 1999 to 2000, and 101% from 1998 to 2000.

Therefore TPI should plan and allocate production of PP Blockcopolymer to about 60-95 T/M in year 1998, 75-120 T/M in year 1999, and 120-190 T/M in year 2000 including PP Homopolymer to about 60-95 T/M in year 1998, 75-120 T/M in year 1999, and 120-190 T/M in year 2000 for PP grade in Corrugated plastic sheet.

In year 1998, TPI has a marketshare of 62%, TPP 18%, HMC 10%, and Import 10%. Application of container&packaging is the most interesting because the consumption will increase from 58 T/M in year 1998 to 200 T/M in year 2000 and the second is advertising board which is increasing from 127 T/M in year 1998 to 185 T/M in year 2000 and advertising board market will boom in the election period.

### 3. Competitor Strategies

TPI is the most popular supplier of PP for Corrugated plastic sheets, in the second place are TPP and HMC, and the last is Import.

For the strategies of each supplier, TPI emphasize on cooperation between sales of TPI and agency of TPI, quantity discount, lower price, and controlling price&service. TPP emphasizes on direct sales, quantity discount, lower price, and controlling price&service. HMC emphasizes on quality image and sole agency. Import emphasize on international trader and high quality or specific grade of PP.

### 4. Product and Service Development

For sheet manufacturers, quality is most important such as consistency, noncontaminated, one specific grade, and R&D for development PP. Price is the second, such as unfluctuating and long term payments and Service is the third such as on time delivery, technical services, and in accordance with ISO9000. PP of TPI is good in quality and fair in price and service. TPP is an important competitor of TPI because they are good in quality and service and fair in price.

## B. Research Summary

Referring to the part of analysis of PP marketing plan of TPI, it can be concluded that TPI's mission is to maintain market leader position of plastic resin industry. Their objectives are to increase their sales volume at least 10% per year and to expand international market to gain the position of lowest cost producer within the next 2-3 years. And their strategies are to constantly improve their sales promotion plan and try to reach objective of Full Integration strategy (condensate, cracker, and polymerization).

For SWOT analysis of TPI, strengths of TPI are in the area of the advanced technology, the production efficiency, the TPI low cost, the TPI good credit policy, skilled staff, brand loyalty, top management connection, and good human resource department. Weaknesses are management style (centralization), delay delivery, and not up to date MIS. Opportunities are potential market (have growthrate), government support, and suppliers support. Threats are economics recession, AFTA agreement, conflict of distributors, and bias of some special interest group.

For marketing mix (4-P) strategies of TPI, Product strategy is high quality products at competitive price, full product range and more variety choices. Pricing strategy is using penetration pricing (low cost). Promotion strategy is to promote sales by using salespersons strategy and concentrate in promotion activity such as producing TPI journal participating trade fairs, training TPI customer, arranging plant visit, and giving quantity discount. Distribution strategy is using many agents and one stop service of salespersons.

For the part of PP corrugated sheet market research, it can be concluded that PP corrugated sheet market is indicated as the high potential market and can offer long term revenue stream because it can replace natural materials. The highest potential application in year 2000 is in container & packaging as well as in advertising board. Main raw materials of Corrugated plastic sheet are PP Blockpolymer and PP Homopolymer. The manufacturers forecast total consumption of raw material as follow:

Table 4.1. Percentage of Growth Rate of Total Consumption by Forecast of Manufacturers

Year	Total Consumption (T/M)	%Growth rate compare 1998	%Growth rate compare 1999
<b>1998</b>	<b>250</b>	<b>x</b>	<b>x</b>
<b>1999</b>	<b>320</b>	<b>28%</b>	<b>x</b>
<b>2000</b>	<b>495</b>	<b>98%</b>	<b>55%</b>

Table 4.2. Percentage of Growth Rate of Consumption of PP TPI by Forecast of Manufacturers

Year	Consumption of PP TPI (T/M)	%Growth rate compare 1998	%Growth rate compare 1999
<b>1998</b>	<b>156.5</b>	<b>x</b>	<b>x</b>
<b>1999</b>	<b>201</b>	<b>29%</b>	<b>x</b>
<b>2000</b>	<b>314.5</b>	<b>101%</b>	<b>57%</b>

According to the customer forecast, TPI should plan and allocate production of PP Blockcopolymer and PP Homopolymer at about 60-95 T/M in year 1998, 75-120 T/M in year 1999, and 120-190 T/M in year 2000 for PP grade in Corrugated plastic sheet. Application of container&packaging is most interesting because the consumption increase from 58 T/M in year 1998 to 200 T/M in year 2000 with Percentage in growth rate of 245% and the second application is advertising board, increasing from 127 T/M in year 1998 to 185 T/M in year 2000 with Percentage in growth rate of 46% especially the advertising board market will boom in the election period.

For the strategies of each supplier, TPI who is the most popular supplier of PP for Corrugated plastic sheet. Currently TPI emphasizes on cooperation between sales of TPI and agency of TPI, and lower price. TPP emphasizes on direct sales and quantity discount. HMC emphasizes on quality image and sole agency. Importer emphasizes on using international trader and high quality or specific grade of PP.

For the customers, the sheet manufacturers are serious in quality, price, and service respectively. Image of PP of TPI is good in quality and fair in price and service. TPP is an important competitor of TPI because they have a better image more than TPI in service issue. Therefore TPI should continuously improve in quality, customer service, distribution strategy and logistics in order to maintain leader in PP Corrugated Sheet Market.

### C. Recommendations

To gain a competitive advantage in this high potential market and to reach its mission and marketing objectives for PP corrugated sheet market, TPI should take action to address problems which are outlined as follows:

#### 1. Quality

There are 3 points that should take action as follows:

##### a. Grade Combination

TPI should combine PP grade for corrugated sheet from 2 grades to 1 grade, it will be convenient for sheet manufacturers because of cost & time reduction for blending of sheet manufacturers in order to create more value-added and increase customer satisfaction.

##### b. ISO 9000

Awareness of ISO 9000 can support the consistency of quality because it can control both system and process.

##### c. R&D

TPI should have R&D for special grade to niche market and continue development of PP grade for corrugated sheet.



## 2. Pricing

There are 2 points that should take action as follows:

### a. Grade Separation

TPI should separate grade and the price for the PP grade for corrugated sheet and general grade because TPI can charge the premium price and can control the price to be unfluctuating for customers.

### b. Special Proposal for Customers

For good customers, TPI will give a previous price and long term of payment at certain amount and next certain amount will be new price, for example, if a customer orders 100 tons for this month, sales will offer the old price (previous price ) for the first 50 tons and the rest will be new price (price increased). This will motivate our customers to buy more from TPI especially when the trend of the price is increasing.

## 3. Services

There are 3 points that should take action as follows:

### a. A MIS System

TPI should improve MIS system of Logistics and order processing because it will help TPI to work more effectively and efficiently including customer satisfaction.

#### b. A Technical Salesperson

TPI should have a technical salesperson to service and control specially for this market in order to create competitive edge.

#### c. Customers Classification

For Distribution strategy, TPI should separate class of customers and strict delivery by depending on class of customers as follows:

- Class A: Delivery within 2 days after receive order.
- Class B: Delivery within 4 days after receive order.
- Class C: Delivery within 6 days after receive order.



## **PP CORRUGATED SHEET MARKET SURVEY**

### **A QUESTIONNAIRE FOR A MANUFACTURER**

Company Name : \_\_\_\_\_

Address & Tel No. : \_\_\_\_\_

Respondent Name : \_\_\_\_\_

Position : \_\_\_\_\_

Field Worker : \_\_\_\_\_

Date : \_\_\_\_\_

#### **PART I : Potential and Direction of PP Corrugated Sheet Market**

1. Which can describe "PP Corrugated Sheet" as corresponding with your idea ?

- ..... New development of PP plastic resin
- ..... Latest researched material for Corrugated Sheet work
- ..... One of human trial in developing plastic resin to replace natural material

2. Do you think how much PP Corrugated Sheet can replace other materials such as corrugated paper, paper board, wood, and metal ?

- ..... 10-40%
- ..... 41-70%
- ..... 71-90%
- ..... Not at all

3. Which level do you want to indicate the trend of PP Corrugated Sheet in the industrial market ?

- ..... Low
- ..... Medium
- ..... High

4. Please identify the role of PP Corrugated Sheet in domestic market, what is your opinion ?

- ..... New
- ..... Growth
- ..... Mature
- ..... Decline

5. Please identify the role of PP Corrugated Sheet in global market, what is your opinion ?

- ..... New
- ..... Growth
- ..... Mature
- ..... Decline

6. Do you think in year 2000, PP Corrugated Sheet will dramatically expand as plastic products ?

- ..... Yes
- ..... No
- ..... May be
- ..... Not at all

7. If positive in answering item 6 , how many percentage upward ?

- ..... 10-40%
- ..... 41-70%
- ..... 71-100%
- ..... More than 100%

8. Please tick the application of PP Corrugated Sheet in your opinion and add more if not indicated.

- ..... Advertising Board
- ..... Container and Crate
- ..... Packaging and Box
- ..... Tray and Protection
- ..... Bag
- ..... File
- ..... Stationary
- ..... Others (please indicate).....

9. Which application will be highest potential in year 2000 ?

- ..... Advertising Board
- ..... Container and Crate
- ..... Packaging and Box
- ..... Tray and Protection
- ..... Bag
- ..... File
- ..... Stationary
- ..... Others (please indicate).....

10. Please explain your vision for direction and trend of PP corrugated sheet market.

.....

.....

.....

.....

.....



**PART II : Consumption Forecasting**

1. What are the raw materials of PP Corrugated Sheet and how much in proportion ?

<u>Raw material</u>	<u>Proportion</u>
(1).....	..... %
(2).....	..... %
(3).....	..... %
(4).....	..... %
(5).....	..... %

2. Forecast Consumption in 1998 - 2000

Average 1998	..... Ton / Month
Average 1999	..... Ton / Month
Average 2000	..... Ton / Month

3. Forecast Consumption by separating each application (T/M)

Application	1998	1999	2000
Advertising Board			
Container and Crate			
Packaging and Box			
Tray			
Bag			
File			
Stationary			
<b>Total</b>			



4. In each application , Does it have seasonality and How ?

Application	Have / No have	Seasonality
Advertising Board		
Container and Crate		
Packaging and Box		
Tray		
Bag		
File		
Stationary		



**PART III Competitor Strategies**

1. How many PP Supplier whom you have contacted for corrugated sheet ? and who are the suppliers ?

.....Suppliers such as .....  
.....  
.....  
.....

2. What are the strategies of each supplier ?

Supplier	Strategy



**PART IV : Product and Service Development**

**1. Customer’s need for PP plastic resin in PP Corrugated sheet market**

Rank

..... Quality .....  
..... Price .....  
..... Service .....

**2. Comment PP of each supplier**

Very Good = 1,    Good = 2,    Fair = 3,    Should improve = 4

Supplier	Quality	Price	Service
TPI			

**3. Recommendation for PP plastic resin for PP Corrugated sheet of TPI**

(The point that should develop)

- Quality .....  
.....  
- Price .....  
.....  
- Service .....  
.....



**PP CORRUGATED SHEET MARKET SURVEY**

**A QUESTIONNAIRE FOR A CONVERTER**

Company Name : \_\_\_\_\_

Address & Tel No. : \_\_\_\_\_

Respondent Name : \_\_\_\_\_

Position : \_\_\_\_\_

Field Worker : \_\_\_\_\_

Date : \_\_\_\_\_

**PART I : Potential and Direction of PP Corrugated Sheet Market**

1. Which can describe "PP Corrugated Sheet" as corresponding with your idea ?

- ..... New development of PP plastic resin
- ..... Lastest researched material for Corrugated Sheet work
- ..... One of human trial in developing plastic resin to replace natural material

2. Do you think how much PP Corrugated Sheet can replace other materials such as corrugated paper, paper board, wood, and metal ?

- ..... 10-40%
- ..... 41-70%
- ..... 71-90%
- ..... Not at all

3. Which level do you want to indicate the trend of PP Corrugated Sheet in the industrial market ?

- ..... Low
- ..... Medium
- ..... High

4. Please identify the role of PP Corrugated Sheet in domestic market, what is your opinion ?

- ..... New
- ..... Growth
- ..... Mature
- ..... Decline

5. Please identify the role of PP Corrugated Sheet in global market, what is your opinion ?

- ..... New
- ..... Growth
- ..... Mature
- ..... Decline

6. Do you think in year 2000, PP Corrugated Sheet will dramatically expand as plastic products ?

- ..... Yes
- ..... No
- ..... May be
- ..... Not at all

7. If positive in answering item 6 , how many percentage upward ?

- ..... 10-40%
- ..... 41-70%
- ..... 71-100%
- ..... More than 100%

8. Please tick the application of PP Corrugated Sheet in your opinion and add more if not indicated.

- ..... Advertising Board
- ..... Container and Crate
- ..... Packaging and Box
- ..... Tray and Protection
- ..... Bag
- ..... File
- ..... Stationary
- ..... Others (please indicate).....

9. Which application will be highest potential in year 2000 ?

- ..... Advertising Board
- ..... Container and Crate
- ..... Packaging and Box
- ..... Tray and Protection
- ..... Bag
- ..... File
- ..... Stationary
- ..... Others (please indicate).....

10. Please explain your vision for direction and trend of PP corrugated sheet market.

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**PART II : Consumption Forecasting**

1. What are your applications ?

Application

(1).....  
 (2).....  
 (3).....  
 (4).....  
 (5).....

2. Forecast Consumption in 1998 - 2000

Average 1998 ..... Sheets / Month  
 Average 1999 ..... Sheets / Month  
 Average 2000 ..... Sheets / Month

3. Forecast Consumption by separating each application (Sheets/Month)

Application	1998	1999	2000
Advertising Board			
Container and Crate			
Packaging and Box			
Tray			
Bag			
File			
Stationary			
<b>Total</b>			

4. In each application , does it have seasonality and how ?

Application	Have / No have	Seasonality and Trend
Advertising Board		
Container and Crate		
Packaging and Box		
Tray		
Bag		
File		
Stationary		



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