



Bangladesh Garments Accessories and Packaging Manufacturers & Exporters Association (BGAPMEA)

Final Study Report on

**“Guide members with necessary policy support to meet economic shock due
to unpredictable nature of market price escalation of raw material”**

**under Bangladesh INSPIRED Project Component 2b
SME Competitiveness Grant Scheme Project of BGAPMEA**

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Table of Contents

SL. No.	Topic/Subject	Page No.
1	Forewords	3
2	Executive Summary	4
3	Introduction	5
4	CHAPTER-I	6
	Market statistics & future trend -materials marketing situation -key drivers & trends -economic trend -demographic change -older population -life style issue -small house hold small pack -convenience -health awareness -on the go life style -brand issue/differentiation -new packaging development downgauging& lightweighing -Ranking of market -world packaging consumption by sector	6
5	Paper & Board	10
6	Plastic Packaging	10
7	Metal	13
8	Aerosol	14
9	Glass	14
10	Others	15
11	End use sectors	16
12	Food	15
13	Beverages	16
14	Health care	16
15	Cosmetics& toiletries	16
16	Other consumer market	16
17	Industrial/bulk packaging	17
18	CHAPTER -II	18
19	Major Raw materials of BGAPMEA	18
20	Demand/Supply factors of packaging matl	28
21	Sourcing of Packaging Materials	31
22	Price Identification of Packaging matls	32
23	Supplier Assessment	33
24	Sourcing Process	34
25	Afterwords	35
26	CHAPTER -III	40
27	Recommendations	40
	Annexure –I	45
	Annexure –II	47
	Annexure –III	49
	Annexure –IV	51

Foreword

It is with great satisfaction that the EU jointly with the Ministry of Finance, Government of the People's Republic of Bangladesh has financed the INSPIRED project for which it has been possible to prepare such an important report for the development of the Packing and Accessories industry subsector of Bangladesh. The report includes Bangladesh Scenario and the summary of global packaging market statistics and trends. Looking into the future has always been a challenge but as has been said "the future belongs to those who plan" this summary of global market reflects some history as well as a view of the future. This information will prove to be a very useful tool in positioning those involved in packaging and accessories sector into the future. The world economy has proved to be most fragile in recent times with growth in developed countries being rather pedestrian, resulting in the hope of new volumes being found in developing markets. This report will provide meaningful information on identifying prospective markets as well as guidance on how to capitalize on market trends. As packaging growth is tied to the world economy the information portrayed in this document serves as an important guide for success. Global social changes are identified and the importance of sustainable development in the areas of social, economic and the environment depicted with the idea in mind of guiding serious thinkers to set standards and direction to capitalize on the information provided. I wish the readers of this report every success as you interpret this information for the benefit of your particular area of influence.

There are many types of Garments accessories, namely woven label, Printed Fabric Label, Paper Items, Heat Transfer Label, Zippers, and Button etc. Costing is the deciding factor for fixing of prices and the important thing to follow in all stages like purchase, production, marketing, sales, etc. Also update knowledge about everything related to garments, is essential to make perfect costing. Costing includes all the activities like purchase of raw material, processing and finishing item, packing of item, transport and conveyance, shipping, over heads, bank charges and commissions, etc. There are many different styles in garments accessories.. Cost decision & allocation typically depends on multiple variables. For any manufacturing firm it is always confirmed that the cost is dependent of production volume. Hence it is also considered that other dependent variables like overhead costs, transportation etc. has an impact on the overall costing.

Last but not least I express my sincere gratitude to the BGAPMEA and its officials and executives, European Union, Ministry of Finance, Government of the People's Republic of Bangladesh for their cooperation and financial assistance respectively. Without their cooperation it would not be possible to accomplish this job in a serious time constraint situation.

Executive Summary

The world packaging market was valued at \$427 billion in 2003, growing at an annual rate of 3.5% since 1999. All regional markets grew during the period, with the exception of South and Central America, where the downturn in the economy at the beginning of the decade, coupled with the devaluation of major currencies – and in particular the Argentinean Peso, trading at three to the dollar as compared with one to the dollar the turn of the decade – had a marked impact upon the value of the market. North American markets, including the USA, Canada and Mexico, accounted for the largest share of global packaging at \$132 billion (32%), ahead of western Europe (26%) and Asia (26%). The overall share of European markets, however, exceeded that of North America at \$137 billion, equating to a 33% share. The fastest growing markets in dollar terms have been in eastern Europe, growing at an annual rate of 16%, principally as a result of strong sales growth in Russia, Poland and other markets as well as the effect of exchange rate movements. Asian sales, meanwhile, have grown at a slower rate, principally as a result of the sluggish performance of the Japanese packaging market – the second largest packaging market in the world at \$49 billion – as well as slow growth in south-east Asian markets at the turn of the decade. However, towards the end of the period there was a return to growth in the majority of south-east Asian markets, and the Chinese and Indian packaging markets have been growing strongly throughout. China now ranks as the world's third largest market for packaging products at around \$32.1 billion. The world's largest packaging market, however, is the USA with sales of \$113 billion.

Ranked four to seven, the four leading European markets – Germany, France, Italy and the UK – all posted dollar sales growth, but there were declines in local currency terms in the UK and France. German sales though grew by over 2%, despite a decline in metal packaging sales, and Italian was also ahead by 2%. Of the remainder of the top ten, Canada, Spain and Russia all recorded rising sales – Russia replaced Brazil in the top ten after consecutive years of strong growth in Russian packaging demand and output, while dollar revenues in Brazil have been broadly due to a weakening exchange rate and depressed economic performance. Into 2004, the packaging market grew by around 7.5% in dollar terms, although again, the weakness of the dollar against other major currencies boosted market value in a year when static or at best slow growth in consumption was recorded in most developed countries.

For the remainder of the decade, however, real growth of the order of 4.2% is forecast, driven by rising consumption of packaging in emerging and transitional economies. The Middle East is likely to be the fastest growing region at over 11% year on year to 2013, with the Turkish market recovering strongly after the downturn at the beginning of the decade and some degree of normalization returning to the political arena. There is of course a degree of uncertainty to this forecast given recent history. Elsewhere, a recovery in South and Central American packaging consumption is forecast, with demand growing at an annual rate of around 7.5%, and possibly higher dependent upon a recovery in currency values, while continuing growth is anticipated in transitional eastern European economies and emerging Asian economies. Asia's share of global packaging consumption is set to rise from 26% in 2009 to 29% in 2013 as the shares attributable to western Europe and North America fall by one and six points respectively to 25% and 27% respectively. This will be principally down to continuing strong growth in Chinese packaging demand and output, with the market growing at an annual rate of just over 8% to reach \$60.4 billion in 2013. Only very minor changes are expected in the make-up and order of the top ten, while Turkey is set to claim 13th spot – the fastest growing market of those detailed in this report.

Including packaging machinery, the global packaging industry turned over around \$600 billion with packaging container sales of almost \$460 billion and machinery sales of around \$40 billion. Used in a wide range of industries across food and drink, healthcare, cosmetics and other consumer goods as well as a range of industrial sectors, packaging has become an essential everyday item, with its usage growing broadly in line with the global economy. As such, the health of the packaging industry is linked to that of the world economy as a whole. However, reliant upon upstream industries for their raw materials, packaging converters have to cope with fluctuations in raw material prices, dependent upon levels of supply and demand. In a climate of low overall inflation, rising prices for raw materials (particularly plastic resin) have put something of a squeeze on converters. Downward pressure on prices is being exerted by brand owners and retailers alike exacerbated by moves towards consolidation at all levels of the supply chain. In addition, moves towards central purchasing by packaging buyers have also impacted upon packaging margins.

The survey clearly shows that the price of almost all (98%) of the raw material items were fluctuating/ unstable except one item in two years (price was stable). The year 2011 was the most notorious year as 93+% items saw

highest price in last 5 years time. The year 2014 seems to be the most comfortable year in last five years time as 80% of the items showed downward trend of the price of raw materials. However, there remain opportunities for growth driven by increasing consumption of packaged rather than unpackaged food as well as general growth across a range of consumer goods areas. At the same time, rapid growth in packaging usage in the fast-growing economies of Asia and also eastern Europe has presented new opportunities for packaging suppliers, although the inherent risks of a high degree of exposure to emerging markets must be taken into account, especially given the experience of markets.

Introduction

The sub-sector is mostly dependent on imported raw materials and account for about 60% of its total cost component. The international market price trend of raw materials has been fluctuating. The volatility of price structure brings economic shock to the units, which makes the industry vulnerable and non-competitive. Information flow to the industry units are very insignificant may be due to change in consumption and demand and/or lack of right information dissemination. It is important that the industry units have relevant market information regarding changes in raw materials price. The Bangladesh Garments Accessories & Packaging Manufacturers & Exporters Association (BGAPMEA) received a fund from the European Union for the project “Strengthening Role of Bangladesh Garments Accessories & Packaging Manufacturers & Exporters Association (BGAPMEA) in Export Growth and Competitiveness” The association has now 1300 members, starting with 17 members in 1991. The sector earned US\$ 4.10 billion in 2012-13 FY. Reportedly the plan is to earn over US\$ 12 billion by the year 2018. It is a backward linkage industrial sector as demand for accessories and packaging is a derived demand altogether at the moment. The demand for accessories and packaging varies with the demand for RMG vis-à-vis exports. Now the total number of export oriented Packaging & accessories industries rose to more than one thousand. This industry caters to the need of total garments & other export oriented industries by producing more than thirty items like Carton, Poly Bag, Hanger, Elastic, Zipper, Button, Label, Hang tag, Back Board, Neck Board, Sewing Thread etc. Previously these items were imported from abroad by spending hard earned foreign exchange. Now entire demand for garments accessories & packaging is met up by local industries. Garment accessories and packaging on average accounted for about quarter to USD4.10 billion having an average share of 13% in the total country export and having average growth of above 23% per annum. In RMG sector accessories and packaging contributes about 16% in its export earnings. Bangladesh aiming at exporting RMG for US\$ 50 billion by next 7 years time making a proportionate increase in the accessories and packaging sector too. If packaging and accessories could be exported directly together with deem exports the figure may even reach USD 60 billion by the year 2025. To make 30 accessories and packaging items about 100 other sub-accessories are required, and all are imported now.

CHAPTER-1

Market Statistics and Future Trends in Global Packaging

Materials market situation

Packaging encompasses a wide range of material types across paper, board, plastic, metal, glass, wood and other materials. The largest share of global packaging is accounted for paper and board packaging with sales of \$200 billion in 2013, equating to 38% of the market. Paper and board remains the single largest element of the market into 2014, growing at an annual rate of around 4% in real terms, driven on the one hand by rising demand in fast-growth national markets as well as steady growth in secondary/ bulk packaging across the globe. Plastic packaging accounted for 30% of sales, with rigid plastics alone taking an 18% share of the market. Rigid plastics were the fastest growing sector of the market during the period 1999-2003 at an annual rate of 6.2% to \$77.2 billion. This was driven by several factors: rising demand for PET bottles in soft drink and bottled water markets; the consistent substitution of traditional metal, glass and sometimes paper-based materials in food and other markets; increasing incursions by packaging as a whole into food markets, particularly in the case of meat, fish and poultry products; and rising consumption of ready-meals and other convenience-oriented products. Rigid plastic packaging will continue to be the fastest growing sector of the market, with consumption forecast to progress at an annual average rate of 6.5% in the period to 2015 to reach \$150 billion, with consumption of flexible plastic packaging also set to grow at an above-average rate, driven by rising demand in fast-growth markets in Asia and other emerging regions.

Across other sectors, metal packaging, accounting for 18% of the market in 2010, is set to grow steadily, but will lose further share to plastics in beverage markets with food cans also losing share. Glass packaging, meanwhile, accounting for 7% of the market, will see only steady growth as further share is lost to plastics across food, beverage, healthcare and other key end-use sectors. At \$200 billion, paper and board packaging accounted for the largest share of global packaging sales in 2013 with 39% of the total. Plastic packaging accounted for 30% of sales, with rigid plastics alone taking an 18% share of the market, with metal packaging accounting for 18% and glass packaging a further 7%. Other packaging products accounted for the remaining 6% of the market, principally attributable to wooden pallets and containers but also textiles and other materials. The fastest growing sector of the market during the period 1999-2003 was rigid plastic packaging, with consumption growing at an annual rate of 6.2% to \$77.2 billion. A trend towards PET and other plastics and away from competing, more traditional materials is ongoing. The market has also been driven by the growing usage of packaging across a range of food area, particularly in the case of meat, fish and poultry products, as well as rising consumption of ready-meals and other convenience-oriented products. The global perspective was collected from various sources and was compiled and made those useable for the purpose of the report as well as for the readers of the report.

Key Drivers and Trends

The progression of packaging demand is influenced by a wide range of factors, from year to year and also factors with a much longer-term influence. While the economy plays a central role in influencing the size and growth of the market, there are a number of other factors which can be seen as having a direct or at least indirect influence on packaging demand or, at any rate, the nature of this demand, irrespective of the performance of the economy. These include:

- The ageing of the world population
- The trend towards smaller households

- ☐ The increasing requirement for convenience among consumers
- ☐ Rising health awareness among consumers
- ☐ The trend towards 'on-the-go' lifestyles among increasingly time-poor consumers
- ☐ Growing requirements for brand enhancement/ differentiation in an increasingly competitive environment
- ☐ New packaging material development
- ☐ The move towards smaller pack sizes as the incidence of families eating together at the dinner table become less common
- ☐ Increasing awareness of environmental issues, and the adoption of new regulatory requirements on packaging recycling

Out of all these factors, health awareness was regarded as the single most important driver to growth in the packaging industry in a Pira survey of the WPO membership. The ageing of the populations throughout the world was considered the least important driver to growth in the market, although even in this case, more than half of all respondents considered this to be important to some degree.

Economic trends

The economy is the single most important influence on packaging consumption. The level of economic activity has a fairly direct influence on demand for bulk/ transport packaging in particular, and indirectly provides the right or wrong climate for investment into packaging material research and development. In recent years, the progression of the world economy has been uneven, with unpredictable oil prices, political uncertainty and other factors leading to a situation whereby the recovery has been in fits and starts. Business confidence fell back at the turn of the year 2008 in developed economies, despite a relatively stable political climate and strong year of world trade. This was principally as a result of hikes in oil prices, which had a real impact upon incomes and consumer confidence. However, business investment did pick up as the year progressed and oil prices came down again, and with this in mind the OECD has forecast above trend levels of growth for the years to come.

Demographic trends

Much is said about the potential of China's one billion and India's one billion plus consumers, but demographic factors often have a much more complex effect on demand trends. In the packaging market, a great deal of attention has been devoted for ensuring that the offer responds to the demands of particular demographic segments, and takes into account the ageing of the world's population that is now occurring. The population of the world currently stands at 7 billion, up from 4.07 billion people in 1975, and set to grow to around 9.08 billion by 2050 taking the average of UN forecasts. By the same measure, the population of Africa will be more than double to 1.94 billion, while that of Asia will grow by around one third to 5.2 billion. The population of Europe, meanwhile, is forecasted to decline, from 728 million to 653 million, with the population of the world's more developed regions set to rise only slightly, from 1.21 billion to 1.24 billion. India is set to have 1.59 billion by 2050, when China's population will have risen to 1.39 billion.

Older population

The nature of population growth in the world today is causing governments a great deal of concern. Populations are ageing, and this is leading to fears of what will happen when the boomer generation retires, potentially using its political clout to demand better pensions, healthcare and general social provision to the extent that creates too great a drain on the economy. The ageing of the world's population is being caused by two factors: on the one hand, fertility decline or falling birth rate; and also increasing life expectancy due to advances in healthcare. In 1950, around 8% of the world's population was aged 60 years or over, since which time that figure has risen to 10% and is expected to reach 22% by 2050. The number of children aged 0-14, by contrast, is expected to remain pretty much static, rising from 1.82 billion in 2005 to 1.83 billion by 2050, with the share of under 15s falling from 28% to 20%.

Lifestyle issues

It is difficult to ignore lifestyle trends that are today impacting upon consumer purchasing decisions. For the packaging industry, these trends are positive, encouraging innovation and expansion of chilled cabinet selections in supermarkets. Consumers are becoming increasingly demanding and short of time, seeking out convenience food solutions that represent an advance on more traditional processed foods. The expectations of food quality are rising and growing awareness of health and other issues present new challenges to retailers, packers and packaging suppliers alike.

Smaller households and smaller pack

Social change is indirectly leading to modifications in packaging design. The average size of households is declining in line with the rising number of single-parent households and single-person households, and as a result there have been moves towards smaller pack sizes. This trend is being reinforced by the decline in the family meal, as more and more women enter into the workplace. As working hours become less standard, opportunities for the family to eat together are becoming fewer.

Convenience

Rising sales of convenience foods and developments in convenience food packaging have been a major feature of packaging markets in recent times. Packaging technology has developed to the extent that the ready-meal offer has improved significantly, attracting a broader and also wealthier customer base than was previously possible as consumers are prepared to pay a premium for quality pre-prepared meals.

Health awareness

Health awareness was regarded by respondents to the Pira/ WPO survey as the most important packaging growth driver, with 27% viewing this as critical to market development and 64% viewing this as very important. Consumer health concerns are an increasing influence in many end-use markets for packaging. Examples include:

- Rising sales of bottled water, fruit juice and milk drink markets in many countries, to the detriment of spirits and, in some countries, carbonated soft drinks;
- Increasing demand for packaged fresh food products.

'On-the-go' lifestyles

'On-the-go' lifestyles have emerged as a result of several factors. Longer working hours, longer commuting times and the growing number of consumers left to fend for themselves when it comes to acquiring food, have all contributed to the notion of time-poor consumers. In addition, consumers are less inclined to spend what valuable time they have preparing and often consuming food. The main consequence of this has been an increased incidence of snacking during the day and rising out-of-home consumption as well as a greater reliance on ready-prepared foods in the evening.

Brand issues-Brand enhancement/ differentiation

Packaging is a major aspect of differentiation in most consumable goods; where differentiation competition is intense then prices are low, and packaging provides a marketing advantage at the point of sale. Packaging is also a major cost component in the majority of consumable products. For example, 48 cents out of every dollar (48%) of Coke's product cost is from packaging. Of the total market, 60% lies in the areas of primary containers and flexible packaging the containers and wrappers that give immediate protection to the packaged product. The power of the global brands continues to increase strongly, particularly in the carbonated soft drinks market, dominated worldwide by two brands, and the beer market, with 12 groups controlling more than 50% of the world market.

New packaging material developments

High-performance packaging has been developed with strong barrier characteristics, and also in certain instances active and intelligent components too, respectively, adapt to changes in pack contents and environment and extend shelf life; or provide information on the pack and its contents to promote supply chain efficiencies. New developments in packaging materials were rated as the fourth most important driver to growth with 18% of respondents viewing this as critical, 46% as very important and 36% as fairly important. Key areas under consideration include:

High barrier materials, Active packaging, Intelligent packaging, Nanotechnology and Digital print for packaging.

Down gauging and light weighting

One effect of the environmental legislation has been to encourage the packaging industry to reduce the amount of packaging used by light weighting of materials, with examples across metal, glass, plastic and paper and board packaging. This has been made possible through the development of new technologies aimed at the strengthening of materials through new formulations and processes, factors which have also influenced other packaging materials areas. The use of lighter corrugated containerboard is a significant trend in world paper and board packaging markets, particularly in developed countries. In Europe, there have been significant increases in the use of containerboards of 100 gsm or less, facilitated by recent new capacity for lighter materials. In North America, however, the trend towards lighter weights has been somewhat slower, and this is set to remain the case into the second half of the decade. According to the ICCA, while substance weights across all regions will fall, average gsm for the world as a whole will increase as those regions using the heavier substance weights, such as China, are significantly increasing their share of the market.

Ranking of top 15 national packaging markets

Indonesia
South Korea
Turkey
India
Brazil
Spain
Canada
Russia
Italy
UK
France
Germany
China
Japan
USA

World packaging consumption by sector

Glass 7%
Paper and board 39%
Rigid plastics 18%
Flexible plastics 12%
Metal 18%
Others 6%

Paper and board

Paper and board packaging will remain the single largest element of the market, with a 38% share at \$216 billion – growing at an annual rate of 4.2% in real terms, driven on the one hand by rising demand in fast-growth national markets as well as steady growth in secondary/ bulk packaging in developed markets in line with overall industrial activity. Rigid plastic packaging will continue to be the fastest growing sector of the market, with consumption forecast to progress at an annual average rate of 6.5% to reach \$116 billion. Flexible plastic packaging sales are set to grow at an annual rate of over 4%, driven by rising demand in major Asian markets such as India and China, as well as to an extent by the rising incidence of pack substitution in developed markets from cans, etc. to stand-up pouches. Across other sectors, metal packaging sales are set to grow steadily, but will lose further share to plastics in beverage markets. Food cans will also lose share, and container glass will lose share across food, beverage, healthcare and other key end-use sectors. On the whole, the paper and board packaging industry has experienced difficult trading conditions in developed markets in recent years, affected by downward pressure on prices from end-customers, exacerbated by overcapacity within the industry. With only very modest growth in shipment volumes and declining shipment values in some mature markets, there has been a greater focus on developing markets in Asia, Latin America and eastern Europe. While there was strong output growth in both Asia and eastern Europe, output fell back in South America with corrugated board volumes down by around 6% on 2002 levels.

World paper and board packaging consumption by region

North America 32%
Africa 2%
Middle East 3%
Eastern Europe 4%
Western Europe 21%
Oceania 1%
Asia 34%
South and Central America 3%

After growth of the order of 7% in 2004, the market for paper and board packaging is forecast to grow at an annual rate of 4.2% to reach \$216 billion. Aside from the Middle East, the fastest growing regional markets will be found in eastern Europe, South America and Asia where annual growth of the order of 6% is anticipated. Asia's share of the market is set to rise from 34% to 36%, with strong growth in China – overtaking Japan to become the second largest market with sales of \$50 billion by 2013 – as well as Indonesia (growing at almost 10% annually to \$ 7 billion) and India (growing at an annual rate of 12% to reach almost \$6.5 billion).

Carton board

Carton board volumes amounted to around 33 million tones in 2000, according to Jaakko Pöyry Consulting, forecast to rise to 46 million tones by 2015 with Asia's share to set rise from 32% to 37% over the period, while that of North America is forecast to decline from 29% to 22%. Chinese output of carton board is currently growing at around 5% annually with demand amounting to 6 million tones in 2013. In folding carton markets, there have been mixed fortunes of late for converters in North America and Europe with shipments rising by 4-5% in the USA during the year. In Europe, the European Carton Makers Association (ECMA) has downgraded original 2000 forecasts of annual growth of 9% in the period to 2005, to 2-3% annual growth.

Plastic packaging

The world market for plastic packaging was valued at \$130 billion in 2003, with the market growing at an annual average rate of 5% from 1999 onwards. The fastest growing element of the market has been rigid plastic packaging, consumption of which has grown by 6.2% year on year, while flexible plastic packaging sales principally including wrapping and lidding films, bags, sacks, pouches, etc. have grown at a slower rate of 3.9%. The growth in overall consumption of plastic packaging has been translated into increased demand for plastics across the globe. In western Europe, packaging accounted for 37% of plastics demand in 2003 – unchanged on 2002 – out of overall plastic consumption of 39.7 million tones. Polyethylene (PE), polypropylene (PP), PVC, PET and polystyrene between them accounted for plastics consumption of 32.4 million tones during the year, with production of these plastics

amounting to 31.7 million tones. Standing at 7.8 million tones in 2003, the market for PET resin has been driven by strong demand from the food and particularly beverage packaging industries, with carbonated soft drinks and bottled water representing the largest single markets. PET is now also making incursions into beer, still drinks, milk and pharmaceuticals, but there is overcapacity within the industry in Europe, at a time when several new PET resin plants are set to come on stream. Anti-dumping duties have though implemented by the EU, reducing imports from China and Australia, although this has led to rising imports from other countries. PET recycling has been growing steadily in Europe, with Petcore estimating increases of 30% in both 2002 and 2003 in PET bottle collection in Europe, forecast to reach 800,000 tones by 2013. In the USA, meanwhile, packaging accounted for 34% of plastics usage at 27.5 billion lbs in 2003, growing at an annual rate of 3.3%. Data from the Association of Plastics Manufacturers points to declining demand for all types of polyethylene, but a 2.4% increase in polypropylene demand.

In Japan, plastics output for container applications rose from 0.44 million tones in 1999 to 0.75 million tones in 2013, driven by strong demand for blow-moulding containers. Demand for laminates, meanwhile, has been growing relatively strongly, while that for wrapping films has been in decline. China is increasingly becoming one of the world's major producers and users of plastics. In 2003, plastics output amounted to 11.7 million tones in 2003, forecast to reach 20 billion tones by 2009.

Source: China Ministry of Light Industry Annual Statistics Report

Rigid plastic packaging

Suppliers of rigid plastic packaging have benefited from current trends, but profitability levels have not in general grown alongside sales due to downward pressure on prices from retailers and brand owners at a time of hikes in raw material prices, with plastic resin prices rising during 2003 and into 2004. With the customer base increasingly consolidating, the industry has been affected by its lack of consolidation in most areas, although PET packaging in particular is more concentrated. A number of deals have gone through in recent years that have, for the most part, seen packaging companies refine their interests to focus on core areas, e.g. Rexam's exit from flexible packaging, Owens' concentration on its container glass business at the expense of most of its plastic packaging interests. However, there are moves afoot by outside investors, i.e. private equity companies, to assist in the drive towards consolidation. Key acquisitions in recent years have included Amcor's purchase of Schmalbach-Lubeca's PET container business and also Alcoa's PET operations in Latin America; Rexam's acquisition of Risdon Pharma and divestment of its thin wall container operations to RPC; Graham Packaging's acquisition of the majority of Owens-Illinois' plastic container business (excluding healthcare packaging interests); Visy Plastics's acquisition of Owens' Australasian plastic container business; Montagu Private Equity Partners' acquisition of Linpac; and Goldman Sachs' acquisition of Berry Plastics in 2002 alongside JP Morgan, which has also been expanding its portfolio in the flexibles arena (Pliant, Klockner Pentaplast). Berry subsequently acquired Landis Plastics into 2003, taking its annual sales to \$700 million. Leading players in rigid plastics include Amcor, Alpla-Werke, Rexam, Graham Packaging, Yoshino Kogyosho and also Constar, the PET container business spun off by Crown Holdings in 2003. North America represents the largest single market for rigid plastic packaging, with the market valued at \$25.1 billion in 2013. The fastest growing regional market, however, has been eastern Europe, where there has been a significant shift towards plastic packaging in fast-growth beverage markets, particularly soft drinks but also beer in the CIS, Baltics and other countries where PET's share is now 10-15%. Russia is now the tenth largest market for rigid plastic packaging worldwide at \$4.0 billion in 2013. The USA ranks one at \$19.1 billion, ahead of Japan (\$8.5 billion), Germany (\$5.0 billion), France (\$4.2 billion) and the UK (\$3.5 billion).

Rigid plastic packaging consumption by region

North America 30%
Africa 3%
Middle East 3%
Eastern Europe 6%
Western Europe 29%
Oceania 1%
Asia 22%
South and Central America 6%

Continued growth is anticipated in rigid plastics demand, as further incursions are made by plastics into food markets and new opportunities emerge in beverages and also healthcare markets. Consumption is forecast to grow at an annual rate of 6.5% in real terms from 2004 onwards, with solid growth in more mature markets in western Europe and North America, and near double-digit growth rates in emerging and transitional markets. China will become the sixth largest market for rigid plastics at \$5.1 billion by the end of the period, with the USA continuing to head the rankings at \$22.3 billion.

Top 10 rigid plastic packaging markets

USA
Japan
Germany
France
UK
China
Italy
Russia
India
Brazil

Flexible plastic packaging

Flexible plastic packaging sales grew at an annual rate of 4% during the period 1999-2003 to reach \$53 billion. In applications such as MAP, consumption of flexible films has been growing strongly, but in lower priced, commodity areas, value sales have been growing at a relatively slow rate. This is in part due to overcapacity in many markets and consequent intense downward price competition. Eastern European markets have witnessed the fastest growth rates in recent years, growing at an annual rate of 14% to reach \$3.2 billion. The Russian market has been the fastest growing of all markets reviewed, up from \$429 million in 1999 to \$1.44 billion. The USA though remains the world's largest market, valued at \$17.7 billion in 2003, ahead of Japan (\$4.2 billion), Italy (\$3.3 billion) and the UK (\$3.2 billion).

Flexible plastic packaging consumption by region

North America 37%
Africa 2%
Middle East 1%
Eastern Europe 6%
Western Europe 35%
Oceania 2%
Asia 14%
South and Central America 3%

The market for flexible plastic packaging is set to gain momentum into the latter half of the decade, driven by strong growth in emerging markets and a return to trend growth levels in more mature western markets. After growth of 8.5% in 2004, the market is forecast to grow at an annual rate of 4.3% in the period to 2013 to reach \$78.8 billion.

Forecast of flexible plastic packaging consumption by region

North America 32%
Africa 3%
Middle East 1%
Eastern Europe 8%
Western Europe 36%
Oceania 1%

Asia 16%
South and Central America 3%

Metal

The world market for metal packaging was valued at \$76 billion in 2003, growing at an annual rate of 1.7% between 2003 and 2013. North America accounts for the largest share of the market at \$25 billion, equating to 33% of the total ahead of western Europe (28%) and Asia (22%). In recent years, the fastest growing sectors of the market have been in the Middle East, Africa and eastern Europe, where demand for beverage cans in particular remains strong. In more mature markets, however, metal packaging has lost share to plastics in food packaging sectors as canned food sales have been either static or falling, and is seeing its share eroded in pet food by flexible pouches and in beverages by PET bottles. At the same time, demand for metal containers in industrial/ bulk packaging markets has been solid in the USA and other key national markets. The USA ranks one worldwide in metal packaging with sales of \$21.7 billion, ahead of Japan (\$9.1 billion), France (\$3.4 billion) and the UK (\$3.2 billion). France is notable for its strong food can market while the UK is notable for its position as Europe's largest beverage can market.

Ranking of Metal packaging consumption by region

North America 33%
Africa 3%
Middle East 3%
Eastern Europe 5%
Western Europe 28%
Oceania 2%
Asia 22%
South and Central America 4%

Global sales of metal packaging are forecast to grow at a rate of just under 3% in real terms in the period 2004-09, with strong growth in emerging and transitional markets and low growth of the order of 1% in mature western markets. China is set to overtake the UK and France to become the third largest market in the world with sales of \$6 billion by 2013.

Forecast metal packaging consumption by region

North America 31%
Africa 3%
Middle East 4%
Eastern Europe 6%
Western Europe 27%
Oceania 1%
Asia 24%
South and Central America 4%

Beverage cans

According to Beverage Can Makers Europe (BCME), the world market for beverage cans stood at some 220 billion units in 2002, with North America accounting for almost half the total at 108 billion units ahead of Asia (40 billion) and Europe (38 billion). Rexam is the global leader in beverage cans, strengthening its position with the acquisition of number one Brazilian producer Latasa to bring its share of the South American market to 64%, ahead of Crown Holdings (17%) and the Ball Corporation (15%). In the USA, Rexam holds a 23% share of the market, ahead of Crown (17%) but behind Ball (34%) and Anheuser-Busch's Metal Containers (26%). In Europe, meanwhile, Rexam predominates with a 43% share ahead of Ball (27%) and Crown (20%).

World beverage can market by region billion cans

North America 108
South America 17
Europe 38
Africa 5
Middle East 5
Asia 40
Australasia 10

Source: BCME

Aerosols

The USA is the world's largest producer of aerosol cans at 3.55 billion units , ahead of the UK (1.35 billion), Germany (970 million), China (727 million) and Japan (577 million). In recent years, output has grown steadily in Europe and has been on a general upward trend in most markets – except highly saturated ones such as the UK. The fastest growing markets now include Russia, more than doubling from 82 million to 182 million units and China, with output ahead 39% over the same period to 727 million units.

Glass

The world market for container glass was valued at \$30.2 billion in 2003, with the market growing at an annual average rate of 2.2%. The fastest growth markets have been in eastern Europe, driven by very strong beer sales growth in markets like Poland and the CIS, as well as in the Middle East, Africa and certain emerging Asian markets such as China. China is in fact the world's largest market for container glass, valued at \$6.02 billion , ahead of the USA (\$4.8 billion) and the world's leading wine producers France (container glass sales of \$1.67 billion) and Italy (\$1.41 billion). In recent years, container glass has lost share to plastics in food markets, but while glass has lost share to PET in soft drinks markets it has succeeded in shoring up its position in beer packaging. Glass beer bottles remain popular among consumers in western markets, although in eastern Europe consumer perceptions of glass bottles are rather different. They are considered the cheap option in comparison to beverage cans and also PET bottles.

Glass packaging consumption by region

North America 19%
Africa 3%
Middle East 9%
Eastern Europe 7%
Western Europe 25%
Oceania 2%
Asia 31%
South and Central America 4%

Container glass is the single most concentrated packaging sector. Two companies predominate, namely Owens-Illinois with sales of \$5.37 billion and Saint-Gobain (\$4.38 billion). Owens overtook Saint Gobain in 2004 following its acquisition of BSN Glasspack in June 2004, acquired from CVC Capital Partners for 1.16 billion, giving the company a 40% share in the European market. Other key moves in European container glass have included a series of acquisitions undertaken by Rexam in northern Europe and Poland; the sale of Ardagh Glass by Ardagh plc as ownership of the company changed hands and moved to Jersey from Ireland; the acquisition of Gerresheimer Glas by a corporation owned by private equity funds advised by the Blackstone Group Deutschland from Investcorp and JP Morgan Partners; and moves by St Gobain to build up its operations in eastern Europe, including a new plant in Romania. In North America, meanwhile, the most significant event in recent years was the bankruptcy of Canadabased Consumers Packaging, eventually splitting up into two with its Canadian plants going to Owens-Illinois and US plants now controlled by the new Anchor Glass business, part-owned by Cerberus Capital Management. The effect of consolidation moves appears to have been to shore up container prices to an extent in an

era of broadly static overall volumes in mature markets. In the next five years, however, it is likely that consumption of container glass will decline in real terms in western Europe and North America, with leading players possibly seeking a foothold in the major Chinese market. Container glass demand will also grow in Oceania, due to strong demand from the respective wine industries of New Zealand and Australia.

Forecast glass packaging consumption by region

North America 15%
Africa 3%
Middle East 12%
Eastern Europe 8%
Western Europe 22%
Oceania 3%
Asia 32%
South and Central America 5%

Others

For the purposes of this report, other packaging principally includes wooden containers and pallets, as well as jute/ other textile sacks and other packaging products. While the use of wood and other packaging materials has pretty much stabilized in western markets, such packaging materials are now being substituted in fast-growth Asian markets. In the period to 2004, demand for wood/other packaging is expected to grow at a rate below that of the packaging market as a whole, by just over 3% year on year to reach \$34 billion in 2009. There will be a definite threat to wood packaging in the form of cork stoppers used in wine bottles as Australian wine producers increasingly shift to screw caps and plastic corks. The trend towards synthetic corks will impact the Portuguese cork industry. Turning over some \$1.3 billion each year (just under 1% of GDP), wine corks account for around one third of industry sales and 85% of exports. The threat to the Portuguese cork industry and the cork forests has led the industry and government to launch a \$6.5 million campaign against synthetic corks.

End-use sectors

Within consumer packaging, food packaging represents the single largest element, valued at \$168 billion in 2003. Demand for food packaging has been growing throughout the world, with few markets reaching saturation points as opportunities still exist for packaging in areas such as fresh produce and ready meals, and strong growth being registered in emerging markets for food packaging. Food packaging sales are forecast to grow at an annual rate of around 4.6% from 2004 onwards, as compared with just 4% for beverage packaging. This is understandable, given that any prepared beverage requires packaging and penetration is already global, but opportunities still exist for suppliers in the context of rising beer and mineral water consumption in many countries.

Forecast packaging consumption by end-use market

Cosmetics 3%
Healthcare 4%
Beverage 14%
Food 40%
Industrial 23%
Other consumer 16%

Food

The world market for food packaging was valued at \$168 billion in 2003, and grew by around 8% into 2004 to reach \$182 billion, driven by strong sales in fast-growth markets in eastern Europe, Asia and other emerging economies. North America represents the largest regional market, accounting for around 31% of sales ahead of western Europe (27%) and Asia (26%), and Asia's share is set to reach 29% by the year 2013, by which time the value of the food packaging market is forecast to hit \$300 billion, growing at an annual rate of 4.6% in real terms. A number of

drivers to growth in food packaging consumption are apparent. First and foremost of these is the growing usage of packaged food as grocery multiples take share away from specialist butchers and fruit/ vegetable shops, and increasingly shift to central packaging operations to reduce waste and control stocks more effectively. Beyond that, there has been rising demand for ready-prepared foods, including microwave meals for time-poor consumers – including some who were unlikely to eat frozen processed foods in the past. Other key trends include the rise in smaller households, leading to increasing units of smaller pack sizes, as well as the shift from metal, glass and other packaging to plastic packaging in areas such as soups, sauces, pet food and other products.

Beverages

Global beverage packaging sales were valued at \$65 billion in 2004, representing an increase of 7% on 2003 levels, boosted by rising demand in markets in eastern Europe, the Middle East and Asia. North America represents the largest regional market, accounting for around 31% of sales ahead of western Europe (27%) and Asia (26%), and with Asia set to overtake North America as the largest regional market in the year 2009 with a 29% share, growing at an annual rate of 4% in real terms. Currently, beverage consumption stands at approximately 1.70 trillion liters worldwide, equating to around 215 liters per person. Tea is the most regularly consumed drink, but bottled water represents the fastest growing sector of the market with strong growth in both emerging markets and developed economies driving PET bottle volumes. Soft drink volumes, by comparison, have been static in western markets but growing strongly elsewhere. Across alcoholic drinks markets, there has been a general trend whereby wine consumption has been falling in the traditional wine-producing nations such as France and Italy, losing share to beer, while the reverse is true in the UK and other such markets where beer is the traditional choice and wine is almost always imported. On the whole, consumer preferences are converging, although there are instances where consumption has grown in traditional markets, such as vodka sales in Russia (principally due to pent-up demand from supply shortages in the past) and beer sales in the Czech Republic. Russia and the Czech Republic rank one worldwide in per capita consumption of spirits and beer respectively.

Healthcare

Healthcare packaging sales amounted to around \$20 billion, with the market growing by 11%. Accounting for approximately 31% of sales, North America represents the largest regional market ahead of western Europe (27%) and Asia (26%), with North America's share falling to 27%. Between 2004 and 2009, healthcare packaging sales were forecasted to grow at an annual rate of 7% to reach \$26 billion by the end of the period – the fastest growing of all end-use sectors. The healthcare packaging sector has been the focus of great interest by packaging suppliers, and it was significant that Owens-Illinois chose to hold onto its activities in healthcare packaging when it sold off the rest of its rigid plastics business.

Cosmetics and toiletries

Within this definition including cosmetics, fragrances and toiletries, cosmetics has been one of the fastest growing areas of consumer goods in recent years, with solid growth in sales of skin care products and also make-up. Cosmetics packaging sales stood at approximately \$13.6 billion in 2004, representing an increase of 10% on 2003, and are forecast to grow at an annual rate of 6.4% to reach \$20.5 billion by 2013. Plastic packaging accounts for around two-thirds of all cosmetics packaging sales, with paper accounting for a further 15% of the market with the remainder split between metal and glass containers. The key event in 2005 was the merger of Procter & Gamble (P&G) and Gillette in a deal valued at some \$57 billion. P&G is among the top three players in cosmetics alongside L'Oréal and Unilever and ahead of Japanese number one Shiseido, with P&G's portfolio encompassing major make-up brands such as Max Factor and Cover Girl, Oil of Olay skin care and Head and Shoulders shampoo. The Gillette deal will make P&G the leader in global men's lines, and also add a number of other major consumer brands such as Duracell and Braun.

Other consumer markets

Sales of other consumer packaging amounted to around \$75 billion in 2004, up 8.5% on 2003 levels with strong growth in emerging packaging markets. Between 2004 and 2009, other consumer packaging sales are forecast to grow at an annual rate of 4.6% to reach \$94.6 billion by the end of the period. Key products within other consumer products include tobacco. China is the world's largest producer of cigarettes, ahead of the USA, Russia and Japan.

Producers in emerging markets moving from soft, flexible packs to hard, hinge-lid and flip-top packs, and more generally there has been growing usage of OPP films in cigarette pack wrap. China is also emerging as a major market for other forms of consumer packaging, as companies shift an increasing proportion of consumer goods production to the country. China already accounts for around three quarters of production of toys and textiles, half of all cameras and telephones and also around one third of all TVs.

Industrial/bulk packaging

The global market for industrial and bulk (transport) packaging was valued at \$105 billion in 2004, representing an increase of 5% on 2003. At \$30.8 billion, North America represents the single largest market with a 30% share set to fall to 27%, behind Asia by 2009. Overall sales are forecast to grow at an average rate of 2% over the period to reach \$117 billion.

CHAPTER-II

Major Raw materials of BGAPMEA members with average import value per MT

The following table was compiled by collecting data from the BGAPMEA member organizations through the courtesy of BGAPMEA and its active cooperation and support. Some member organization though reluctant, but was collected through structured questionnaire and direct interview method. We have got 45 major items spreading over the whole of the business segments of the entire universe of the subsector having about 95 items in total, making a substantial representation about 50% of the total items used /imported in the sub sector. We received data in a very heterogeneous manner but converted those in to a homogeneous pattern to make those meaningful for our purpose. Major findings and analysis of the subsector are appended below:

Major Raw materials with average import value per MT for last five years

Sl. No.	Raw materials with H. S. Code	Average import Value/MT	Analytics
1	PP Film Grade (3902.10.00)	2014- \$ 1560 2013- \$ 1750 2012- \$ 1720 2011- \$ 1850 2010- \$ 1610	> Fluctuating price > Lowest price in 2014, while highest in 2011 > 5 years average price US\$1698/mt > From 2010 in 2011 price increased slightly above 10% > Price fell in 2012 by 7.56% > In 2013 again price increased by 1.75% compared to 2012 > Compared to 2013 in 2014 price fell by 10.86%
2	LDPE/LLDPE Film Grade (3901.10.00)	2014- \$ 1500 2013- \$ 1545 2012- \$ 1622 2011- \$ 1797 2010- \$ 1570	> Fluctuating price > Lowest price in 2014, while highest in 2011 > 5 years average price US\$1607/mt > From 2010 in 2011 price increased by 14.4610% > Price fell in 2012 by 9.75% > In 2013 again price fell by 4.75% compared to 2012 > Compared to 2013 in 2014 it further fell by 2.9%
3	Flexo Printing Ink (3215.19.00)	2014- \$ 6090 2013- \$ 6050 2012- \$ 5550 2011- \$ 7050 2010- \$ 6550	> Fluctuating price > Lowest price in 2012, while highest in 2011 > 5 years average price US\$6258/mt > From 2010 in 2011 price increased by 7.63% > Price fell in 2012 by 21.28% compared to 2011 > In 2013 again price increased by 9% compared to 2012 > Compared to 2013 in 2014 it again increased by 0.66%

4	Self Adhesive Tape (3919.10.00)	2014- \$ 3000 2013- \$ 3250 2012- \$ 3500 2011- \$ 4200 2010- \$ 3900	> Flactuating price > Lowest price in 2014, while highest in 2011 > 5 years verage price US\$3570/mt >From 2010 in 2011 price increased by 7.70% > Price fell in 2012 by 16.67% compared to 2011 >In 2013 again price fell by 7.14% compared to 2012 > Compared to 2013 in 2014 further fell by 7.70%
5	Duplex Board (4810.92.00)	2014- \$ 580 2013- \$ 680 2012- \$ 655 2011- \$ 670 2010- \$ 675	> Flactuating price > Lowest price in 2014, while highest in 2013 > 5 years verage price US\$652/mt >From 2010 in 2011 price fell by 0.74% > Price fell in 2012 by 2.24% >In 2013 again price increased by 3.82% compared to 2012 > Compared to 2013 in 2014 it again fell by 14.70%
6	Tissue Paper (4803.00.00)	2014- \$ 1300 2013- \$ 1345 2012- \$ 1350 2011- \$ 1400 2010- \$ 1320	> Flactuating price > Lowest price was in 2010, while highest in 2011 > 5 years verage price US\$1343/mt >From 2010 in 2011 price increased by slightly above 6.% > Price fell in 2012 by 3.57% >In 2013 again price fell by 0.37% compared to 2012 > Compared to 2013 in 2014 it again fell by 3.35%
7	Art Card/Card Board (4810.99.00)	2014- \$ 800 2013- \$ 720 2012- \$ 725 2011- \$ 800 2010- \$ 750	> Flactuating price > Lowest price was in 2013, while highest both in 2011 and 2014 > 5 years verage price US\$ 759/mt >From 2010 in 2011 price increased by 10.34% > Price fell in 2012 by 9.34% compared to 2011 >In 2013 again price fell by 0.68% compared to 2012 > Compared to 2013 in 2014 it again increased by slightly above 11%

8	Kraft/Test/White Liner Paper (4804.11.00)	2014- \$ 520 2013- \$ 510 2012- \$ 540 2011- \$ 560 2010- \$ 480	> Fluctuating price > Lowest price was in 2010, while highest in 2011 > 5 years verage price US\$ 522/mt >From 2010 in 2011 price increased by 16.67% > Price fell in 2012 by 3.57% compared top 2011 >In 2013 again price fell by 5.55% compared to 2012 > Compared to 2013 in 2014 it again increased by 1.96%
9	Vigin Liner (4804.11.00)	2014- \$ 620 2013- \$ 640 2012- \$ 650 2011- \$ 700 2010- \$ 630	> Fluctuating price > Lowest price in 2014, while highest in 2011 > 5 years verage price US\$ 648/mt >From 2010 in 2011 price increased by 11.11% > Price fell in 2012 by 7.14% compared top 2011 >In 2013 again price fell by 1.54% compared to 2012 > Compared to 2013 in 2014 it further fell by 3.13%
10	Corrugating/Fluting/Medium Paper (4805.11.00, 4805.92.00)	2014- \$ 400 2013- \$ 425 2012- \$ 485 2011- \$ 475 2010- \$ 395	> Fluctuating price > Lowest price in 2010, while highest in 2012 > 5 years verage price US\$ 436/mt >From 2010 in 2011 price increased by 20.25% > Price increased in 2012 by 2.11% compared top 2011 >In 2013 again price fell by 13.37% compared to 2012 > Compared to 2013 in 2014 it further fell by 5.88%
11	Stitching Wire (7217.20.00)	2014- \$ 1200 2013- \$ 1120 2012- \$ 1150 2011- \$ 1250 2010- \$ 1100	> Fluctuating price > Lowest price in 2010, while highest in 2011 > 5 years verage price US\$ 1164/mt >From 2010 in 2011 price increased by 13.64% > Price decreased in 2012 by 8% compared top 2011 >In 2013 again price fell by 2.60% compared to 2012 > Compared to 2013 in 2014 it further fell by 7.14%
12	Polyester Textured Yarn (5402.33.00)	2014- \$ 4500 2013- \$ 4590 2012- \$ 4610 2011- \$ 4700 2010- \$ 4300	> Fluctuating price > Lowest price in 2010, while highest in 2011 > 5 years verage price US\$ 4540/mt >From 2010 in 2011 price increased by 9.30% > Price decreased in 2012 by 1.90% compared top 2011 >In 2013 again price fell by 0.4% compared to 2012 > Compared to 2013 in 2014 it further fell by 1.96%

13	Rubber Thread (4007.00.00)	2014- \$ 2800 2013- \$ 2820 2012- \$ 2850 2011- \$ 2890 2010- \$ 2850	> Fluctuating price, but not significantly > Lowest price in 2013, while highest in 2011 > 5 years verage price US\$ 2842/mt >From 2010 in 2011 price increased by 1.40% > Price decreased in 2012 by 1.38% compared top 2011 >In 2013 again price fell by2.46% compared to 2012 > Compared to 2013 in 2014 it further fell by 0.71%
14	PVC Sheet Rigid Film (3920.49.10)	2014- \$ 1400 2013- \$ 1460 2012- \$ 1520 2011- \$ 1600 2010- \$ 1550	> Fluctuating price > Lowest price in 2014, while highest in 2011 > 5 years verage price US\$ 1506/mt >From 2010 in 2011 price increased by 3.22% > Price decreased in 2012 by 5.00% compared top 2011 >In 2013 again price fell by 3.95% compared to 2012 > Compared to 2013 in 2014 it further fell by 4.11%
15	Fabric Ribbon (5806.39.00)	2014- \$ 3750 2013- \$ 3795 2012- \$ 3800 2011- \$ 4100 2010- \$ 3780	> Fluctuating price > Lowest price in 2014, while highest in 2011 > 5 years verage price US\$ 3845/mt >From 2010 in 2011 price increased by 8.47% > Price decreased in 2012 by 0.73% compared top 2011 >In 2013 again price fell by 0.13% compared to 2012 > Compared to 2013 in 2014 it further fell by 1.19%
16	Sticker Paper (4804.21.90)	2014- \$ 2800 2013- \$ 2810 2012- \$ 2850 2011- \$ 3000 2010- \$ 2900	> Fluctuating price > Lowest price in 2014, while highest in 2011 > 5 years verage price US\$ 2872/mt >From 2010 in 2011 price increased by 3.45% > Price decreased in 2012 by 5.00% compared top 2011 >In 2013 again price fell by 1.40% compared to 2012 > Compared to 2013 in 2014 it further fell by 0.36%
17	Polymers of styrene in primary forms: Polystyrene (3903.19.00)	2014- \$ 1600 2013- \$ 1650 2012- \$ 1710 2011- \$ 1750 2010- \$ 1695	> Fluctuating price > Lowest price in 2014, while highest in 2011 > 5 years verage price US\$ 1681/mt >From 2010 in 2011 price increased by 3.24% > Price decreased in 2012 by 2.29% compared top 2011 >In 2013 again price fell by 3.50% compared to 2012 > Compared to 2013 in 2014 it further fell by 3.03%

18	100% Spun Polyester Yarn (5401.10.00)	2014- \$ 3000 2013- \$ 3300 2012- \$ 3500 2011- \$ 3750 2010- \$ 3200	> Fluctuating price > Lowest price in 2014, while highest in 2011 > 5 years verage price US\$ 3350/mt >From 2010 in 2011 price increased by 17.19% > Price decreased in 2012 by 6.67% compared top 2011 >In 2013 again price fell by5.71% compared to 2012 > Compared to 2013 in 2014 it further fell by 9.09%
19	Sewing Thread (5401.10.00)	2014- \$ 3000 2013- \$ 3200 2012- \$ 3500 2011- \$ 3700 2010- \$ 3200	> Fluctuating price > Lowest price in 2014, while highest in 2011 > 5 years verage price US\$ 3320/mt >From 2010 in 2011 price increased by 15.63% > Price decreased in 2012 by 5.71% compared top 2011 >In 2013 again price fell by 8.57% compared to 2012 > Compared to 2013 in 2014 it further fell by 6.25%
20	Starch (1108.11.00)	2014- \$ 520 2013- \$ 540 2012- \$ 530 2011- \$ 600 2010- \$ 550	> Fluctuating price > Lowest price in 2014, while highest in 2011 > 5 years verage price US\$ 548/mt >From 2010 in 2011 price increased by 9.09% > Price decreased in 2012 by 11.66% compared top 2011 >In 2013 again price increased by 1.87% compared to 2012 > Compared to 2013 in 2014 it fell by 3.70%
21	Monofilament for Nylon (5404.11.00)	2014- \$ 1963 2013- \$ 1980 2012- \$ 2000 2011- \$ 2050 2010- \$ 2010	> Fluctuating price > Lowest price in 2014, while highest in 2011 > 5 years verage price US\$ 2000/mt >From 2010 in 2011 price increased by 2.00% > Price decreased in 2012 by 2.44% compared top 2011 >In 2013 again price decreased by 1.00% compared to 2012 > Compared to 2013 in 2014 it fell by 0.86%
22	Paper/Satin Ribbon (5807.90.00)	2014- \$ 3750 2013- \$ 3800 2012- \$ 3800 2011- \$ 3900 2010- \$ 3600	> Fluctuating price > Lowest price was in 2010, while highest in 2011 > 5 years verage price US\$ 3710/mt >From 2010 in 2011 price increased by 8.33% > Price decreased in 2012 by 2.56% compared top 2011 >In 2013 price remained stable(same) compared to 2012 > Compared to 2013 in 2014 it fell by 0.03%

23	Self Adhesive Tape (3919.90.00)	2014- \$ 3000 2013- \$ 3250 2012- \$ 3500 2011- \$ 4200 2010- \$ 3900	> Flactuating price > Lowest price in 2014, while highest in 2011 > 5 years verage price US\$ 2000/mt >From 2010 in 2011 price increased by 2.00% > Price decreased in 2012 by 2.44% compared top 2011 >In 2013 again price decreased by 1.00% compared to 2012 > Compared to 2013 in 2014 it fell by 0.86%
24	Tissue Paper (4818.50.00)	2014- \$ 1300 2013- \$ 1345 2012- \$ 1350 2011- \$ 1400 2010- \$ 1320	> Flactuating price > Lowest price was in 2010, while highest in 2011 > 5 years verage price US\$1343/mt >From 2010 in 2011 price increased by slightly above 6.% > Price fell in 2012 by 3.57% >In 2013 again price fell by 0.37% compared to 2012 > Compared to 2013 in 2014 it again fell by 3.35%
25	Kraft/Test/White Liner Paper (4805.24.00)	2014- \$ 520 2013- \$ 510 2012- \$ 540 2011- \$ 560 2010- \$ 480	> Flactuating price > Lowest price was in 2010, while highest in 2011 > 5 years verage price US\$ 522/mt >From 2010 in 2011 price increased by 16.67% > Price fell in 2012 by 3.57% compared top 2011 >In 2013 again price fell by 5.55% compared to 2012 > Compared to 2013 in 2014 it again increased by 1.96%
26	Kraft/Test/White Liner Paper (4804.39.00)	2014- \$ 520 2013- \$ 510 2012- \$ 540 2011- \$ 560 2010- \$ 480	> Flactuating price > Lowest price was in 2010, while highest in 2011 > 5 years verage price US\$ 522/mt >From 2010 in 2011 price increased by 16.67% > Price fell in 2012 by 3.57% compared top 2011 >In 2013 again price fell by 5.55% compared to 2012 > Compared to 2013 in 2014 it again increased by 1.96%

27	Kraft/Test/White Liner Paper (4804.49.00)	2014- \$ 520 2013- \$ 510 2012- \$ 540 2011- \$ 560 2010- \$ 480	> Fluctuating price > Lowest price was in 2010, while highest in 2011 > 5 years verage price US\$ 522/mt >From 2010 in 2011 price increased by 16.67% > Price fell in 2012 by 3.57% compared top 2011 >In 2013 again price fell by 5.55% compared to 2012 > Compared to 2013 in 2014 it again increased by 1.96%
28	Kraft/Test/White Liner Paper (4804.41.00)	2014- \$ 520 2013- \$ 510 2012- \$ 540 2011- \$ 560 2010- \$ 480	> Fluctuating price > Lowest price was in 2010, while highest in 2011 > 5 years verage price US\$ 522/mt >From 2010 in 2011 price increased by 16.67% > Price fell in 2012 by 3.57% compared top 2011 >In 2013 again price fell by 5.55% compared to 2012 > Compared to 2013 in 2014 it again increased by 1.96%
29	Corrugating/Fluting/Medium Paper (4805.92.00)	2014- \$ 400 2013- \$ 425 2012- \$ 485 2011- \$ 475 2010- \$ 395	> Fluctuating price > Lowest price in 2010, while highest in 2012 > 5 years verage price US\$ 436/mt >From 2010 in 2011 price increased by 20.25% > Price increased in 2012 by 2.11% compared top 2011 >In 2013 again price fell by 13.37% compared to 2012 > Compared to 2013 in 2014 it further fell by 5.88%
30	Polyester Textured Yarn (5402.33.00)	2014- \$ 4500 2013- \$ 4590 2012- \$ 4610 2011- \$ 4700 2010- \$ 4300	> Fluctuating price > Lowest price in 2010, while highest in 2011 > 5 years verage price US\$ 4540/mt >From 2010 in 2011 price increased by 9.30% > Price decreased in 2012 by 1.90% compared top 2011 >In 2013 again price fell by 0.4% compared to 2012 > Compared to 2013 in 2014 it further fell by 1.96%

31	Polyester Textured Yarn (5402.43.00)	2014- \$ 4500 2013- \$ 4590 2012- \$ 4610 2011- \$ 4700 2010- \$ 4300	> Fluctuating price > Lowest price in 2010, while highest in 2011 > 5 years verage price US\$ 4540/mt >From 2010 in 2011 price increased by 9.30% > Price decreased in 2012 by 1.90% compared top 2011 >In 2013 again price fell by 0.4% compared to 2012 > Compared to 2013 in 2014 it further fell by 1.96%
32	Polyester Textured Yarn (5406.20.00)	2014- \$ 4500 2013- \$ 4590 2012- \$ 4610 2011- \$ 4700 2010- \$ 4300	> Fluctuating price > Lowest price in 2010, while highest in 2011 > 5 years verage price US\$ 4540/mt >From 2010 in 2011 price increased by 9.30% > Price decreased in 2012 by 1.90% compared top 2011 >In 2013 again price fell by 0.4% compared to 2012 > Compared to 2013 in 2014 it further fell by 1.96%
33	Cotton Yarn (5205.11.00),	2014- \$ 4500 2013- \$ 4590 2012- \$ 4610 2011- \$ 4700 2010- \$ 4300	> Fluctuating price > Lowest price in 2010, while highest in 2011 > 5 years verage price US\$ 4540/mt >From 2010 in 2011 price increased by 9.30% > Price decreased in 2012 by 1.90% compared top 2011 >In 2013 again price fell by 0.4% compared to 2012 > Compared to 2013 in 2014 it further fell by 1.96%
34	Nylon Yarn (5402.32.00)	2014- \$ 4500 2013- \$ 4590 2012- \$ 4610 2011- \$ 4700 2010- \$ 4300	> Fluctuating price > Lowest price in 2010, while highest in 2011 > 5 years verage price US\$ 4540/mt >From 2010 in 2011 price increased by 9.30% > Price decreased in 2012 by 1.90% compared top 2011 >In 2013 again price fell by 0.4% compared to 2012 > Compared to 2013 in 2014 it further fell by 1.96%
35	PVC Sheet Rigid Film (3917.23.10)	2014- \$ 1400 2013- \$ 1460 2012- \$ 1520 2011- \$ 1600 2010- \$ 1550	> Fluctuating price > Lowest price in 2014, while highest in 2011 > 5 years verage price US\$ 1506/mt >From 2010 in 2011 price increased by 3.22% > Price decreased in 2012 by 5.00% compared top 2011 >In 2013 again price fell by 3.95% compared to 2012 > Compared to 2013 in 2014 it further fell by 4.11%

36	Polymers of styrene (3903.90.00),	2014- \$ 1600 2013- \$ 1650 2012- \$ 1710 2011- \$ 1750 2010- \$ 1695	> Fluctuating price > Lowest price in 2014, while highest in 2011 > 5 years average price US\$ 1681/mt >From 2010 in 2011 price increased by 3.24% > Price decreased in 2012 by 2.29% compared top 2011 >In 2013 again price fell by 3.50% compared to 2012 > Compared to 2013 in 2014 it further fell by 3.03%
37	Acrylonitrile-Butadine styrene co polymers (3903.30.00),	2014- \$ 1600 2013- \$ 1650 2012- \$ 1710 2011- \$ 1750 2010- \$ 1695	> Fluctuating price > Lowest price in 2014, while highest in 2011 > 5 years average price US\$ 1681/mt >From 2010 in 2011 price increased by 3.24% > Price decreased in 2012 by 2.29% compared top 2011 >In 2013 again price fell by 3.50% compared to 2012 > Compared to 2013 in 2014 it further fell by 3.03%
38	Styrene-Acrylonitrile (SAN) co polymers (3903.20.00),	2014- \$ 1600 2013- \$ 1650 2012- \$ 1710 2011- \$ 1750 2010- \$ 1695	> Fluctuating price > Lowest price in 2014, while highest in 2011 > 5 years average price US\$ 1681/mt >From 2010 in 2011 price increased by 3.24% > Price decreased in 2012 by 2.29% compared top 2011 >In 2013 again price fell by 3.50% compared to 2012 > Compared to 2013 in 2014 it further fell by 3.03%
39	Polymers of Ethylene in primary forms: Polyethylene having a specific gravity of less than 0.94 (3901.20.00),	2014- \$ 1600 2013- \$ 1650 2012- \$ 1710 2011- \$ 1750 2010- \$ 1695	> Fluctuating price > Lowest price in 2014, while highest in 2011 > 5 years average price US\$ 1681/mt >From 2010 in 2011 price increased by 3.24% > Price decreased in 2012 by 2.29% compared top 2011 >In 2013 again price fell by 3.50% compared to 2012 > Compared to 2013 in 2014 it further fell by 3.03%
40	Polymers of propylene or of others cleans in primary forms: Propylene Co-Polymers (3902.30.00)	2014- \$ 1600 2013- \$ 1650 2012- \$ 1710 2011- \$ 1750 2010- \$ 1695	> Fluctuating price > Lowest price in 2014, while highest in 2011 > 5 years average price US\$ 1681/mt >From 2010 in 2011 price increased by 3.24% > Price decreased in 2012 by 2.29% compared top 2011 >In 2013 again price fell by 3.50% compared to 2012 > Compared to 2013 in 2014 it further fell by 3.03%

41	(GPPS/HIPS), PP Injection Grade (3902.10.00)	2014- \$ 1600 2013- \$ 1650 2012- \$ 1710 2011- \$ 1750 2010- \$ 1695	> Fluctuating price > Lowest price in 2014, while highest in 2011 > 5 years verage price US\$ 1681/mt >From 2010 in 2011 price increased by 3.24% > Price decreased in 2012 by 2.29% compared top 2011 >In 2013 again price fell by 3.50% compared to 2012 > Compared to 2013 in 2014 it further fell by 3.03%
42	100% Spun Polyester Yarn (5402.33.00)	2014- \$ 3000 2013- \$ 3300 2012- \$ 3500 2011- \$ 3750 2010- \$ 3200	> Fluctuating price > Lowest price in 2014, while highest in 2011 > 5 years verage price US\$ 3350/mt >From 2010 in 2011 price increased by 17.19% > Price decreased in 2012 by 6.67% compared top 2011 >In 2013 again price fell by5.71% compared to 2012 > Compared to 2013 in 2014 it further fell by 9.09%
43	Glue/Gum (3505.20.00)	2014- \$ 520 2013- \$ 540 2012- \$ 530 2011- \$ 600 2010- \$ 550	> Fluctuating price > Lowest price in 2014, while highest in 2011 > 5 years verage price US\$ 548/mt >From 2010 in 2011 price increased by 9.09% > Price decreased in 2012 by 11.66% compared top 2011 >In 2013 again price increased by 1.87% compared to 2012 > Compared to 2013 in 2014 it fell by 3.70%
44	Paper/Satin Ribbon (5806.39.00)	2014- \$ 3750 2013- \$ 3800 2012- \$ 3800 2011- \$ 3900 2010- \$ 3600	> Fluctuating price > Lowest price was in 2010, while highest in 2011 > 5 years verage price US\$ 3710/mt >From 2010 in 2011 price increased by 8.33% > Price decreased in 2012 by 2.56% compared top 2011 >In 2013 price remained stable(same) compared to 2012 > Compared to 2013 in 2014 it fell by 0.03%
45	Paper/Satin Ribbon (5807.10.00)	2014- \$ 3750 2013- \$ 3800 2012- \$ 3800 2011- \$ 3900 2010- \$ 3600	> Fluctuating price > Lowest price was in 2010, while highest in 2011 > 5 years verage price US\$ 3710/mt >From 2010 in 2011 price increased by 8.33% > Price decreased in 2012 by 2.56% compared top 2011 >In 2013 price remained stable(same) compared to 2012 > Compared to 2013 in 2014 it fell by 0.03%

Summary of the Raw materials Price analytics:

1. The survey clearly shows that the price of almost all (98%) of the raw material items were fluctuating/unstable except one item for two years price was stable
2. The year 2011 was the most notorious year as 93+% items saw highest price in last 5 years time
3. The year 2014 seems to be the most comfortable year in last five years time as 80% of the items showed downward trend of the price of raw materials.

Demand-Supply factors of Packaging

Market status

The average prices for paper, plastics and steel all showed decline over the past six months, while the price for aluminium increased over the same period of time. In the paper market, virgin grades were weighed down by good supply, while weak demand from Asia reduced prices of recycled paper grades. Despite recovering demand, plastic prices declined in line with falling feedstock cost. In metal packaging, steel prices were down due to high stock levels and slowing growth in China's industrial production. On the contrary, aluminium prices increased driven up by the ban on exports of unprocessed ores from Indonesia. The major forms of packaging materials can be classified as plastics, paper and metals. Other materials such as wood and glass are also used for packaging but far less frequently.

Plastic packaging

Despite good demand from the construction and automotive industries, prices for plastic packaging are likely to decline in the next six months, driven down by lower crude oil prices and increased supplies in PE and PET markets.

Paper packaging

Most paper grades will see price increases in the coming months, on the back of recovering global demand and strong feedstock prices. Price rises for some materials may be limited by high stock levels. Carton board prices in China will go against the trend due to lower demand for high quality grades, mainly resulting from the implementation of a smoking ban.

Metal packaging

Steel prices are likely to continue to decline over the second half of 2014, as an increase in demand from North America, the EU and Japan will be more than offset by the weakening growth in demand from China and global overcapacity. Aluminium prices are likely to rise as Indonesia's export ban on mineral ores will continue to affect the availability of the raw materials.

Key market drivers

Global economy: This is the key driver, as demand for packaging depends on global industrial activities.

Demand from developing economies: Growing demand from China and other developing economies has been driving global demand for packaging. The large distances between major markets such as the US, Europe and China, make shipping rates an important influencing factor on packaging prices.

Feedstock and raw material costs: The price of packaging is heavily influenced by the price of feedstock's. Most plastic feedstocks are derived from either crude oil, natural gas or coal. Key feedstocks for paper packaging include pulp and recycled paper. Key feedstocks for metal packaging include iron ore. Coking coal is used as a feedstock for steel and bauxite ore for aluminium.

Energy: Energy costs such as crude oil, gas and coal have an impact on prices.

Production capacity: Changes in available capacity, such as the opening or closing of production facilities, can cause fluctuations in supply and therefore affect the price of packaging.

Seasonality: Prices for raw materials packaging can fluctuate seasonally due to changing demand for these raw materials. In summer, demand for packaging tends to rise due to increased demand for fruit and vegetables and bottled drinks. Also, a large proportion of metal and plastic production is used in the building and construction industry, where demand tends to rise early in the year as re-stocking occurs ahead of the construction season.

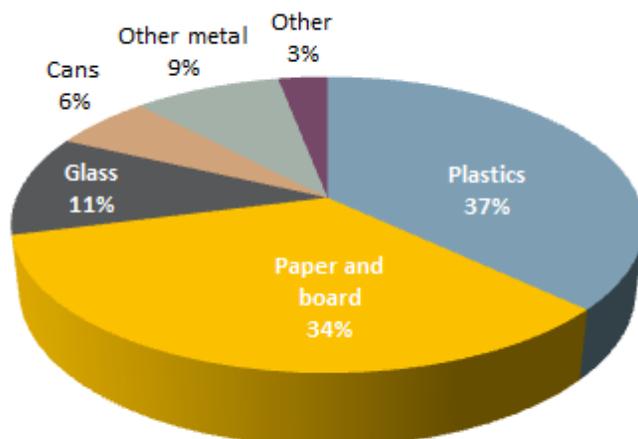
Substitution: As many different plastics can have similar properties, substitution of one plastic with another is common, as is substitution of plastic packaging with other forms of packaging, such as paper.

Stocks: High stock levels of materials tend to exert downward pressure on prices, and as a result any rise in prices can be weakened until stock levels are depleted. Low stock levels can make prices more volatile.

Market outlook-Plastic packaging

Market drivers	Event
Production/capacity	In Europe, the LDPE market has been tight due to problems at SABIC's 400,000 tonnes/year production unit in Wilton, UK. The facility has been shut since May for maintenance reasons. It was scheduled to restart on June 22-24 but this was delayed for unspecified reasons. Large PP and PE capacities have been scheduled to start-up in China in 2014 which could potentially exert pressure on global markets. In the PE sector, Sichuan Petrochemical and Shaanxi Yanchang Petroleum are both expected to add 600,000 tonnes/year of LLDPE and HDPE. In the PP sector, Sichuan Petrochemical and Shenhua Ningxia Coal Industry are scheduled to add 450,000 and 500,000 tonnes/year respectively. In total, during 2014, China is expected to add 2.2m tonnes/year of PE capacity (3% of global total PE capacity) and 3.5m tonnes/year of PP capacity (8% of global PP capacity). These additions are expected to heavily impact on both PE and PP markets, especially in Q4 2014. Initially, materials from the new capacities are forecast to be directed to the domestic Chinese market but eventually could weigh on global markets, affecting exports and imports. Elsewhere, large PE capacities are scheduled for opening in Abu Dhabi (1.4m tonnes/year) and in Iran (600,000 tonnes/year).
Supply/demand	Demand for plastics recovered in the EU in the first half of 2014, driven mainly by buoyant automotive and construction industries. New passenger car registrations in Europe rose by 7% in the first six months of 2014 compared to the same period last year. Production in the construction industry in the EU rose by 2% y-o-y in Q1 2014. In the PE market, prices are expected to be under further pressure in China due to weak demand amid a slowdown in Chinese construction activity and due to increased supplies. In Europe, availability of certain PE grades is limited, particularly in the LDPE sector, due to on-going problems in SABIC's 400,000 tons/year plant in Wilton, UK. Structural oversupply persists in the global PET markets. With PET capacities being added in China, the increased exports of PET from China are likely to reduce operating rates in Europe to around 60-65% by 2015-2016.
Feedstocks	European ethylene prices fell in the first five months of 2014 due to ample supply. As a result, producers reduced their operating rates leading to lower production of the by-product propylene, which in turn saw its prices rising. In recent weeks, ethylene prices rose sharply on concerns of crude oil supply disruptions while propylene markets weakened due to improved supplies. The situation is more stable in the styrene market where supplies are currently meeting to demand. In Asia, ethylene prices have been supported by supply tightness as a number of producers shut their facilities for maintenance. Some of the production units are scheduled to restart at the end of July. Crude oil has been the major factor driving feedstock prices up in the last couple of months due to civil unrest in Iraq and supply disruptions in Libya. Good crude oil supplies and high stock levels are expected to ease the pressure on feedstock markets

Figure 1. Packaging materials



Average annual global market value in 2013: USD 400bn

Plastic packaging

Despite good demand from the construction and automotive industries, prices for plastic packaging are likely to decline in the next six months, driven down by lower crude oil prices and increased supplies in PE and PET markets.

Price effect factors

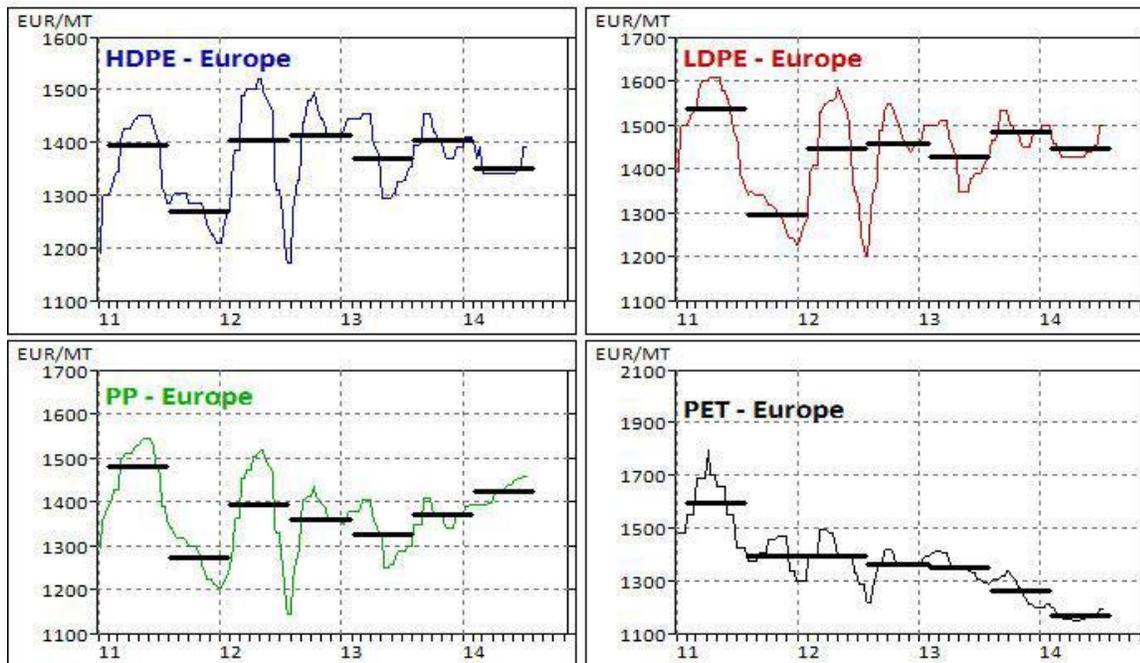
- Increased supplies due to capacity additions and production restarts ↓
- Higher demand from construction and automotive industries ↑
- Lower crude oil prices ↓
- Lower demand from China due to slowdown in construction ↓

1 Potential movement of average price of PET in Europe for the period: Aug 14 – Jan 15 against Feb 14 – Jul 14.

2 Potential movement of average price of LDPE in Europe for the period: Aug 14 – Jan 15 against Feb 14 – Jul 14.

3 Potential movement of average price of HDPE in Europe for the period: Aug 14 – Jan 15 against Feb 14 – Jul 14.

4 Potential movement of average price of PP in Europe for the period: Aug 14 – Jan 15 against Feb 14 – Jul 14.



Sourcing Packaging Materials

For companies in the Consumer Packaged Goods industry, packaging constitutes a major source of material costs going into the finished product. However, companies rarely lend sufficient importance to the sourcing of packaging materials. Most companies implement a tactical approach towards sourcing of packaging materials that can result in the loss of cost optimization and savings opportunities. Adopting effective practices for the sourcing of packaging materials can drive significant efficiencies and cost reductions in the supply chain, while also ensuring supply assurance. Packaging plays a key role in the success of a product, particularly in the Consumer Packaged Goods industry. It is one of the most important elements of the marketing mix, since it has the potential to affect the consumer's purchasing decision at the point of sale.

According to the Packaging Institute, in 2009, about USD 419 billion was spent on the procurement and consumption of packaging, and the Consumer Packaged Goods industry accounted for 32% of this expenditure. In addition, packaging accounts for 4-11% of the cost of the finished product and constitutes one of the largest sources of material costs for companies in the industry. In spite of being such a significant source of costs, most companies source packaging materials in a tactical manner - usually, upon the expiry of an existing contract, packaging suppliers are requested to respond to an RFP, prices negotiated and a contract entered into. At times, trials are conducted on samples to ensure that materials conform to product design, branding and production parameters. However, this tactical approach to sourcing often results in an inefficient supplier base and bloated inventories leading to high costs in supply chain operations. Effective sourcing practices enable companies to achieve significant efficiencies and cost reductions in supply chain, in addition to ensuring supply assurance. This paper discusses effective practices in sourcing packaging materials for consumer packaged goods. The scope of the paper is limited to the "flexible laminates" packaging material, since this is one of the most commonly used packaging materials in the consumer packaged goods space. During the early 20th century, materials like paper, jute and natural rubber were predominantly used to package products intended for daily usage. Packaging was used either for transportation or storage of products. This scenario witnessed a transformation with the arrival of Parkesine (the first man-made plastic derived from cellulose) as an alternative packaging material. With this, began the widespread use of petrochemical resins in the manufacture of packaging material, owing to the additional features that these materials offered such as cosmetic improvements of the packaging and the longer life of the core product. Packaging materials are generally classified based on the "core product" they are used to package.

Petrochemical resins are traded mostly in commodity exchanges and data on their prices is available freely in the public domain. The spot, forward and futures rates for petrochemical resins provide definite information about how the prices will behave in the future. Further, down the value chain, activities of petrochemical resin manufacturers can be analyzed given that they exercise considerable influence on the supply and price of petrochemical resins. The manufacturers influence the supply situation in the market that in turn impacts the price of petrochemical resins. When new production capacity goes live, there is a spurt in supply that leads to either price stagnation or a decrease in the short term. This, accordingly, impacts the price of laminates. For example, The Plastics Exchange says that approximately 180 millions tons of petrochemical resin (PP/PE/PVC) was produced worldwide in 2009 against a demand of 140 million tons. This excess supply of about 40 million tons led to a 16% year-on-year decrease in the price of flexible laminates.

Price Identification of Packaging Materials

After the identification of key packaging parameters, the next step is to understand price behavior of underlying raw materials and intermediates that influence the price of packaging material. In case of flexible laminates, the most common underlying material used is polyethylene, which is available as a film extruded from petrochemical resins such as HDPE, LDPE, and so on. To understand how the price behavior of flexible laminates, it is helpful to understand the price behavior of underlying raw material and intermediates such as crude oil/natural gas and petrochemical resins. In order to track the price forecasts of crude oil and natural gas, one may subscribe to industry related publications.

Timing of Purchase

Another aspect to be considered while sourcing packaging material is to determine the right time for sourcing. This decision is influenced by key factors such as inventory level and the demand-supply scenario for raw materials and intermediates. Inventory planning of packaging materials is related to production. It is also influenced by price, delivery and quality perspectives such as price fluctuations, erratic delivery schedules (non-conformance to purchase orders), and material rejections due to quality issues, that impact the optimum inventory maintenance process. Also, at times, production and inventory planning often goes haywire due to unpredictable sales forecasts. In such cases, sourcing professionals, in an effort to reduce inventory carrying costs, have to buy on spot to keep production planning safe. This leads to loss of savings. Maintaining optimal inventory level is a considerable challenge and globally, the Economic Order Quantity (EOQ) concept is used to determine optimal inventory level. EOQ is expressed as:

$$EOQ = \sqrt{2(\text{Annual Usage in Units})(\text{Order Cost}) / (\text{Annual Carrying Cost Per Unit})}$$

where:

Order Cost is the fixed cost that is incurred each time an item is ordered is. It is associated with order processing activities (the effort of offering and frequency) and not on the quantities ordered.

Carrying Cost is the inventory holding cost which constitutes costs associated with the inventory investment and storage cost such as interest, insurance, taxes, and storage costs.

Annual Usage is the forecasted annual usage.

For an existing product line, while sourcing flexible laminates, lead time with the supplier should be negotiated to less than 10 working days. The key reason for reduced lead time is that packaging suppliers usually maintain and preserve gravure printing cylinders for quite sometime after initial supply and hence are in a position to provide the material in reduced time lines for repeat orders. However, for a new product line, some lead time should additionally be factored into the EOQ. This lead time is to account for the time taken by suppliers to create master designs, obtain approvals from the buyer, create gravure printing cylinders, trial runs, etc.

Having determined the EOQ, the next question is whether to buy on spot or forward basis. In intense market conditions, when the price of flexible laminates is likely to go up due to constrained supplies, forward contracts

should be the preferred option, as this provides the additional benefit of going “long” apart from securing a supply source. But, when the price of flexible laminates is likely to go down, repeat spot buys can bring in benefits. However, while deciding on either option; sourcing professionals should additionally take into consideration the difference in the spot and forward prices. Ideally, the difference in the spot and forward prices should be equal to the finance charges plus any earnings that are due to the holder of the contract.

Additionally, going for forward contracts will depend on factors such as seasonality, festivity (time around the holidays), climate cycles (the demand for frozen food dips in winters) that impact demand. In such scenarios, long-term contracts at low price levels but with high inventory costs may help address high inventory requirements, but do not adversely impact the working capital of the company. However, this decision should not be taken solely on the basis of demand projections. The impact of price movement should additionally be factored in, to arrive at the right timing for ordering.

In this scenario, the inventory level dips at an uneven rate due to production plan fluctuations and touches the re-order point near the end of week eight. Hence, this becomes the point when sourcing of flexible laminate packaging should complete. At the same time, one can see that the price is also rising gradually, but unevenly. So, if one plots the trend in price and stock depletion till week four and extrapolates it for subsequent weeks one can see that the end of week five may be the optimal sourcing point instead of the end of week eight. Had the price not been rising this steeply, or the inventory not depleting this fast, the optimal sourcing point would have shifted further down the line on the time scale. This is an effective tool that can provide a tremendous edge by allowing the buyer to ride the price tide and have optimum inventory carrying costs.

Supplier Assessment

Suppliers are generally classified based on category attributes. Flexible laminates packaging material is usually classified as a “strategic and non-critical” item. Strategic and non-critical items often bring about asymmetric relationships in which the buyer is held hostage by a limited number of suppliers due to the strategic nature of the item. Hence, working closely and collaboratively with suppliers is paramount to ensure that value for the supplier translates into value for the buyer as well. Some effective practices to achieve this are as follows:

Focus on a sourcing process that brings the best price without compromising on supplier performance. This can be done through RFI (where the flexible laminate constituent, price and supplier information can be sought), RFQ (where pricing can be evaluated in an online static negotiation scenario) and, if required, through Reverse Auction (where price can be optimized through online dynamic negotiation scenario). Wherever possible, the buyer should use letters of credit or avail spot discounts, as these will benefit the buyer in terms of better discounts and the supplier by allowing a lesser credit period. Ensure that the contracts agreed upon during sourcing are leveraged in procurement, closing the loop between the sourcing cycle and the procurement order cycle. Purchase requisition should be validated and re-directed through preferred suppliers for contract compliance and procurement as per negotiated rates. Buyers should work closely with suppliers to reduce transactional processing time and thereby inventory carrying costs. Supplier assessment comes into picture when an existing contract with a supplier ends or revalidation of the existing supplier base is required or inclusion of new suppliers under empanelment is underway. Some of the parameters which should be analyzed for assessing suppliers are listed below:

Parameters Details (Supplier should provide test results on):

- Thickness and Perpendicular distance between two flat surface of a substrate)
- Grammage and Weight per unit area of a substrate
- Ratio of the force required to slide one surface over another to the total force applied normal to those surfaces.
- COF (sliding initiation) is greater than kinetic COF (sliding propagation)
- Coefficient of Friction (COF)
- Electricity generated and accumulated on non-conductive surfaces due to surface friction. A characteristic of nonconductive materials Electrostatic Charge

- Bending of flexible laminate towards one side of its axial plane
- Receptivity (surface energy) of a solid surface towards a liquid to wet the surface completely to form a continuous thin film of liquid on the surface of the solid
- Wetting Tension
- Shade and Color Measurement and Shade and color as per the shade card
- cost per unit (\$/unit)
- man-hours/unit, units produced/unit time
- break down time (%),change over time (min/hrs)
- waste (%),defectives (%),inventory turnover (%)
- fuel consumption (k therms/unit), lead time (min/hrs / days)
- electricity consumption (kwh/unit), water consumption (kltrs /unit)
- Absolute Cost
- Productivity
- Maintenance
- Production Efficiency
- Resource Efficiency
- Electrostatic Charge
- Curling when kept on a flat surface
- Satisfies key financial ratios for the industry
- Full financial disclosure from supplier will be required
- Financial Viability
- Risk and Insurance and Adequate insurance, acceptance of risk
- Compliance to Commercial Terms and Complies to the terms and conditions of the buyer
- Certification
- Documented system
- Quality System for Deliverables
- Compliance to Specifications and Meets specification requirements, standards
- Staffing structure, availability of experienced staff
- Experience in the industry, state of technology
- Capability
- Experience in the industry, previous experience
- Customer recommendation
- Past Performance
- Strategic and Location, networking

Sourcing Process

Until now, we have discussed various practices that are helpful in identifying the price of packaging material, determining the timing of their sourcing and identifying various parameters for assessing suppliers. Now, we will discuss some practices that may be adopted while actually sourcing packaging material. The sourcing of packaging material can be performed in three steps:

Defining the packaging material

For a new product line or for packaging design changes for an existing product, the Request for Information (RFI) route should be taken for the following reasons:

- Validating that the packaging constitution and design is acceptable
- Validating that the packaging constitution and design is acceptable to the supplier base for production and supply
- Understanding the cost structure
- Identifying negotiation levers

Trial for quality assurance

The next step is to perform a trial run using the packaging material. In this step, the design layout and the color shade card is handed over to the selected suppliers. The suppliers then prepare roto-gravure printing cylinders and take print runs with lamination, winding, and slitting for preparing the trial roll.

Negotiation for price optimization

Once the technical aspects are validated through trial in the previous step, negotiation for price optimization should be commenced. One approach for price optimization is to analyze the cost break-down structure of the packaging material. For better understanding, let us take the example of flexible laminate (of constitution 12-micron polyester film flexible laminated with 50-micron natural polyethylene film). Suppliers generally tend to use price and GSM (grams per square meter) as negotiation levers. If the GSM is high, fewer yields of the flexible laminate will be produced, and the price per unit of flexible laminate will be higher than that of laminate with lesser GSM. Negotiation should ideally be conducted via the routes of Online Static Negotiation (Rfx), Online Dynamic Negotiation (Reverse Auction), or a combination of both to arrive at the right price. Also, negotiation happens best if done on a source-to-contract application as this enables automated online negotiation on readily available templates, which leads to reduced cycle time. Another approach for price optimization is to go up the value chain. Apart from bought-out items such as petrochemical resin based films, adhesive, and ink, the major cost component for suppliers is conversion cost.

Generally, suppliers source these materials from the open market or from dealers of principal manufacturers (if volumes are high). This leads to cost inflation due to ineffective sourcing on part of the suppliers and accumulation of margins in the process. Buyers can reach out to principal manufacturers for a deal on the bought-out items and either buy it and transfer to the suppliers for conversion, or arrange for the suppliers to get the raw materials at a negotiated price. Negotiation can then be done with suppliers on the conversion costs only - power, labor, wastage, core price and packing, overhead per hour, overhead per changeover, printing cylinder cost, and contribution. Negotiation against each of these cost heads can lead to reduction in price. Effective sourcing practices help companies in achieving significant efficiencies and cost reductions in supply chain. These help in reducing the frequency of purchasing orders and lowering inventory carrying costs. In addition, effective sourcing practices take a strategic view of the customer-supplier relationship by recognizing that suppliers are a valuable part of the company and important partners in reducing waste and non-value-adding costs. Effective sourcing practices, thus, can be used to strengthen a company's competitive advantage by getting the best services and products at the most optimal cost. The potential of effective sourcing can be realized by utilizing technology and e-sourcing tools that greatly assist the sourcing process and increase efficiency. TCS, through its Procurement Platform solutions, helps customers in achieving cost-efficient and seamless sourcing solutions for materials that fall under the direct as well as indirect categories. TCS has worked as a sourcing partner with a number of companies globally wherein it has deployed and rendered services through its platform solutions for sourcing and contract management processes.

Effective Practices for Sourcing Packaging Materials

For companies in the Consumer Packaged Goods industry, packaging constitutes a major source of material costs going into the finished product. However, companies rarely lend sufficient importance to the sourcing of packaging materials. Most companies implement a tactical approach towards sourcing of packaging materials that can result in the loss of cost optimization and savings opportunities. Adopting effective practices for the sourcing of packaging materials can drive significant efficiencies and cost reductions in the supply chain, while also ensuring supply assurance.

Afterwords

Types of Packaging Materials

Packaging plays a key role in the success of a product, particularly in the Consumer Packaged Goods industry. It is one of the most important elements of the marketing mix, since it has the potential to affect the consumer's purchasing decision at the point of sale. According to the Packaging Institute, in 2009, about USD 419 billion was spent on the procurement and consumption of packaging, and the Consumer Packaged Goods industry accounted for 32% of this expenditure. In addition, packaging accounts for 4-11% of the cost of the finished product and constitutes one of the largest sources of material costs for companies in the industry. In spite of being such a

significant source of costs, most companies source packaging materials in a tactical manner - usually, upon the expiry of an existing contract, packaging suppliers are requested to respond to an RFP, prices negotiated and a contract entered into. At times, trials are conducted on samples to ensure that materials conform to product design, branding and production parameters. However, this tactical approach to sourcing often results in an inefficient supplier base and bloated inventories leading to high costs in supply chain operations.

Effective sourcing practices enable companies to achieve significant efficiencies and cost reductions in supply chain, in addition to ensuring supply assurance. This paper discusses effective practices in sourcing packaging materials for consumer packaged goods. The scope of the paper is limited to the “flexible laminates” packaging material, since this is one of the most commonly used packaging materials in the consumer packaged goods space. During the early 20th century, materials like paper, jute and natural rubber were predominantly used to package products intended for daily usage. Packaging was used either for transportation or storage of products. This scenario witnessed a transformation with the arrival of Parkesine (the first man-made plastic derived from cellulose) as an alternative packaging material. With this, began the widespread use of petrochemical resins in the manufacture of packaging material, owing to the additional features that these materials offered such as cosmetic improvements of the packaging and the longer life of the core product. Packaging materials are generally classified based on the “core product” they are used to package. The different types of packaging materials are:

Protective Packaging:

Pallettes, Containers and Corrugated Boxes fall under the protective packaging category. These materials protect the core product by reducing and nearly eliminating the Oxygen Transmission Rate (OTR) and Water Vapor Transmission Rate (WVTR). This prevents the product from oxidation and hydration. Generally, pallettes and containers are made of High Density Polyethylene (HDPE) and Tinplate. Corrugated boxes are made of Kraft paper (made from chemical pulp through Kraft process) for high compression resistance strength.

Flexible Packaging:

Paper, Cartons, Flexible Laminates and Woven Bags fall under flexible packaging and are mostly used to pack edible items. Paper used for packaging is usually more than 120 GSM (gram per square metre) thick, thereby ensuring better strength. They are often laminated using thin HDPE films. Laminates are multiple layers of films (extruded from petrochemical resins) with roto-gravure printing and solvent-based/solvent-less lamination. Flexible Laminates take the form of a roll and are used for packing liquids, amorphous or granular materials (mostly edibles) using Form Fill and Seal machines (FFS). Blister packs for medicines are also a form of laminate.

Custom Packaging:

Foam Wraps, Film Wraps and Bubble Wraps fall in the category of custom packaging because they can be used for any kind of product. Bubble Wraps and Foam Wraps are made from different grades of petrochemical resin extrudes such as Low Density Poly Ethylene (LDPE), Linear LDPE (LLDPE), Poly Propylene (PP) and Poly Ethylene (PE) films. Film Wraps are generally made of Bi-axially Oriented Poly Propylene (BOPP). For sourcing professionals, one of the key aspects to be considered while sourcing packaging materials is to map the diverse requirement of various internal departments that usually include Marketing, Product Development and Procurement. As product properties and brand attributes are intrinsic to packaging, Marketing and Product Development departments typically examine all the parameters. Similarly, the Procurement department typically considers all relevant parameters.

Complexities in Sourcing Packaging Material

- Health Consciousness (nutrient and additive contents)
- Family Size/Singles (different portions)
- Economy (various sizes, quality levels)
- Mobility (convenience items)
- Novelty (152 new food and drug items were introduced in the U.S. recent one year)

- Labeling Requirements (contents and directions)
- Available Equipment (products for the freezer or microwave)
- Time and Convenience to Purchase and use (various available sizes, complete meals in a package)
- Consumerism (consumer complaints have high influence on pharmaceutical and health-related products)
- Customs and Social Habits (beverage packaging)
- Palettes
- Containers
- Corrugated Box
- Protective
- Paper & Cartons
- Laminates
- Woven Bags
- Flexible
- Foam Wraps
- Film Wraps
- Bubble Wraps
- Custom

Category Type

These considerations contribute to the complexity of sourcing packaging materials, and the complexity is only enhanced when additional considerations such as environmental aspects are included, since material substitution aspects assume importance. For example, biodegradable food containers may need to be chosen to substitute potentially bio-hazardous polystyrene foam, or recyclable and biodegradable bags may need to be procured in lieu of plastic bags. Given the importance of packaging materials in the consumer packaged goods industry and the complexities involved in its sourcing, effective sourcing practices play an important role in achieving efficiencies and cost reduction.

Packaging Constituent-Value Chain

In addition, the following crude price benchmarks can be studied:

Petrochemical resins are traded mostly in commodity exchanges and data on their prices is available freely in the public domain. The spot, forward and futures rates for petrochemical resins provide definite information about how the prices will behave in the future. Further, down the value chain, activities of petrochemical resin manufacturers can be analyzed given that they exercise considerable influence on the supply and price of petrochemical resins. These manufacturers influence the supply situation in the market that in turn impacts the price of petrochemical resins. When new production capacity goes live, there is a spurt in supply that leads to either price stagnation or a decrease in the short term. This, accordingly, impacts the price of laminates. For example, The Plastics Exchange says that approximately 180 millions tons of petrochemical resin (PP/PE/PVC) was produced worldwide in 2009 against a demand of 140 million tons. This excess supply of about 40 million tons led to a 16% year-on-year decrease in the price of flexible laminates.

The location of production units also impacts the price of flexible laminates. In the past few years, most manufacturers have created or shifted their production bases eastwards with the objective of reducing costs. This has led to Asia emerging as the largest producer of petrochemical resins in addition to being a major trader in the international market. As spot petrochemical resin price is determined by the market that produces the maximum quantity and commands price determination leverage, the Asia Naphtha prices have become the benchmark for petrochemical resin prices world over. With Asia and, to some extent, Middle East emerging as the main production hubs, all other geographies are soon bound to turn into net importers. This means that for consumers in North America and Europe, apart from the price, logistics costs will need to be factored to determine the right sourcing location. If the price of petrochemical resins in the domestic/local markets is higher than the price of imports (including logistics), then importing petrochemical resins would be the appropriate strategy.

Lack of harmonize packaging standards with regional and international standards and packaging policy. Non availability of local raw materials for which high lead time for imports resulting into high inventory costs, inviting leakage of profit. High cost of packaging and its frequent changes has become one of the main barriers for manufactures to be competitive. The parameters in the macro environment are continuously subject to change and have to a greater extent an effect on the cost & quality of the products. Identifying the factors which influence cost with their degree of influence & effectively managing them will help to control the cost of the final packaging material. Rigid plastic, flexible plastic and paper & paper board packaging material prices have been governed by their direct raw material component & they are all imported materials. Local value addition costs including labour, energy & other overheads together contribute around 30 to 40%. During the last five years price changes of final packaging material is mainly coursed by the fluctuation of cost of raw material, labour & electricity. Economic factors such as parity, crude oil prices & inflation too have influence the cost of packaging marital but indirectly through the plastic raw material component.

Affect of price increases

The results of operations may be affected by the availability and pricing of raw materials and packaging materials, including other overheads. Many raw materials are also subject to price volatility due to changes in global supply and demand, market fluctuations, weather conditions, government controls, exchange rates, currency controls and other factors. Continued increases in the prices of the raw materials will increase operating costs. Increased operating costs will depress profit margins if we are unable to recover these additional operating costs from our customers. To some extent, derivative financial instruments and supply agreements can mitigate the effect of increases in raw materials and commodities costs, but they do not provide complete protection over the longer term. In addition, the hedging instruments used establish the purchase price for commodities in advance of the time of delivery and, as such, it is possible that these hedging instruments may lock into prices that are ultimately higher than the actual market price at the time of delivery. A sustained interruption in the supply of such materials could also lead to a significant increase in their price or could impede production process if are unable to find suitable substitutes. In each case, this could have a significant adverse effect on the results of operations.

Less rawmaterial

Prices are increasingly dictated by rising raw material and production prices. And even experts can't see an end to this trend. The German food industry association has warned consumers to expect further price rises between one and four percent. A United Nations forecast says that global raw material demand will triple by 2050.

Rising prices

Market experts have been observing strong price fluctuation on the global raw material markets for months and have identified several reasons for this volatility. They see the development in the light of growing speculation on the international raw material markets, of enormously increased demand in Asia but also of artificially generated shortages that go hand in hand with speculation. Producers and consumers of goods are largely helpless against these developments.

Nologicalreasons

For a long time, other raw materials like gold, oil, copper and also the basic raw materials in the printing ink industry have become the object of speculation. Increasing demand, shortages and loss of production drive price increases in this sector, too. For instance, growing demand and a constantly changing market environment have driven the price of rosin – a raw material relevant to packaging – up by a full 400 percent in just 18 months. Market analysts detect price bubbles that can no longer be explained logically. That strongly impacts packaging manufacturers, who are forced to pass their increased costs on to their customers and thus to consumers. As a global leader in the production of top-quality inks for the packaging industry,

internationally active Siegwirk is no longer able to entirely offset the ongoing price increases for raw materials and energy by making its production processes even more efficient. The Siegburg based company is therefore forced to pass on part of the costs to its customers for a transitional period – until the raw material markets have recovered.

Purchasing

Raw materials account for around 60 per cent of total production costs. The purchasing prices for raw materials have risen markedly in recent years. Raw material prices have reached historically high levels and although the prices of individual raw materials can fluctuate during a single quarter.

Understand the true quantity used

Don't assume a fixed material percentage across components/products. Raw material input costs can range from 40% to more than 60%, depending on the component. Assess all purchased goods to understand their composition of significant raw materials and the price volatility of those materials. Store this information in a raw materials database; this enables management to understand the contracted weights and costs for all components, subsystems and whole goods.

Chapter -III

Conclusion and Recommendations:

Managing the cost of raw materials remains a top priority for manufacturers. Here we look at factors driving price fluctuations and ways to handle cost volatility to achieve a competitive advantage.

Although the cost of raw materials used in manufacturing has eased somewhat since hitting a historic, mid-recession peak in 2008, the raw materials market remains volatile both in the United States and abroad. Manufacturers continue to be concerned about coping with these pricing fluctuations, and many firms are seeking new ways to mitigate risks associated with raw materials instability.

“Companies have a hard time correctly judging the risk of strongly fluctuating raw material costs. If they pass on increasing costs only minimally, delayed or too conservatively, or if increasing raw material costs coincide with decreasing sales prices, a margin squeeze is inevitable,” chemicals research publication CHEManager explains. “Highly fluctuating raw material costs and ineffective price management can greatly endanger a company’s success.”

According to a recent survey from Prime Advantage, the cost of raw materials remains the top overall concern among small and mid-sized manufacturers, cited by 51 percent as their main priority in 2012. Although this was down from 66 percent in 2011, it indicates continued doubts about the raw materials market. When asked solely about cost pressures, raw materials were also the most frequently cited concern at 55 percent, down from 76 percent in 2011.

Moreover, 81 percent of respondents ranked raw materials costs among their top three concerns this year. Cost pressures on base materials used for components were cited as the second-highest concern, with 52 percent including it in their top three.

Issues on the supply side and rapid changes in the global economy spurred by rising demand and consumption rates in emerging markets are generating uncertainty, as well as being major factors in the volatility of raw materials prices.

“Raw material prices are experiencing unprecedented volatility. Driven by growth in places such as Asia, uncertainty about growth in Western Europe and North America, and raw material supply markets that are gradually tightening, prices will continue to be volatile well into the future,” management consultancy A.T. Kearney notes. “For companies with significant raw material exposure particularly manufacturers and those in the process industries mastering raw material volatility has become essential to short-term growth and long-term competitive advantage.”

These price fluctuations can have a significant impact on manufacturers. Approximately 15 to 20 percent of a typical original equipment manufacturer’s total costs derive from raw materials. Moreover, in the process industries, raw materials account for 50 to 60 percent of overall costs. The influence of raw materials means that developing a comprehensive strategy to manage their costs should be a priority in the industrial sector.

“Firms that master raw material management can improve earnings margin by 2 to 5 percentage points, increase security of supply and improve supply chain operations, among other things,” according to A.T. Kearney. “For companies that preemptively manage these risks, effective raw material management can be a source of competitive advantage.”

“Senior executives can gain an initial perspective on how well prepared their company is to manage raw materials volatility by asking a few simple questions: Do all senior functional and business unit managers have a shared perspective on the current direction of commodity prices? Do their current responses to market conditions complement one another? How well do they coordinate or collaborate in making decisions that will have significant impact on cash flow?” Risk Management Magazine advises. For companies that find that their collaboration is

limited, now is the opportune time to pursue a comprehensive strategy. The recommendations may be grouped into two categories such as for the Policy Makers(Government) and the for the industrialists.

For Policy Makers:

- While the raw materials price is lower industrialists should be allowed to import more than their installed capacity for stocking on recommendation of BGAPMEA for reaping the advantage of lower price and stay competitive in the market
- Allow industrialists to avail lower rate of interest for their loan
- Loan rescheduling should be comfortable and congenial for the business in consideration of various natural and manmade business interruptions
- There should be export credit guarantee scheme for the exporters
- As special incentives are given to RMG for exploring and exporting to new territories/destinations, which should also be extended to this sector as a matter of deemed exports
- All export performance incentives as applicable for other sector exporters should be allowed to GAP industries
- Government should stand as guarantor for industries availing foreign funds which are generally cheaper
- Forex retention quota should also be increased for the exporters of GAP

For Business/Industrialists:

1. **ANNUAL PRICE INCREASE:** Usually western countries increase their price by 3-4% every year, business should keep this thumb rule in their mind in planning their procurement
2. **WATCHING PRICE TRENDS OF BASIC ITEMS:** For example oil price has now plummeted, certainly the plastic packaging industries may buy polymer granules at a cheaper price and stock for future requirements, business has to watch the trend and adjust themselves accordingly
3. **CLUSTER PURCHASE:** Business may form group/cluster to reap the advantage of bulk purchase, EOQ, availing higher discount, lower freight charge and saving time and money
4. **UNDERSTAND YOUR SUPPLIERS' raw-material costs and share risks appropriately.** All supplier contracts should include the gross weights, net weights, and cost basis for the raw materials used. The cost basis can be in the form of a market-based, published price/index, or transparent negotiated contracts. Contract terms should articulate when pricing is subject to adjustments, with regularly scheduled reviews and pre-set adjustment triggers. Consider timing carefully. For example, a change in Q1 raw materials prices may not impact the buyer until one to three months later as the changes make their way through the supply chain and related inventories.
5. **IDENTIFY WHICH commodities need dedicated strategies.** Raw materials purchased in large volume and subject to price volatility need dedicated strategies. With commodity strategies in place, Purchasing and Engineering need to work together to ensure that the design function is aware of commodity-price trends and considers that information when creating future designs.
6. **IMPLEMENT RISK-MITIGATION STRATEGIES.** These strategies should focus on three key areas: **Financial hedges:** Futures, swaps, options, and fixed price agreements can all be employed for a cost to help avoid significant unexpected price increases. These methods require a very specific skill set beyond that of a typical Purchasing professional. **Operational hedges:** These enable a buyer to change the nature of how raw materials are purchased. These include design changes, end-product pricing changes, and inventory management strategies. **Price Increase Management teams:** A dedicated team with strong analytical and negotiations skills can employ a rigorous, consistent, database approach to defend against increases and also reduce costs as raw materials pricing decreases.
7. **DIFFERENTIATE SAVINGS GOALS.** Organizations should differentiate between raw materials costs and value-add savings cost, and should develop separate savings goals and strategies for achieving each. Raw-material savings targets should be established relative to market prices (e.g., market prices less X%); value-add cost reduction targets should be more consistent year over year (e.g., Y% productivity gains). This enables companies to tie performance to raw material market conditions and to understand when price increases are necessary to maintain margins.
8. **TRACK COMMODITY PRICE MOVEMENTS.** Individual key raw materials can be easily tracked, but a more useful approach can be to create and track an index of raw materials made up of a basket of goods

that represent your key product lines. This allows an OEM to understand the aggregate effect of numerous fluctuating raw materials and can provide valuable inputs not only to supplier cost management approaches, but also to pricing and discount management policy changes.

Professional services firm Transworld Resources Inc. provides the following helpful strategies for keeping down costs and mitigating risks associated with the raw materials market:

- **Understand the real quantities used.** Don't assume there is a fixed material percentage across all components and products. Raw materials input costs can cover a wide range, so assess all purchased goods for their material composition and the price volatility of those materials. Keep this information in a database to allow management to analyze the contracted weights and costs for all purchases of goods.
- **Establish clear terms with suppliers.** All supplier contracts should incorporate the gross weights and net weights for the raw materials used, as well as the cost basis, which can be represented by a market-based, published price or index. The contract terms should also explain when pricing is subject to adjustments and include regularly scheduled reviews.
- **Determine which commodities need a dedicated strategy.** Raw materials that are purchased in large volumes and experience price volatility, such as steel, copper, plastics, rubber, aluminum and lubricants/hydrocarbons, should have a specific commodity strategy in place. Purchasing and engineering departments should remain aware of commodity-price trends and consider them when creating future designs.
- **Implement a risk-mitigation plan.** Risk management strategies should focus on three key areas: financial hedges to help avoid significant unexpected price increases; operational hedges, such as design changes, end-product pricing changes, and inventory management, to control how raw materials are purchased; and price increase controls that rely on a team with strong analytical and negotiation skills to protect against increases and reduce costs when raw materials pricing decreases.
- **Set distinct savings goals.** It's important to distinguish between raw materials costs and value-add savings costs and to develop separate goals for each. Raw material savings targets should be established relative to market prices, while value-add cost reduction goals should be more consistent year-over-year. This allows companies to tie performance to market conditions and understand when price increases are necessary to maintain margins.
- **Track price changes.** While prices for individual materials can be monitored, it may be more useful to create and track an index for groups of raw materials that represent your key product lines. This provides an aggregate view of numerous price fluctuations and can yield insight on supplier cost management and discount policy.

Driving Down the Cost of Raw Materials

The volatility in the raw materials markets—the dramatic shift in the cost of raw materials and their associated components—has become a focal point for CPOs and CFOs. Despite the volatility of the past year, long-term trends in the industry point to producers becoming more aggressive in managing pricing. Consolidation within the industry is likely to continue as producers seek to diversify geographically and rationalize production. Consolidation will allow producers to limit supply as a means to either stabilize or raise prices. At the same time, producers are becoming more vertically integrated in an effort to control their input pricing. Trends in the industry require companies to become more aggressive in managing their raw materials purchases—capturing scrap and usage value, and improving sourcing and pricing strategies. During these challenging times, there are four ways companies can improve the management of their steel and other commodity purchases.

1. Recover Materials Costs

Scrap, a by-product of the manufacturing process, is typically not very well managed. Depending on the process, up to 30 percent of input is unused and considered waste. This is true for numerous manufacturing industries, from automotive, white goods and electronics to heavy industries. While manufacturers focus on minimizing waste, they often fail to capture the value of material scrap in the price. Companies that account for scrap material value in the component price can reduce their material costs by 5 to 8 percent. For example, if material accounts for 35 to 50

percent of the total price, a 5 to 8 percent improvement in material costs would equate to a piece savings of 2 to 4 percent.²

2. Increase Sourcing Power

In a traditional supply chain, as suppliers purchase materials they typically focus exclusively on their internal businesses, which are not always large enough to negotiate directly with large entities, such as steel mills. Therefore, steel is often purchased from an intermediary, such as a steel service center, resulting in an extended supply chain that includes numerous service centers and different pricing levels for each steel grade. It is possible to improve negotiation leverage and reduce costs by gaining more visibility and control over the material supply chain—specifically, by optimizing the material purchased directly from the large steel mills and the material provided through service centers. The idea is to implement a leveraged sourcing model focusing on a few key parameters. It is important to negotiate total cost rather than just base price and to avoid additional costs such as surcharges. Ideally, negotiations concern everything that feeds into the total cost, including raw material inputs, transportation and energy. Optimizing the purchasing of materials will improve negotiation leverage and reduce costs. This model can result in significant savings.

Optimize Materials Usage

The third component of the strategy focuses on reducing costs through technical improvements, including reducing complexity, shrinking part-design costs, and segmenting suppliers.

Reduce complexity. To reduce complexity, the focus naturally turns to a portfolio rationalization to reduce specifications, such as gauges and grades, and then implementing processes to prevent re-proliferation. This requires getting engineers and designers aboard early to understand the cost impact of deviating from preferred specifications.

Shrink part-design costs. Reducing part-design costs begins with collaborative design reviews with internal and supplier engineering teams to evaluate all parameters that affect material costs and utilization. Competitive benchmarking and reexamining the manufacturing process will ensure that maximum benefits are achieved.

Segment suppliers. When sourcing parts, it makes financial sense to consider material specifications and sizes. For example, sourcing parts that use the same grades or gauges to the same supplier allows for nesting parts more effectively.

Manage the Materials Supply Chain

A supply chain materials management strategy employs material scrap generated by manufacturing processes—both internally and externally—within the supply chain. The goal is to create a closed-loop network whereby the company uses the scrap dealer for processing and transportation and sells scrap directly to a scrap-consuming supplier. Although determining market price for material scrap includes acquisition costs, transportation, processing and margins, most companies do not know if they are getting "fair" market price. Unbundling these costs offers transparency into these costs and removes a margin layer. Indeed, supply chain material management can reduce the overall cost of finished products by 2 to 5 percent.

Get Aggressive

Given the volatility and price increases in the raw materials markets, companies are renewing their focus on the raw materials supply chain, primarily steel and commodity purchases—recovering materials costs, improving sourcing, and utilizing scrap throughout the value chain. Long-term trends in the industry will require a more aggressive stance in managing pricing—now more than ever.

Scrap Management

Even if a company's scrap network is not large enough to create a closed-loop system, there are three ways to improve savings potential by managing scrap throughout the supply chain.

Evaluate best prices. Determine the best price for scrap by renegotiating based on a better understanding of competitive market prices and types of scrap being generated (through a scrap surcharge evaluation). Are we paying true market price? Make sure all additional costs are based on the true market price for the grades used.

Major Raw materials with average import value per MT for last five years
(Summarized Statement)

Sl. No.	Required raw materials with H. S. Code	Average Import Value/MT
1	PP Film Grade (3902.10.00)	2014- \$ 1560 2013- \$ 1750 2012- \$ 1720 2011- \$ 1850 2010- \$ 1610
2	LDPE/LLDPE Film Grade (3901.10.00)	2014- \$ 1500 2013- \$ 1545 2012- \$ 1622 2011- \$ 1797 2010- \$ 1570
3	Flexo Printing Ink (3215.19.00)	2014- \$ 6090 2013- \$ 6050 2012- \$ 5550 2011- \$ 7050 2010- \$ 6550
4	Self Adhesive Tape (3919.10.00, 3919.90.00)	2014- \$ 3000 2013- \$ 3250 2012- \$ 3500 2011- \$ 4200 2010- \$ 3900
5	Duplex Board (4810.92.00)	2014- \$ 580 2013- \$ 680 2012- \$ 655 2011- \$ 670 2010- \$ 675
6	Tissue Paper (4803.00.00, 4818.50.00)	2014- \$ 1300 2013- \$ 1345 2012- \$ 1350 2011- \$ 1400 2010- \$ 1320
7	Art Card/Card Board (4810.99.00)	2014- \$ 800 2013- \$ 720 2012- \$ 725 2011- \$ 800 2010- \$ 750
8	Kraft/Test/White Liner Paper (4804.11.00, 4805.24.00, 4804.39.00, 4804.49.00, 4804.41.00)	2014- \$ 520 2013- \$ 510 2012- \$ 540 2011- \$ 560 2010- \$ 480
9	Vigin Liner (4804.11.00)	2014- \$ 620 2013- \$ 640 2012- \$ 650 2011- \$ 700 2010- \$ 630
10	Corrugating/Fluting/Medium Paper (4805.11.00, 4805.92.00)	2014- \$ 400 2013- \$ 425 2012- \$ 485 2011- \$ 475 2010- \$ 395
11	Stitching Wire (7217.20.00) \$1200	2014- \$ 1200 2013- \$ 1120 2012- \$ 1150 2011- \$ 1250 2010- \$ 1100
12	Polyester Textured Yarn (5402.33.00, 5402.43.00, 5406.20.00), Cotton Yarn (5205.11.00), Nylon Yarn (5402.32.00)	2014- \$ 4500 2013- \$ 4590 2012- \$ 4610 2011- \$ 4700 2010- \$ 4300

13	Rubber Thread (4007.00.00)	2014- \$ 2800 2013- \$ 2820 2012- \$ 2850 2011- \$ 2890 2010- \$ 2850
14	PVC Sheet Rigid Film (3920.49.10, 3917.23.10)	2014- \$ 1400 2013- \$ 1460 2012- \$ 1520 2011- \$ 1600 2010- \$ 1550
15	Fabric Ribbon (5806.39.00)	2014- \$ 3750 2013- \$ 3795 2012- \$ 3800 2011- \$ 4100 2010- \$ 3780
16	Sticker Paper (4804.21.90)	2014- \$ 2800 2013- \$ 2810 2012- \$ 2850 2011- \$ 3000 2010- \$ 2900
17	Polymers of styrene in primary forms: Polystyrene (3903.19.00), Polymers of styrene (3903.90.00), Acrylonitrile-Butadiene styrene co polymers (3903.30.00), Styrene-Acrylonitrile (SAN) co polymers (3903.20.00), Polymers of Ethylene in primary forms: Polyethylene having a specific gravity of less than 0.94 (3901.20.00), Polymers of propylene or of others cleans in primary forms: Propylene Co-Polymers (3902.30.00) (GPPS/HIPS), PP Injection Grade (3902.10.00)	2014- \$ 1600 2013- \$ 1650 2012- \$ 1710 2011- \$ 1750 2010- \$ 1695
18	100% Spun Polyester Yarn (5401.10.00, 5402.33.00)	2014- \$ 3000 2013- \$ 3300 2012- \$ 3500 2011- \$ 3750 2010- \$ 3200
19	Sewing Thread (5401.10.00)	2014- \$ 3000 2013- \$ 3200 2012- \$ 3500 2011- \$ 3700 2010- \$ 3200
20	Starch (1108.11.00), Glue/Gum (3505.20.00)	2014- \$ 520 2013- \$ 540 2012- \$ 530 2011- \$ 600 2010- \$ 550
21	Monofilament for Nylon (5404.11.00)	2014- \$ 1963 2013- \$ 1980 2012- \$ 2000 2011- \$ 2050 2010- \$ 2010
22	Paper/Satin Ribbon (5807.90.00, 5806.39.00, 5807.10.00)	2014- \$ 3750 2013- \$ 3800 2012- \$ 3800 2011- \$ 3900 2010- \$ 3600

Types of Required Raw materials in the Sector

Sl. No.	Required raw materials with H. S. Code	Finished Products
1	PP Film Grade (3902.10.00)	Printed Poly Bag (6305.32.00, 3921.90.10)
2	LDPE/LLDPE Film Grade (3901.10.00)	//
3	Thinner/Reducer (3814.00.00)	//
4	Flexo Printing Ink (3215.19.00)	//
5	Paraffin Wax (2712.20.00)	Waxing Box (3923.10.00, 4819.20.00)
6	Duplex Board (4810.92.00)	Back Board, Neck Board (4810.92.00)
7	Tissue Paper (4803.00.00, 4818.50.00)	Tissue Paper (4803.00.00, 4818.50.00)
8	Art Card/Card Board (4810.99.00)	Hang Tag, Photo Card, Bar Code, Photo In-Lay etc. (4821.10.00, 3926.90.90, 4821.10.00)
9	Flexo Printing Ink (3215.19.00)	//
10	Corrugating / Fluting / Medium Paper (4805.11.00, 4805.92.00), Kraft / Test / White Liner Paper (4804.11.00, 4805.24.00, 4804.39.00, 4804.49.00, 4804.41.00)	Corrugated Carton (4819.10.00)
11	Stitching Wire (7217.20.00)	//
12	Starch (1108.11.00), Glue/Gum (3505.20.00)	//
13	Com Starch (1108.12.00)	//
14	Sodium Hydroxide (Caustic Soda) (2815.11.00)	//
15	Borax (2840.20.00)	//
16	Glue & Bond (3506.10.00)	//
17	Coating Liquid (3923.90.90)	//
18	Tape & Band (3923.10.00)	//
19	Pallet (3923.90.10)	//
20	Rubber Pallets (4005.10.10)	//
21	Printing Ink (3215.11.00)	//
22	Self Adhesive Tape (3919.90.00)	Poly and Others
23	Polyester Textured Yarn (5402.33.00, 5402.43.00, 5406.20.00), Cotton Yarn (5205.11.00), Nylon Yarn (5402.32.00)	Elastic, Drawstring, Label etc. (5806.10.00, 8447.90.90, 4821.10.00, 5807.10.00)
24	Rubber Thread (4007.00.00)	//
25	PVC Sheet Rigid Film (3920.49.10, 3917.23.10)	Collar Insert, Butter Fly (3926.20.90)
26	Boards (Coated/Non Coated, Glossy/Non Glossy, Matt/Non Matt) (4810.19.00)	Hang Tag (Verities) (4821.10.10, 4821.10.90), Fabric (Ribbon), Label, Carton Sticker (Bar Code) (2926.90.94)
27	Fabric Ribbon (5806.39.00)	//
28	Sticker Paper (4804.21.90)	//
29	Sticker Rolls & Computer Carbon Rolls (4809.20.00, 4809.90.10)	//
30	PVC Adhesive (3506.91.00)	//
31	Offset Plate, Solution & Developer, Polyester Printing Plate (9006.10.00)	//
32	Printing/Photographic Film (3703.90.00)	//
33	Thermal Ribbon (4809.20.00)	//
34	Polymers of styrene in primary forms: Polystyrene (3903.19.00), Polymers of styrene (3903.90.00), Acrylonitrile-Butadiene styrene co polymers (3903.30.00), Styrene-Acrylonitrile (SAN) co polymers (3903.20.00), Polymers of Ethylene in primary forms: Polyethylene having a specific gravity of less than 0.94 (3901.20.00), Polymers of propylene or of others cleans in primary forms: Propylene co-polymers (3902.30.00) (GPPS/HIPS), PP Injection Grade (3902.10.00)	Hanger (3926.20.90, 3924.90.90)
35	Metal Hook/Metal Clip (7318.13.00)	//
36	Gum Tape/ Scotch Tape (3919.10.00, 3919.90.00)	Gum Tape/Scotch Tape (3919.10.00, 3919.90.00)
37	100% Spun Polyester Yarn (5401.10.00, 5402.33.00)	Sewing Thread (5401.20.00)
38	Silicon Oil (3910.00.00)	Chemical
39	Disperse Dyes (3204.11.00)	//
40	Disperse and Labeling Agent (3402.90.90)	//
41	Reactive (3404.90.00)	//
42	Softener (3809.91.00)	//
43	Detergent and Auxiliaries (3402.90.10)	//
44	Polyester Staple Fibre (5503.20.00)	Padding & Quilting (5811.00.00, 9404.90.00, 6209.20.00)

45	Acrylic Resin (3906.90.00)	//
46	Taffeta Resin (5407.53.00, 5408.21.00)	//
47	Brightener (3204.11.00)	//
48	Polytube (3901.10.00, 3901.20.00, 3902.10.00)	//
49	Sewing Thread (5401.10.00)	//
50	Interlining (5603.12.00, 5903.20.10)	Interlining (5901.00.00, 5603.00.00)
51	Pigment (3212.90.00)	Chemical
52	OPP/BOPP (Film Grade) (3920.20.20)	BOPP Bag (3921.90.20)
53	Self Adhesive Paper (4811.41.00)	Pasting of Exportable Items
54	Synthetic Card (3920.00.00, 3920.10.10, 3920.10.90), Sticker Paper Security Sticker (6211.39.00, 4821.10.00) (4811.21.00)	
55	Monofilament for Nylon (5404.11.00)	Zipper (9607.19.00, 9607.11.00)
56	Cord Thread (5607.90.00)	//
57	Sewing Thread (5401.10.00)	//
58	Polyester Yarn (5402.62.00)	//
59	Pome Resin (3911.10.00)	//
60	Brass Strip For Teeth Making (7409.21.00)	//
61	Brass Strip For Top & Bottom Stop (7409.21.00)	//
62	Aluminum Strip For Teeth Making (7606.12.00)	//
63	Aluminum For Top & Bottom Stop (7606.12.00)	//
64	Nylon Film For Zipper Welding (3921.19.90)	//
65	Slider (9607.20.00)	//
66	Box Pin (9607.20.00)	//
67	H-Type Bottom Stop (9607.20.00)	//
68	Paint (3210.00.90)	//
69	Hardener (3824.90.90)	//
70	Wax (3404.90.00)	//
71	Coating Agent (3824.90.90)	//
72	Paint Remover (3824.90.90)	//
73	Dido line (Solvents) (3824.90.90)	//
74	Thinner (3814.00.00)	//
75	Polyester Resin (3907.91.00)	Button (9606.10.00)
76	Styrene Monomer (3903.90.00)	//
77	Cobalt (2822.00.00)	//
78	Ultra Violet (3210.00.10)	//
79	Pigment (3212.90.00)	//
80	MEKP (2914.23.00)	//
81	Paraffin Wax (2712.90.00)	//
82	Acetone (2914.11.00)	//
83	Acetic Acid (2915.21.00)	//
84	Pumic Powder (2513.10.00)	//
85	Pumic Stone (2513.11.00)	//
86	Polishing Cream/Wax (3405.10.00/3404.90.00)	//
87	Armajol/Kerocil/Aerocil Powder (3824.79.00)	//
88	Blessing Powder (2828.10.00)	//
89	Trychloro Ethylene (2923.22.00)	//
90	Paper/Satin Ribbon (5807.90.00, 5806.39.00, 5807.10.00)	Ribbon (5807.90.00, 5806.39.00, 5807.10.00)
91	Self Adhesive Tape (3919.10.00)	Self Adhesive Gum Tape (3919.10.00, 3919.90.00)
92	Shrink Packing (3920.00.00)	//
93	Nylon Yarn (5402.11.00, 5402.61.00)	Velcro Tape (5806.10.00)
94	Acrylic Resin (3906.90.00)	//
95	Disperse Dyes/Dying Stuff (3204.11.00)	//
96	Chemical Auxiliaries for Dyeing/Unividaine D/P, Eganol MLDU (3402.90.00, 3402.19.10, 3809.91.00)	//
97	MEKP (2914.12.00), Acetic Acid (2915.21.00)	//
98	Polyethylene (3901.10.10)	//

Annexure III

The Consultant of the Study, ttz Bremerhaven, Germany in cooperation with BGAPMEA and EUB visited different garment accessories and packaging manufacturers in Dhaka, Bangladesh. The assessment was done to find out the raw materials price through a structured questionnaire along with the ttz Bremerhaven Germany for their portion of the study.

Duration of Assessment: 5 Days

Total Number of industries Visited: 14

Persons involved in the exercise:

1. Mr. Mohammad Zilkad Chowdhury (Project Manager, BGAPMEA)
2. Mr. Faraz Rasheed Mir (Project Manager, TTZ Bremerhaven)
3. Dr. Abdul Jalil (Chairman Department of Textile EUB)
4. Mr. Md. Abdul Halim(Deputy Secretary, BGAPMEA)
5. Mr. Md. Mosharaf Hossain Sarker (Senior Faculty Member,EUB)
6. Mr. Monir uddin (Former Director, BGAPMEA)
7. Mr. Harunur Rashid Bhuyan (Adviser Inspired Project, BGAPMEA)
8. Mr. Amir (Project officer, BGAPMEA)
9. Prof Dr Feroz Faruque(Consultant)

Day: 01

Date: 15-11-2014

Assessment No: 1

Name of Industry	Dekko Accessories
Products	Buttons, Woven Label, printed Label Multicolor PP/PE/OPP Polybag, Butterfly, Collar Insert, Collar bones, Backboard, Neck Board etc.
Raw material	Purchasing 90% raw material from (Middle East, Korea, Taiwan, Europe, Printing from Germany) and 10% Locally

Assessment No: 02

Name of Industry	AKH Packaging and Accessories Limited
Products	Buttons, Woven Label, printed Label Multicolor PP/PE/OPP Polybag, Butterfly, Collar Insert, Collar bones, Backboard, Neck Board etc.

Day 02

Date: 16-11-2014

Assessment No: 03

Name of Industry	A-tex International Limited
Products	Zipper Slider, thread conning, Hook & Loop, sticker, Labels, Hang Tag
Raw material	Printed Label (Sticker), Hang tag, care Label,

Assessment No: 04

Name of Industry	Mon Trims Limited
Products	Sewing Thread , Poly, Offset printing , Narrow Fabric, Heat transfer Printing, Screen Printing, Roto Gravure Printing, Sublimation Printing ,Thermal Print, Woven Label, Care Label , Cartoon, Leather Badge, Stone & Metal Motive, Gum Tape, Rubber Patch, ,Hanger, Collar Stand, Stray & Butterfly.
Raw material	China, Taiwan, Malaysia, Saudi Arabia, Australia & Europe and America.

Day: 03

Date: 17-11-2014

Assessment No: 06

Name of Industry	Khan Accessories and Packaging Company Limited
Products	Carton, Poly bag, sewing thread, Back Board, Neck Board, Collar insert, butterfly, twill tape, tissue paper, Gum Tape. etc.
Raw material	South Korea, Taiwan, China, Malaysia, Thailand, Australia etc.

Assessment No: 07

Name of Industry	Patriot Group
Products	Carton, Polybag, Hanger, Backboard, neck board, collar insert, butterfly, elastic, hang tag, sewing thread.
Raw material	Liner medium paper (Germany), Backboard (India, Taiwan), Poly

	(Saudi Arabia, Taiwan, Singapore)
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Assessment No: 08

Name of Industry	Pacific Button Industry Ltd
Products	Metal Zipper, Plastic zipper, Nylon Zipper, Plastic Button (16 Category), dying as well.
Raw material	100% Satisfied

Day: 04

Date: 18-11-2014

Assessment No: 09

Name of Industry	Neo Zipper
Products	All Kind Of Zippers
Raw material	HE will send list to Mr.Zilkad
In house testing facility	10% (Strength test, color fastening)

Assessment No: 10

Name of Industry	Well Accessories
Products	Carton, poly, gum tape, elastic, Plastic
Raw material	Paper (Australia, Korea, Malaysia), Poly (Qatar, Saudi Arabia), Gum tape (china, Taiwan), Plastic(china), Elastic (Malaysia)

Assessment No 11:

Name of Industry	KDS Accessories
Products	Cartons, hang tag, printing item, narrow fabric, buttons.
Raw material	Europe and Australia (Cannot provide further details)

Day:05

Date: 19-11-2014

Assessment No 12:

Name of Industry	Twice Poly Bag and thread Industry Limited
Products	Poly Bag, BOPP Bag, Sewing thread, Elastic, Gum Tape
Raw material	China (Raw yarn), Dyes chemical (Taiwan, India, Germany)

Assessment No: 13

Name of Industry	Al-Muslim Accessories Ltd.
Products	Price Tag, Hang Tag, All kinds of Label, Photo Inlay, All Kinds of Sticker, Collar Insert, Garments Print, Printed Fabric Label, Screen Print, Embroidery, Twill Tape, Belt, Elastic, Lace, Drawstring, Draw Cord, Embroidery ETC.
Raw material	We are purchasing the Raw materials from the different countries around the world like, Scotland, Germany, Finland, Taiwan, Malaysia, USA, China & Thailand. They will provide list per email

Assessment No 14:

Name of Industry	Babylon Trims Limited
Products	Auto Carton, Manual carton, poly, offset printing, ball press, gum tape, backboard, zip lock, poly bag, plastic clip, collar insert.
Raw material	Australia (liner paper) Taiwan (Recycle liner medium paper), Thailand (Regular liner paper), Poland (chemical fluid), China (poly), Malaysia (BOPP for Gum), Korea (Liner paper), Indonesia (medium paper)

QUESTIONNAIRE FOR MEMBERS OF BGAPMEA

The study on: Guide members with necessary policy support to meet economic shock due to unpredictable nature of market price escalation of raw materials” under BGAPMEA INSPIRED Project

Name of the Organization:.....
 Address with e-mail:.....
 Year of establishment:.....Contact person.....Tel #.....
 Sub-sector:.....
 Legal status of the co.(Private Limited/Proprietorship)(pl. tick)
 Name of Product(s)manufactured:1:.....2:.....3:.....4:.....5.....
 (if more pl. add).....

Name of Product with HS Code	Major raw materials used for the product with HS code	Average itemized raw materials price in last 5 years (year wise)	Itemized Custom Duty, VAT, AIT, DSC for raw materials (year wise)	Sources of Raw materials (imported or local)	Name of vendors and country of origin
1	1	1	1	1	1
	2	2	2	2	2
	3	3	3	3	3
	4	4	4	4	4
	5	5	5	5	5
2	1	1	1	1	1
	2	2	2	2	2
	3	3	3	3	3
	4	4	4	4	4
	5	5	5	5	5
3	1	1	1	1	1
	2	2	2	2	2
	3	3	3	3	3
	4	4	4	4	4
	5	5	5	5	5
4	1	1	1	1	1
	2	2	2	2	2
	3	3	3	3	3
	4	4	4	4	4
	5	5	5	5	5
5	1	1	1	1	1
	2	2	2	2	2
	3	3	3	3	3
	4	4	4	4	4
	5	5	5	5	5

NOTE: 1. Price trend for major raw materials in last 5 years upward/downward/fluctuating: reason- change in int. and local demand/exchange rate fluctuation, local duty etc.

2. Do you have any wastage control and cost control measures in your factory, if yes what are those?

3. Do you have Recycle and Reuse practices in your factory? Yes/No, if yes explain in brief.

4. Do you have any business diversification and expansion plan, if so what products & and how soon?

(if required pl. add more pages& any other information you may desire)