



Building future supply
to meet growing global
demand for packaging.

BUILDING THE FUTURE NOW

A CRITICAL DECADE

THE QUESTION BECOMES ONE OF BALANCE. HOW WILL WE AS A SOCIETY MANAGE GROWING DEMAND WITH APPROPRIATELY SOURCED SUPPLY? WHAT ARE COMPANIES DOING TO APPROACH THIS EVER-CHANGING GLOBAL PICTURE?

PACKAGING THE GROWING MIDDLE CLASS

The flourishing global middle class, specifically in the developing world, is having an immediate and dramatic impact on the packaging industry. Over the next few decades, the 'global middle class' is projected to more than double, from 430 million in 2000 to 1.2 billion in 2030 – from 7.6 percent of the world's population to over 16 percent – according to the World Bank².

By definition, the middle class spend anywhere between US\$10 and US\$100 per day and consequently any increase in numbers drives economic growth as well as boosting consumption and investment.

The largest segment of this ever-expanding middle class will come from Asia, specifically from hundreds of millions of Chinese and Indian consumers. According to Reuters³,

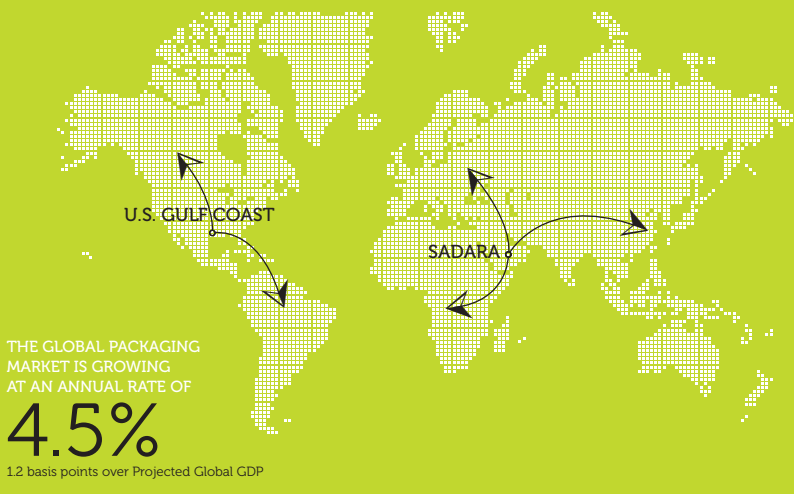
there will be a 70 percent drop in those living below the middle class standard by 2030. A report by Ernst & Young⁴ estimates that by 2030, two-thirds of the global middle class will be in Asia-Pacific while Europe's share will have dropped by 14 percent. To put things into perspective, currently 525 million people in Asia identify themselves as middle class which is more than the total population of the EU! By 2030, the spending power of China's middle class alone will equate to nearly US\$10 trillion in goods and services⁵.

An expanding global middle class will drive an increase in demand for packaged goods such as drinks, pre-packaged convenience and packaged fresh foods (including milk, vegetables, meat and poultry). Lucintel's Analysis⁶ estimates that the global plastic packaging industry revenue is estimated to reach US\$271 billion in 2018.



SOURCING A GLOBAL SUPPLY

in



60,000

During construction of Dow's joint venture chemical project in Saudi Arabia – Sadara – the workforce will peak at around 60,000 people. This will require services and infrastructure much like a small city.

Growing consumer spending power as well as increased urbanization will likely result in a change in shopping habits – more supermarket shopping where consumers have more options to purchase packaged goods as opposed to shopping in specialty stores or local fresh food markets. Urbanization is expected to boost sales of healthcare plastic packaging, including personal care and cosmetics products, with the sector expected to see the highest growth rate by 2018⁷.

THE CHANGING FACE OF SOCIETY

Other influencing factors on packaging demand include the trend towards smaller households, meaning food must be repackaged to suit this purpose; the trend towards an 'on-the-go' lifestyle

is also a key influencer as consumers are increasingly looking for functional, prepackaged and convenience foods. This is also influenced by a changing family structure, an increase in women entering the workplace and longer working hours. Consequently, people have less time to purchase and cook fresh home-cooked meals and are looking for packaged alternatives. According to a recent survey by the Association of Chamber of Commerce and Industry of India, 82 percent of India's workforce in cities prefers to eat packaged food than eating fresh food or in a restaurant⁸. The results are based on families where both husband and wife work or single person households, highlighting clearly the need for fast and convenient solutions.

MEETING THE DEMANDS AND PREPARING TO GROW

The 2012 global packaging market was valued at US\$698 billion, a figure that will continue to rise with increased consumption. Although paper and board packaging make up the biggest chunk of this value, flexible plastic and rigid plastic are expected to see the highest growth levels in years to come – 4.5 percent and 5.5 percent respectively.

Let's take the specific example of Polyethylene (PE) – the basic building block of plastic packaging. Global demand continues to grow at a multiple of GDP – for every 1 percent growth in global GDP we expect a one MMT increase in PE. The long-term growth

opportunity for PE is tremendous, especially in developing regions (India, Africa, Latin America and South East Asia), if we take into account the predicted regional GDP growth rates. Population growth in these areas will also drive PE demand and growth.

Consequently, it is important for companies, such as Dow, to continue to invest in projects to enhance feedstock strength and meet growing demand around the world. An example of investing for growth is the Sadara project. In 2011, Sadara Chemical Company (Sadara), a joint venture developed by Dow and Saudi Arabian Oil Company (Saudi Aramco), was formed to ensure customers in developing regions have a constant and reliable supply of high-performing products. Comprised of 26 manufacturing units, the joint venture will be one of the world's largest integrated chemical facilities and the largest ever built in a single phase. Sadara will possess flexible cracking capabilities and produce more than three million metric tons of high-value performance plastics and specialty chemical products, capitalizing on rapidly growing markets in energy, transportation, infrastructure and consumer products, including

packaging. Location wise, Sadara is a prime spot as it will ensure product can be delivered to the world's fastest-growing regions such as Asia-Pacific, the Middle East and Eastern Europe.

To service demand in the Americas, Dow announced plans in 2011 to invest approximately US\$4 billion in projects along the United States Gulf Coast to leverage the abundant supply of natural gas currently being produced in North America. These investments will strengthen the company's integration to create a competitive advantage based on lower feedstock costs that will enhance the profitability and competitiveness of Dow's downstream businesses, including Performance Packaging.

It is clear that with a growing middle class comes increased spending power globally and a shift in buying habits that will drive demand for high-performance packaging that meets consumer preferences. Materials manufacturers like Dow will need to continue to invest in new assets to grow with the packaging industry. These investments in turn will strengthen local economies, create an influx of jobs and build durable foundations for the development of packaging innovation.

SADARA IN NUMBERS



During construction, one large ship per day will arrive requiring offloading and transport of over 450 trucks of materials from the ports to the marshalling yards.

5,400 km of cable

The complex will require 5,400 km of cable... enough to run from Jubail to London.

720,000 sqm

Facilities needed to perform the pipe fabrication, stress relieving, sandblasting, painting and testing will require 720,000 square meters of shop floor, the equivalent of 176 football fields.



80,000 tons

The amount of steel needed to build Sadara would build eight London Olympic Stadiums.



The amount of pipe would build two lines from Jubail to Jeddah – the entire width of Saudi Arabia.

1 World Resources Report 1996-97, World Resources Institute in collaboration with the United Nations Environment Programme, the United Nations Development Programme, and the World Bank (Oxford University Press, New York, 1996), p.3

2 Emerging Focus: Rising middle class in emerging markets, EuroMonitor International. <http://blog.euromonitor.com/2010/03/emerging-focus-rising-middle-class-in-emerging-markets.html> (March 2010)

3 Homi Kharas, The Emerging Middle Class in Developing Countries, Brookings Institute, <http://siteresources.worldbank.org/EXTABCDE/Resources/7455676-1292528456380/7626791-1303141641402/7878676-1306699356046/Parallel-Session-6-Homi-Kharas.pdf> (June 2011)

4 Hitting the Sweet Spot – The growth of the middle class in emerging markets, Ernst & Young, [http://www.ey.com/Publication/vwLUAssets/Hitting_the_sweet_spot/\\$FILE/Hitting_the_sweet_spot.pdf](http://www.ey.com/Publication/vwLUAssets/Hitting_the_sweet_spot/$FILE/Hitting_the_sweet_spot.pdf) (April 2013)

5 Homi Kharas, The Emerging Middle Class in Developing Countries, Brookings Institute, <http://siteresources.worldbank.org/EXTABCDE/Resources/7455676-1292528456380/7626791-1303141641402/7878676-1306699356046/Parallel-Session-6-Homi-Kharas.pdf> (June 2011)

6 Global Plastic Packaging Industry 2013 – 2018: Trend, Profit and Forecast Analysis, Lucintel, http://www.lucintel.com/reports/chemical_composites/global_plastic_packaging_industry_2013-2018_trend_profit_and_forecast_analysis.aspx (March 2013)

7 Ibid

8 Survey: Ready to Eat Food in Metropolitan Cities, Associated Chambers of Commerce & Industry in India, <http://www.assochem.org/> (January 2011)

