

P L A S T I C S

At work for a sustainable future

- sustainable development is the driving force for acting more responsibly to protect our world for future generations. It encompasses a combination of environmental, social and economic aspects

- industry has a key role to play: plastics, and the plastics industry, play their part in contributing to sustainable development

ENVIRONMENTAL PROTECTION – plastics help save resources – oil, other fossil fuels, water and food. Due to their light weight and being specially tailored to the demands of the application, plastics use less to do more and waste is also minimised as a result

ECONOMIC DEVELOPMENT – the plastics industry adds value to society through the significant employment and wealth it creates. The wider plastics industry in Western Europe employs over a million people and plastics consumption consistently outpaces national GDP across the world

SOCIAL PROGRESS – plastics' vital role in modern technologies and medicine gives access to higher standards of living, healthcare and information to an ever growing proportion of the world's population

- the plastics industry continues to innovate – new products, systems, technologies – in order to advance its contribution to a more sustainable society

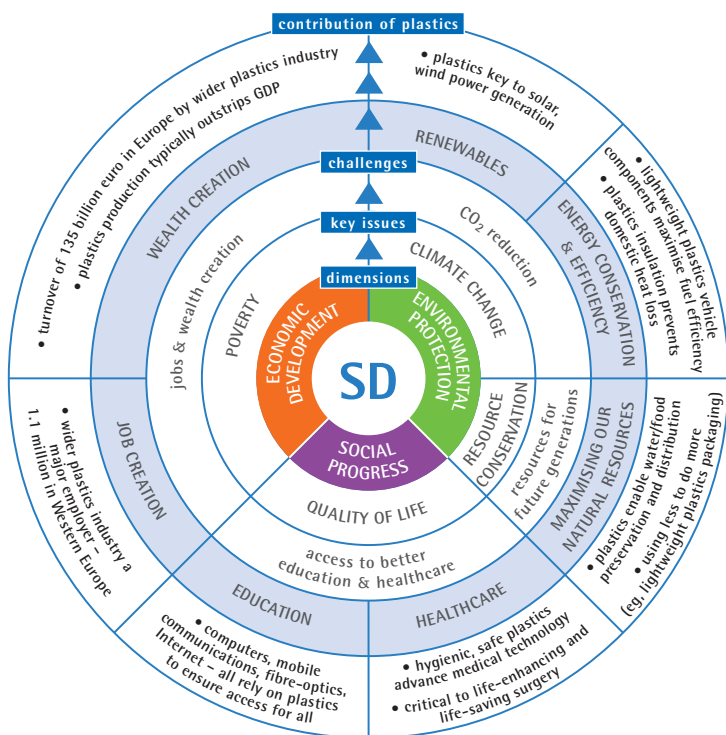


ASSOCIATION OF PLASTICS
MANUFACTURERS IN EUROPE

INTRODUCTION

MEETING THE NEEDS of the present generation without compromising the needs of future generations Source: Brundtland Commission

Everyone is increasingly aware of the need to act more responsibly to protect our world for future generations. This is crystallised in the drive for 'sustainable development' – acting in a way which does not limit the range of economic, social and environmental options available to our grandchildren.



Plastics – integral to sustainable development

This document aims to highlight how plastics are making a substantial contribution towards all three dimensions of sustainable development – and how the exceptional properties of plastics are an essential component of a sustainable economy. In saying this, the industry is aware that it cannot be complacent. We must continue to innovate – develop new products, technologies and systems – and learn from experience in order to advance our contribution to a more sustainable society.

Sustainable development represents the simultaneous pursuit of economic development, environmental protection and social progress. Economic development seeks to bring benefits such as improved education, healthcare and overall quality of life to all strata of society and to all regions of the world. Environmental protection focuses on ensuring the security and

quality of our ecosystems and biodiversity for future generations; where systems are already damaged there needs to be a programme of restorative measures. Social progress fosters and protects human rights and cultural diversity in the workplace, in the community and in society generally.

As governments and business focus on the transition to sustainability, they increasingly recognise the need to balance the often conflicting challenges of economic development, environmental protection and social progress.

Each of these dimensions of sustainable development poses a different challenge. The plastics industry is committed to making a positive contribution to each of these challenges:

- promoting economic development through jobs and wealth creation
- applying both established and innovative polymer technologies to conserve resources and reduce atmospheric CO₂ – the key environmental challenges
- combining the exceptional properties of plastics with advances in information technology and medical science to provide better access to education and healthcare for all.

The rest of this document illustrates the exceptional role plastics already play in the pursuit of sustainable development and the extraordinary potential to bring innovative solutions to the full range of challenges facing society as we enter a new millennium.

Saving more resources than they use

"Ultimately it is necessary to ask why we are using these materials in the first place and whether they are necessary" (Greenpeace)

PLASTICS ONLY consume a small fraction – four per cent – of the world's oil. This fraction is used so effectively that fossil fuel reserves last longer as a result. In fact, it is estimated that the use of plastics as a whole actually saves more oil than needed for their manufacture.

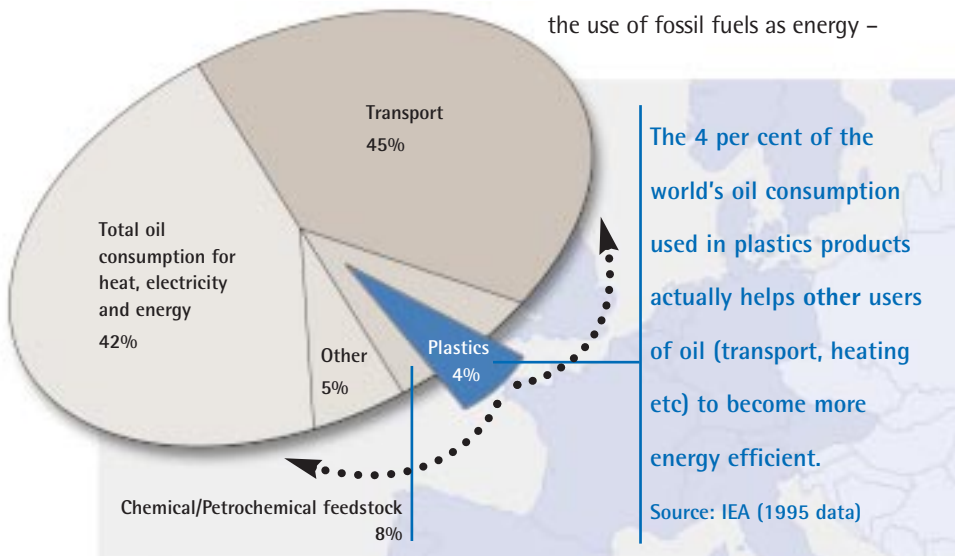
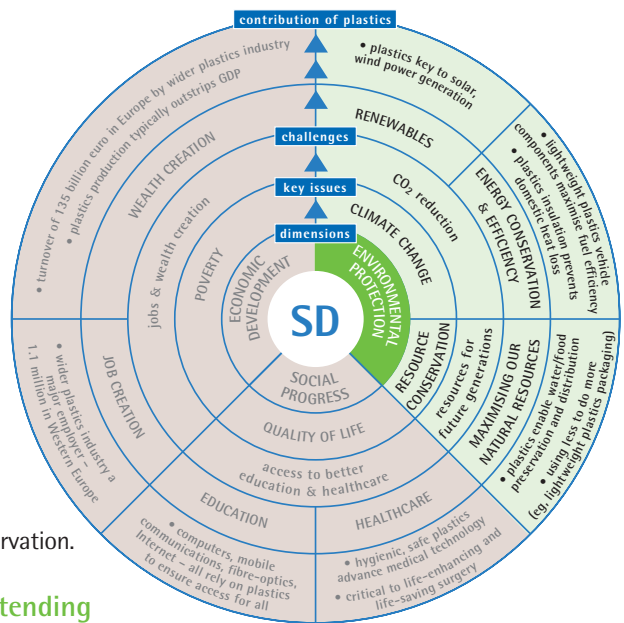
Plastics nowadays are lighter, yet stronger and more adaptable, than

include preservation of other natural resources such as water and food.

Possibly no other material can match the way plastics combine the characteristics of meeting applicational demands in tandem with resource preservation.

Energy efficiency – extending the life of fuel reserves and reducing the rate of climate change

Climate change is directly influenced by the use of fossil fuels as energy –



is estimated that 12 million tonnes of oil are saved each year through fuel efficiencies from lightweight plastics vehicle components – leading to a subsequent reduction in CO₂ emissions of 30 million tonnes a year. In addition, at the end of the plastics' life, the energy equivalent of up to 1.9 million tonnes of oil is available for recovery using an optimum combination of recovery techniques

▶ Taking the specific example of a bumper beam, energy balance calculations show that using lightweight plastics in place of heavier, traditional materials results in approximately four times as much energy being saved over the lifetime of a car than is used in the manufacture of the plastics

■ energy reserves are also conserved through better building insulation using expanded polystyrene or polyurethane foam insulation. In a typical house, it is estimated that the energy equivalent to that needed to produce insulation in the

ever before, thanks to continuing technological innovation. This opens up a huge range of uses for plastics yet at the same time means that, product for product, proportionally less of the world's oil and energy resources are being used, with lower overall impact on the environment.

In addition to direct energy savings, plastics' contribution to environmental protection also impacts on a number of different areas. These

heating and transport are the two largest users of oil in this respect. However, the impact of this on our climate can be – and is being – reduced by using plastics in many of today's products, to minimise the amount of oil and coal combusted. For example:

■ in Western Europe, the automotive sector uses 1.7 million tonnes of plastics a year, requiring the equivalent of 3.25 million tonnes of oil to make. However, it

PLASTICS contributing to environmental protection

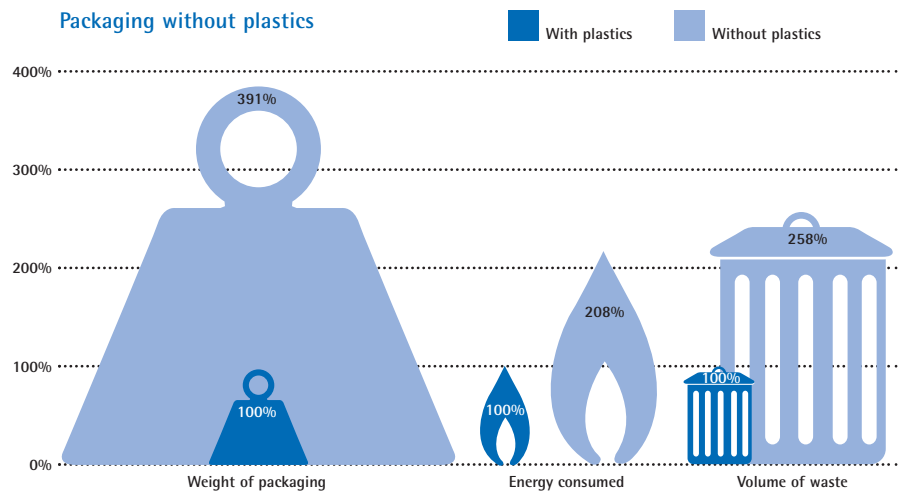
first place is saved after only one year of use. The CO₂ reduction in the same period is two to five times higher compared to CO₂ caused in production. Over a 30-year lifespan, these figures rise to 40–60 times higher savings compared to production for energy and 10–40 times higher savings compared to production for CO₂ emissions

- by increasing the amount of plastics foam insulation in a typical refrigerator by 15mm, energy efficiency is significantly improved – over the lifetime of the appliance, approximately 17 times as much energy is saved as is used in the manufacture of the foam

- some 42 per cent of plastics consumption in Europe is used for packaging. Food packaging is a significant part of that total and in helping preserve food, plastics prevent wastage both of the food itself and the energy used to create it in the first place. In fact, energy balance studies of the food energy chain

Some 40–50 per cent of all Europe's goods are packaged in plastics, yet these same plastics by weight account for only 10 per cent of all packaging. Plastics packaging increasingly uses less to do more – in fact plastics packaging for a given unit has seen an average decrease in weight of approximately 28 per cent in the last 10 years. This contributes to sustainable development, as without it, plastics packaging consumption would be around 13 million tonnes a year rather than the current 10 million tonnes.

After their life, plastics continue to contribute to sustainable development. Waste is minimised due to increasingly lighter and smaller plastics goods (plastics waste represents less than one per cent of Europe's waste by weight). A range of recovery options ensures that some 25 per cent of that waste is recovered, and this will increase.



show that using plastics for food packaging can lead to energy savings which total well over twice the energy needed to produce, fill and transport the packaging in the first place. Because of their ability to pack more using less, the energy efficiency of plastics packaging is unrivalled compared to other materials

- without plastics packaging, overall packaging consumption would increase 291 per cent by weight, leading to an increase in manufacturing energy by 108 per cent and volume of waste by 158 per cent (source: Gesellschaft für Verpackungsmarktforschung 1991, Germany)

- alternative, renewable energy sources such as solar and wind power, are an important contributor to preserving fossil fuel reserves. Plastics are integral to the design of environmental technologies such as these – for example wind turbines, solar panels – and in this way also help extend the life of our fossil fuel reserves.

Preserving other valuable resources

Plastics play a vital role in preserving and distributing essential food and water economically and reliably to a growing world population.

- over 1 billion people lack routine access to water supplies and around 35 per cent of all developing world deaths are due to contaminated water. Around 3 billion people have no basic sanitation

services. In many areas of the world where water is scarce, conservation and irrigation systems help retain water and distribute it – either for domestic or industrial use or for growing crops. Plastics are a favoured choice in many of these applications due to their cost effectiveness, ease of transportation and assembly and durability

- plastics-based agricultural systems provide effective solutions to crop growing in many areas of the world which demand special growing conditions for food crops

- food wastage in Europe is kept low (two per cent) – due in part to plastics packaging (which accounts for 60 per cent of all food packaging). It is estimated that food wastage in the developing world – where plastics packaging and refrigeration are much less widespread – stands at 50 per cent. Not only does this lead to food shortages, but also to further wastage of the energy used to produce food in the first place.



IMAGINE THE POTENTIAL

Examples of how plastics are contributing to environmental protection

Optimising water usage – and increasing agricultural output in China

PLASTICS FILM is helping Chinese farmers grow high-yield paddy rice on stretches of the Badain Jaran desert between Inner Mongolia and Gansu. The process saves 60–80 per cent of desert water and increases crop yield by between 1,500kg and 3,000kg per hectare compared with ordinary farmland.

The plastics sheeting is used to line 20cm deep furrows into which the rice is planted and helps to preserve



both water and nutrients. The sheeting can be used for five years and irrigation costs can be cut by between one and two thirds. The scheme has

received a Best Practice Award from the United Nations Development Programme on World Desertification and Drought Prevention Day.

Solar energy – plastics' contribution to a clean, alternative energy source

TAPPING THE sun for energy (photovoltaic energy) is bringing clean and efficient energy to around 2 million people worldwide who do not have access to national transmission systems.



Photovoltaic cells, which help convert the sun's energy to usable domestic power, are made from plastics. Some examples include:

- the Philippines, where a scheme is underway to bring electricity to 400 people on two islands
- a project to install solar power in remote villages in the Algerian Sahara
- Ethiopia – where solar energy is providing a reliable power source for medical refrigerators and lighting kits in remote areas

The production of polycrystalline cells for solar power has in itself become a thriving industry sector, leading to significant employment opportunities.



smart way to reduce fuel consumption and emissions

THE SMART, the new compact city car from DaimlerChrysler, is a perfect example of how the innovation made possible with plastics also brings environmental benefits.

The car features a range of high-quality thermoplastics parts, bringing flexibility to design, and allowing owners to adapt the colour and style of their car.

However, more importantly, the light weight of these plastics means that, on average, the car uses only 4.8 litres of fuel every 100km and emits less than 120g of CO₂ per kilometre.

Improving energy efficiency through insulation



FROM CELLAR to roof, plastics insulation can play a vital role in conserving energy.

In northern European countries, almost a quarter of total energy consumption is used for domestic heating. However, thanks to the tremendous insulating properties of plastics, this can and is being reduced considerably.

With only one thousandth of the thermal conductivity of stone, a single centimetre of plastics foam is equivalent to the heat insulation of brickwork 15cm thick

or a concrete wall some 50cm thick. An example of how these properties can be exploited can be seen in the development of a new, quick-build house which was recognised by the prestigious WEKA architecture competition in Germany.

Made extensively from plastics, the design has an extremely low energy consumption ratio compared with traditional houses of the same size. This is largely thanks to rigid foam insulation used as part of the prefabricated wall and roof elements.

Polymer-based solutions to desert irrigation in Arizona

(source: *Factor Four*, Ernst von Weizsaecker)

SUNDANCE FARMS in Arizona introduced plastics-based subsurface drip irrigation systems during the 1980s and has seen water efficiency increase to almost 95 per cent from 60 per cent, so that now almost no water is lost in the irrigation process.

Drip lines are buried 20-25cm in the soil and emit small amounts of water directly into the plant root area, leaving the soil surface dry and resistant to evaporation. Knock-on effects include 50 per cent less energy use due to reduced reliance on deep well turbines and an increase of up to 50 per cent in crop yields.

Solution to water distribution in the developing world

THERE ARE many communities around the world in which the only form of transport is by foot – this provides real difficulties in effective water distribution. In the mountainous regions of Nepal, for

“WaterAid has been able to bring clean, safe water to more than 5.5 million people in the developing world, thanks, in part, to plastic piping”

SIMON TRACE
Regional Manager for Asia, WaterAid

example, where communities implement their own sanitation systems and rely on gravity-fed water supply, plastics are the only sensible solution.

Plastics piping systems are light, flexible and easy to carry. Their flexibility ensures durability and lifelong, watertight joints. Plastics pipes are also economical to use. With the support of WaterAid, a charity specialising in water supply, sanitation and hygiene promotion work in the developing world, more than 5.5 million people have gained access to safe, clean water, thanks to the use of plastics pipes.



Adding value through wealth creation

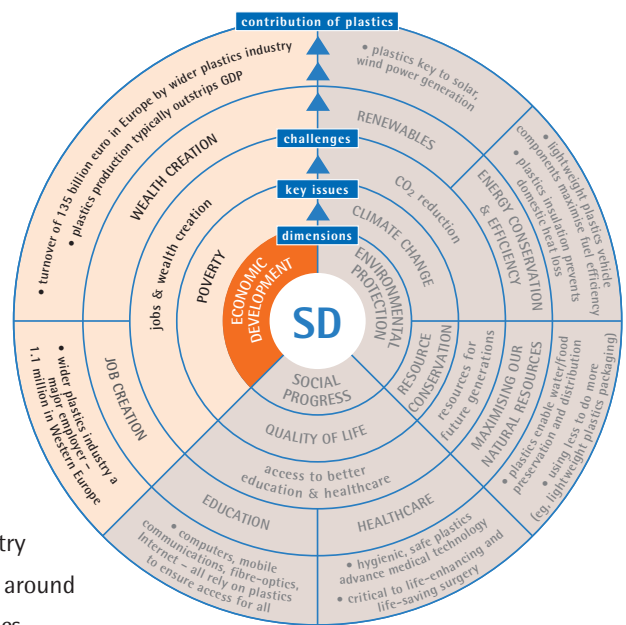
AS PART of the second largest business sector in the EU – chemicals – the plastics industry and its products make a significant contribution to responsible economic development.

Since the first synthetics were created around a century ago, and particularly since the 1950s, the use of plastics has increased enormously. They now take many shapes and forms and are used in a huge number of ways – from the simple plastic bag or ballpoint pen, to high tech, high performance structural components in automobiles and spacecraft.

One of the impacts of this growth has been on economic development,

For example, in Western Europe around 1.1 million people are employed by the wider industry chain (approximately 70,000 in the plastics manufacturing industry). This broader plastics industry has an annual turnover of around 135 billion euro. The plastics manufacturing industry invests 700 million euro in R&D annually.

Along the supply chain – from raw material processing to the manufacture of products which rely on plastics – the industry adds value to society through the wealth



and employment it creates. This makes it a major contributor to economic development in many areas of the world.

In Western Europe, around 45 mainly multinational companies produce the basic polymer which is sold to around 30,000 small- and medium-sized companies. These, in turn, convert the polymer into products for use in many sectors – for example, packaging, automotive parts and electronic equipment.

The industry chain can best be seen in emerging markets where the growth of a converting industry to produce for local consumption and export precedes the construction of large polymer production plants.

with the establishment of small- and medium-sized companies to convert plastics into useful products for all major sectors of the economy.

In employment terms, the industries directly linked to plastics production – such as converters and machinery manufacturers – as well as the polymer producing industry, are significant employers in many parts of the world.



PLASTICS contributing to economic development



Another way of looking at the contribution the plastics industry can make to economic development is by examining the relationship between plastics' growth rate and GDP. Plastics consumption generally outpaces GDP in most countries with the difference being most marked in developing world and emerging markets, where this can be by a factor of up to five. This is largely a result of the natural growth of

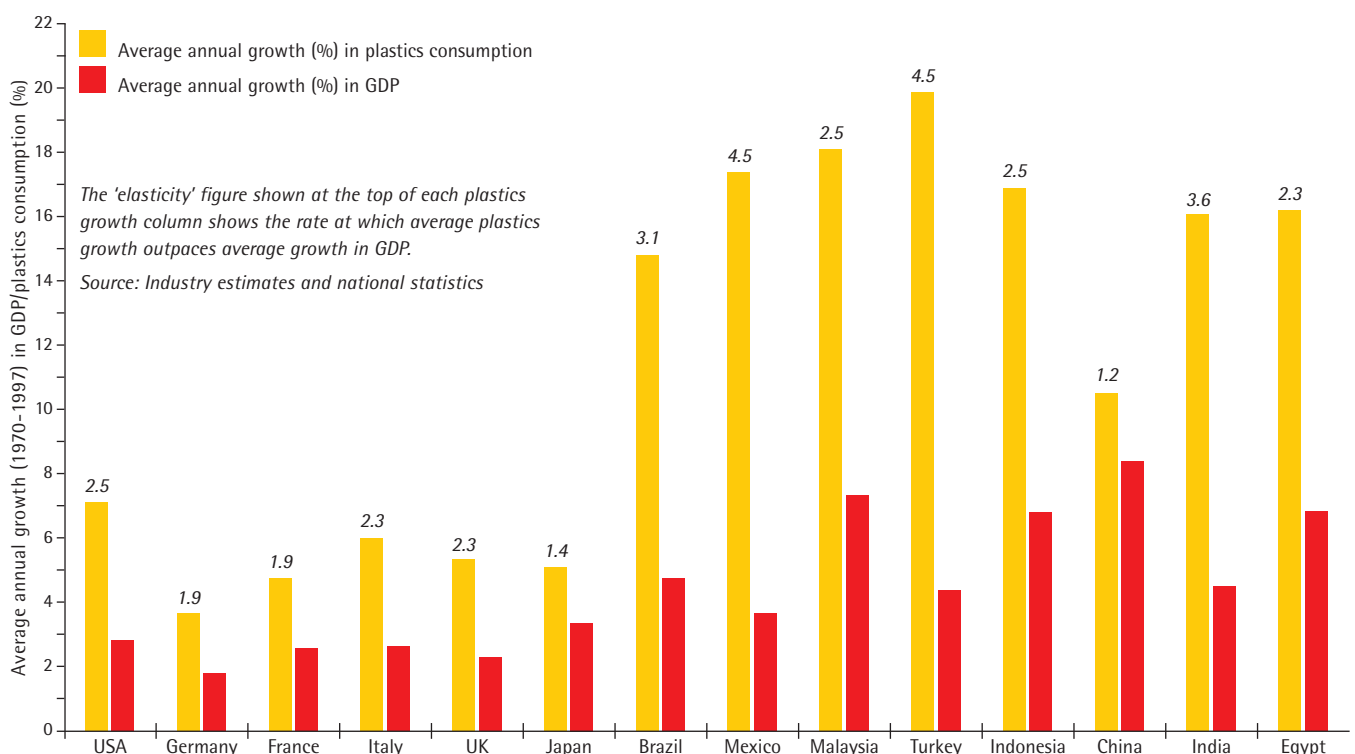
consumer demand in developing markets for products and services which rely on plastics – for example, in communications, technology, healthcare and transport. The graph below shows how plastics' consumption has outpaced GDP in various countries during the period 1970-1997.

However it is not just in terms of economic wealth and job creation that such markets can benefit

from the plastics industry. New technologies for plastics production and processing are being adopted to 'leapfrog' older technologies. In doing so, this allows developing nations the benefit of introducing modern technologies and facilities without having to go through the painful and time-consuming learning processes already undergone where the technology/product/production facility was first developed.



Growth in plastics consumption relative to growth in GDP (1970-1997)



IMAGINE THE POTENTIAL

Examples of how plastics are contributing to economic development

Polish 'Plastics Valley' brings new growth

THE PLASTICS industry is at the centre of an innovative 'industrial cluster' project in Tarnow in south east Poland which is intended to ensure a 'fast-track' to establishing enterprises in the area.

The first of its type in Central Europe, the 'Plastics Valley' project includes Polish polymer companies at its heart and aims to attract businesses which focus on plastics processing. The concentration of companies from one industry sector offers benefits in terms of reduced logistics costs because of easy

"The creation of a so-called 'fast track' for investors in one industrial sector like this is as important as providing suitable land, raw materials and personnel."

URSULA GACEK

availability of raw materials and components, access to appropriate technology and expertise. The project brings new industry to both derelict industrial land and suitable prime industrial sites in the area.

Ursula Gacek, President of the new company that manages the project, comments: "The creation of a so-called 'fast track' for investors in one industrial sector like this is as important as providing suitable land, raw materials and personnel."

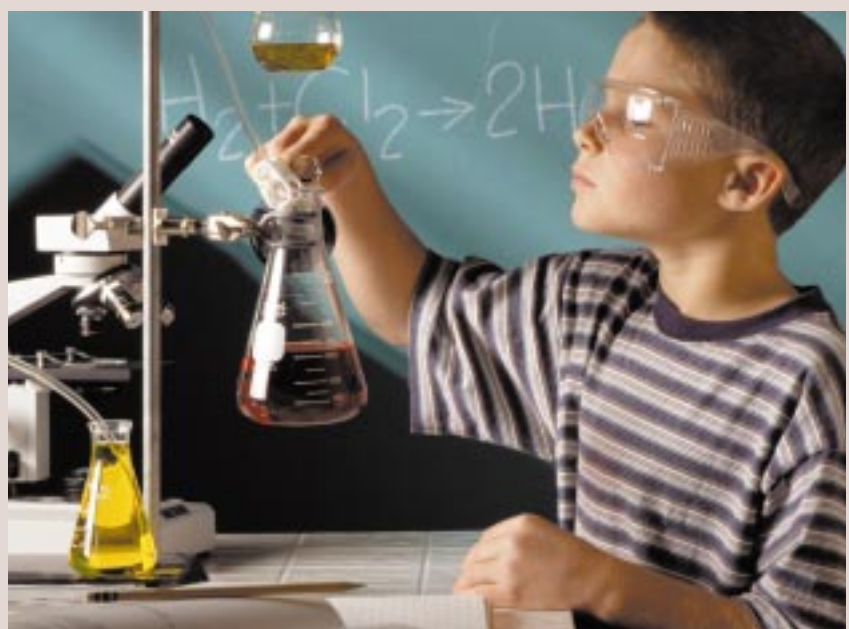


Job creation reaps social benefits in southern Spain

A NUMBER OF community projects – together with employment opportunities – have resulted from a polymer producer's investment in an economically under-developed area in Spain. The setting up of a plastics packaging plant in San Roque, southern Spain – an area of 30 per cent unemployment – resulted in the creation of 120 direct jobs. Around

100 others have since been created in ancillary services and industries as a consequence of this new plant. A second plant, employing 25 people, is currently being built.

Subsequent community projects set up include a schools programme aimed at keeping the region's beaches clean and funding for local schools' summer chemistry classes to improve children's education.



Industrial regeneration in eastern Germany

A MAJOR PLASTICS manufacturer is working toward sustainable development with its European ValuePark at Böhlen and Schkopau in eastern Germany. ValuePark allows investors and customers to enter the rapidly growing Central and Eastern European markets with minimum risk.

"I am pleased about the adoption of this philosophy. The public is informed about ValuePark and involved in every application and approval procedure. Already 400 workplaces out of the 700 estimated have come to fruition and ValuePark continues to grow."

DETLEF ALBRECHT

It represents a commitment by the manufacturer and the German petrochemical complex, BSL, to bring jobs and economic growth to this important region.

ValuePark is a system that reduces transportation costs, waste and environmental impacts, through efficient use of integrated waste and resource management. It builds on the technological expertise of the local workforce, spurs business growth, and enhances the area's economy in an environmentally responsible way.

The public authorities have responded to such business development with considerable support.

Detlef Albrecht, Mayor of Schkopau, Germany and member of the Community Advisory Panel, comments: "I am pleased about the adoption of this philosophy. The public is informed about ValuePark and involved in every application and approval procedure. Already 400 workplaces out of the 700 estimated have come to fruition and ValuePark continues to grow."



Plastics fuel economic growth for Spanish agricultural community

THE INTRODUCTION of plastics-based irrigation systems, greenhouses and films – 25,000 hectares under plastic in total – has tripled the horticultural

output in the Almeria region of southern Spain and transformed the local economy, which had been in dire straits in the late 60s.

The region is now Spain's major

horticultural centre and one of the provinces with the highest economic growth index of the last three decades. More than half of the largest Spanish exporters in this sector now come from Almería. This growth has led to the setting up of an infrastructure which today includes producer co-operatives, marketing services, plastics film manufacturers (the largest concentration in Europe), agricultural equipment suppliers, greenhouse and irrigation specialists and plastics recycling facilities.



Access for all



PLASTICS OFFER a range of benefits to society at large – helping in its advancement and standard of living.

Access to information/education

One of the main areas where plastics have come to play an increasingly significant role in recent years is the opening up of information to a far greater proportion of the world's population than previously thought possible.

Computer technology, the Internet and mobile communications are areas of exponential growth – never before has mankind been in a position to benefit from such easy access to information and knowledge. Equipment – such as computers and telephones – is becoming increasingly smaller, lighter and less expensive, thereby opening up the possibilities of access to a much greater number of people. The portability and affordability of much of the hardware which allows this would be impossible without plastics.

Access to improved living standards

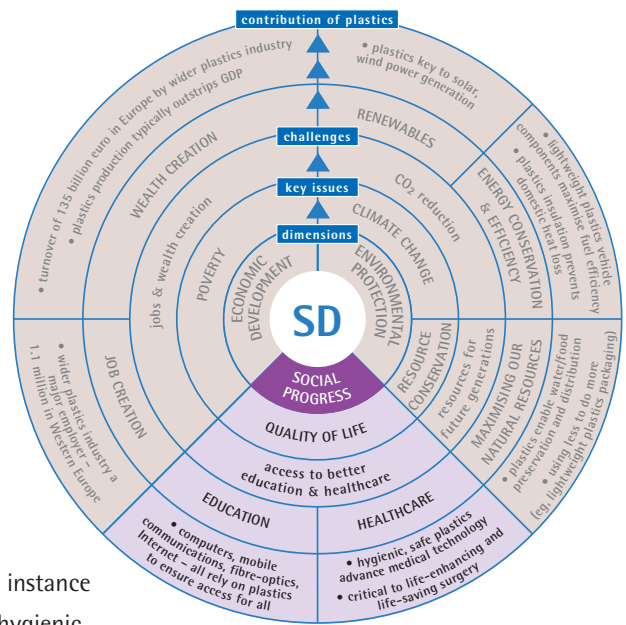
Longer life expectancy derives not only from the remarkable pharmaceutical developments of the

twentieth century, but also from the plastics-based technologies which make life-saving and life-enhancing surgery possible – for example heart valves and hip joint replacement. Even fundamental medical care involves plastics – for instance in blood bags, disposable, hygienic medical instruments, safer spectacles, contact lenses and gradual delivery of medicines via capsules and patches. All of these make better and longer lives a reality for both richer and poorer in society, in both developed and developing nations.

Affordability of consumer goods

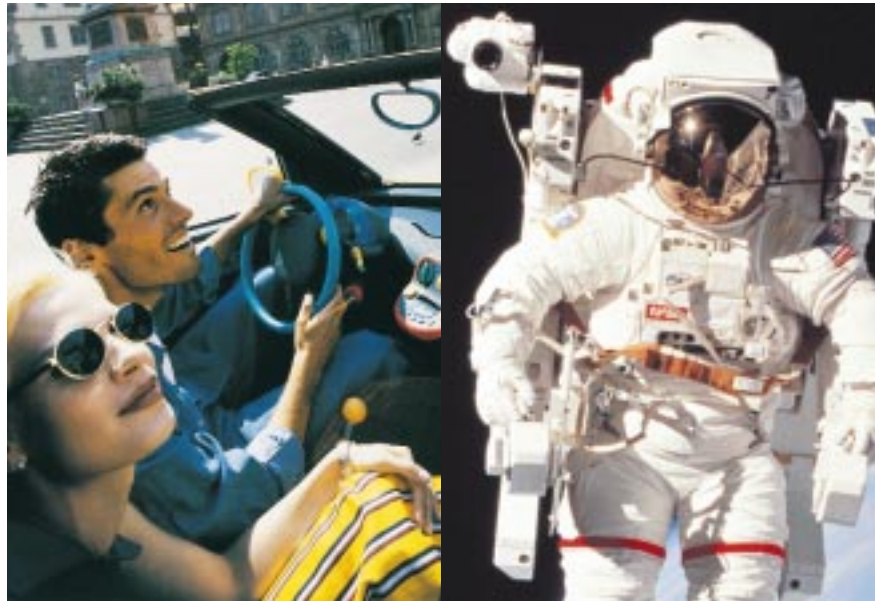
Plastics are at the heart of virtually every technological advance. Modern lifestyles in the developed world involve the use of goods and technologies which would not be affordable – and in many cases not possible to mass produce – were it not for plastics. In emerging markets and the developing world, plastics are starting to enable the provision of

cleaner and more sanitary living conditions through the supply of affordable and resource efficient sanitation and appliances.



PLASTICS contributing to social progress

Plastics are vital components in mankind's hugely increased mobility. The ability to travel and communicate has made the global village a reality and plastics – integral to so many forms of transport and communications from the mobile telephone to the motor car – can truly be said to have helped bring the world together. In the latter part of the 20th century, plastics have been at the forefront in extending our horizons still further – through space travel and exploration – bringing exciting possibilities for the future of mankind.



IMAGINE THE POTENTIAL

Examples of how plastics are contributing to social progress



Plastics packaging extends drug life, improves hygiene in the tropics

TROPICAL CLIMATES can have a serious effect on the life of pharmaceutical products, which deteriorate quickly in the hot and humid conditions. Plastics-coated blister packaging protects drugs in these countries as the barrier properties of the material prolong the shelf-life and provide tamper-proof security.

Innovation in heart surgery with plastics playing a vital role

A TEAM OF heart specialists and space engineers from NASA have devised a radically new plastics-based solution to assisting the heartbeat and extending a patient's life until a donor organ becomes available for

transplant, or until their own heart is sufficiently recovered for successful surgery.

While others have tried to design devices that mimic the heart, the team discovered that, as long as it could pump ten litres of blood a

minute without damaging blood vessels, a machine needn't use the same pulsating action as the human heart. Armed with this knowledge, they developed a propeller the size of a fountain pen, based on the same principal as pumps used in the space shuttle to move large amounts of fuel at low pressure. The device is sewn onto the heart so that blood can bypass the heart's main pumping chamber.



Eradicating disease in the developing world

NYLON FILTER cloth is helping to further a US \$7.5 billion World Health Organization effort to wipe out infectious diseases worldwide by 2030 by directly targeting one of them – Guinea worm disease (dracunculiasis).

A special nylon monofilament cloth filters out Guinea worm larvae from drinking water and millions of square feet are now in use in Asia and Africa. As a result, Guinea worm disease is poised to become only the second disease in the history of the world to be eradicated (smallpox was the first).

The Carter Centre – responsible for administering the scheme – claims that the annual incidence of Guinea worm disease has been reduced by more than 95 per cent. Fifteen years ago, it was estimated that more than 3.2 million cases of Guinea worm disease occurred, and more than 100 million

people were at risk of infection. Today, about 150,000 cases remain in the world.



Community action across the globe

A NUMBER OF the world's oil, chemicals and plastics companies are actively involved in community action in the developing world and emerging markets – as well as in the developed world. One multinational, for example, works with partners (such as community

organisations, government bodies and NGOs) on over 2,000 programmes and distributes funds in 33 countries, where it has a presence. Such programmes require a total of 130 full time employees of the company to run and directly benefit 40 million people. They include:

- blackwood tree conservation initiative in Tanzania
- an environmental science education schools programme across 1,500 schools in Europe, Africa, the Americas and Asia Pacific
- a community regeneration programme in a socially deprived area of South Wales
- language training and youth facilities investment in an economically depressed area of Far East Russia
- economic, conservation and education self-help initiatives encouraging sustainable development set up in Colombia and Venezuela
- sustainable healthcare programmes in a number of areas which encompass medical assistance and training of local health officials, preventive healthcare and hygiene. In Venezuela, for example, one community saw infant mortality rates drop by 34 per cent, malaria by 83 per cent and TB by 60 per cent as a result of such a programme



Extending the global information society

DUE TO the rise of e-commerce in today's global economy, the amount of data to be transferred is increasing at the rate of 300 per cent every year compared with just five per cent for telephone calls. It is estimated that by the year 2000 there will be more than 150 million Internet users worldwide and 240 million users by 2002, with data exchange taking over from telephone calls in terms of importance in the first half of the next century.



While polymer optic fibres have been available for 30 years, their importance and use in enabling effective data flow is vital to this growth. They are flexible, unaffected by magnetic fields and cost efficient, providing the essential lines which maintain communication across the world.

Thousands of kilometres of these polymer fibre optic cables continue to be installed at the bottom of the world's oceans and seas in a bid to meet this surging demand. These cables will eventually link every corner of the world to the global information network.

Plastics industry supports Red Cross

THE BELGIAN plastics industry supported the Belgian Red Cross to build a camp for 2,500 Kosovan refugees in Albania in April 1999.

Within three working days, plastics manufacturers and converters produced and welded 21,000m² of PVC sheeting which was shipped to Albania for use as flooring.

The camp, with 700 tents for living quarters, cooking, medical and storage facilities, was set up by the Belgian army and then handed over to the Belgian Red Cross.

Providing shelter for 100,000 people worldwide

PLASTICS-BASED insulation materials are being used to improve and build housing worldwide, and one manufacturer's partnership with Habitat for Humanity International is a good example of how use of such products can address important economic, environmental and social needs.

The company's support for Habitat for Humanity was established in the early 1980s – donating insulating foams, sponsoring Habitat homes and contributing labour resource. This is helping Habitat reach its goal of building 100,000 homes for and with people in need by the end of this century.

All in all, since 1994, the company has donated more than US \$2 million in financial support and products. As the official supplier of insulation materials through to 2001, it will donate an estimated US \$1.3 million of product

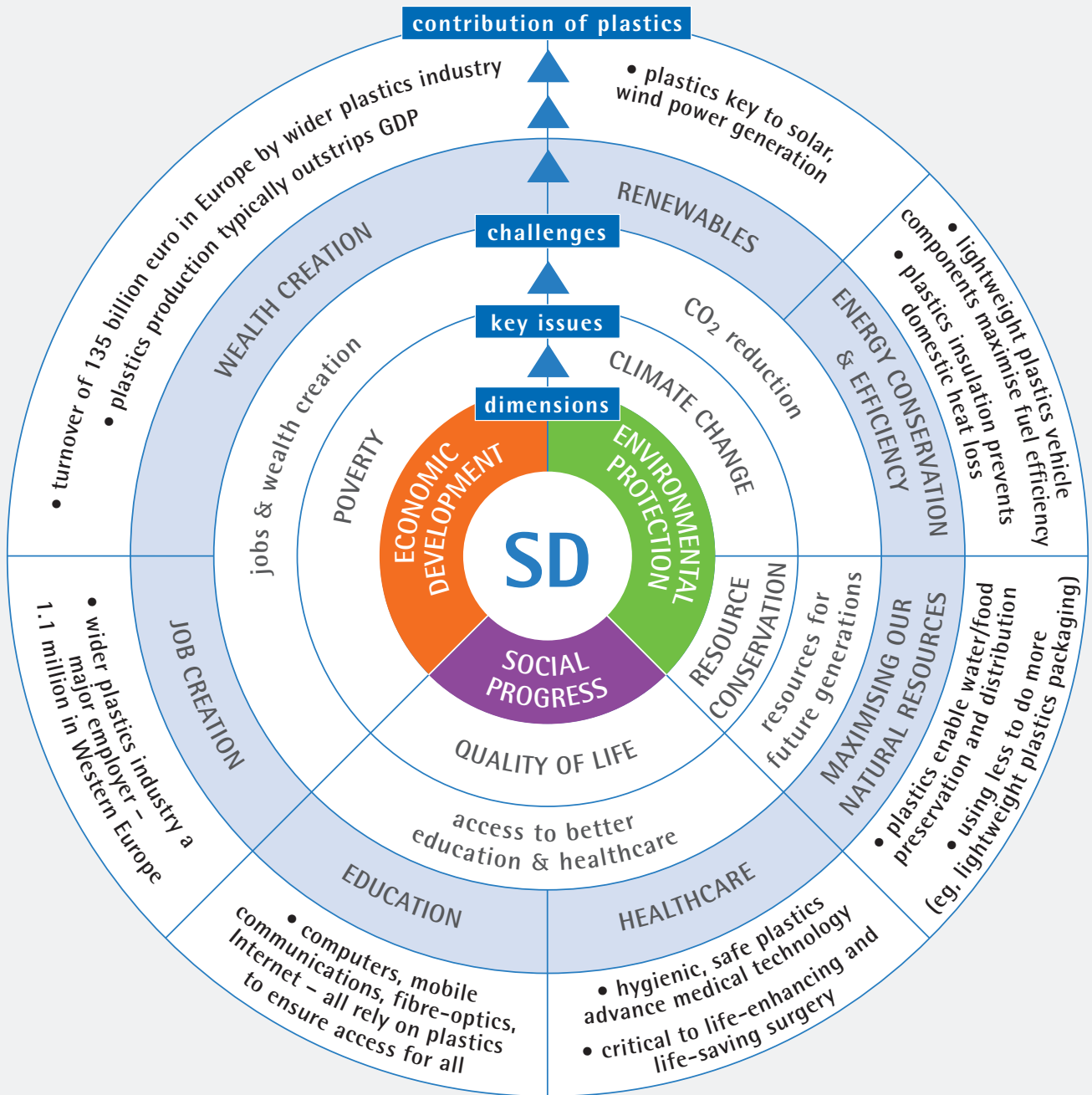
to the cause. In addition, employees have volunteered at virtually all of Habitat International's major building sites since 1990.

The insulation makes homes more comfortable – keeping them warm in the winter and cool in the summer – and lowers utility bills significantly for Habitat homeowners. It also makes sense for the environment, reducing energy use and CO₂ emissions. It is estimated that since the energy crisis of the 1970s, the use of such polystyrene foam insulation in construction has saved the

equivalent of more than five billion gallons of fuel oil.

Nevil Eastwood, Director, Construction & Environmental Resources for Habitat for Humanity, comments: "The reports we received from the new homeowners after one year of living in these houses, was that they were experiencing at least a 50-60 per cent saving on their utility bills compared with what they were paying in their smaller previous residence, which was a concrete block, state-built apartment."





The Association of Plastics Manufacturers in Europe (APME) is the voice of the plastics manufacturing industry in Western Europe and has more than 40 member companies across 15 countries which represent over 90 per cent of Europe's polymer production capacity. The wider plastics industry, which also includes converters and machinery manufacturers, employs well over one million people and generates sales in excess of 135 billion euro.

All APME member companies are involved in creating products and initiatives that contribute to sustainable development. This document contains just some of the numerous examples.



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