#### Nippon Sheet Glass Co., Ltd.

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The following environmental considerations were incorporated into the printing of this report.

We employed direct plate-making using the computer-to-plate (CTP) method, which does not require film. In an effort to curb air pollution, we used ink derived from soybean oil. We also used paper certified by the Forest Stewardship Council, which means the paper was made from trees grown in forests properly managed in accordance with strict standards that take into account all aspects of the environment, the economy and society.





Printed in Japan



#### Introduction

Nippon Sheet Glass Co., Ltd. (NSG Group\*) is one of the world's largest manufacturers of glass and glazing products for the building, automotive and specialty glass markets. Employing 32,500 people, we have manufacturing operations in 29 countries and sales in over 130.

We operate three worldwide business lines: Building Products, supplying original equipment and refurbishment glass for the world's buildings; Automotive, producing glass and glazing systems for the original equipment and replacement glazing markets and Specialty Glass, operating principally in the information technology and glass fiber sectors.

At the heart of our manufacturing is the Float Glass Process. Basic float, or rolled glass is then processed further to produce a range of products. Coated glass is used in buildings and vehicles to control heat and light transmission. Demand for specialist coated glass is growing with the development of the solar power generation industry.

The Group seeks to achieve business success through professional, legal, fair, responsible and sustainable business practices. The NSG Group Code of Conduct sets out the guidelines shared by the Group and its employees for behaving in a professional, fair, ethical, legal and sustainable manner in relationships with fellow employees, customers, suppliers, business partners, the community and other stakeholders in the business.

The health and safety of employees, visitors and people living or working adjacent to Group operations and the protection of the environment remain our top priorities.

A priority for the Group is to facilitate proper disclosure and effective dialogue with our stakeholders on our activities aimed at creating sustainable business operations and those which contribute toward the creation of a sustainable society. This Report is an important part of that communication process.

\* Following the acquisition of Pilkington plc in 2006, the Company reviewed its branding strategy and decided to adopt the brand NSG Group to reflect the new structure and international scope of the enlarged business.



#### Scope of This Report

The term covered by this report is mainly the fiscal year 2008, specifically April 1, 2007 to March 31, 2008; however, some activities from outside of this period are reported on herein. For the purposes of this report, the scope of organization covered comprises the NSG Group, which encompasses Nippon Sheet Glass Co., Ltd., its 226 consolidated subsidiaries and 28 equity-method affiliates. When activities conducted by organizations outside of the Group are cited, the scope and background to such activities are defined.

#### **Reference Guidelines**

The NSG Group's CSR Report 2008 has been edited with reference to the Global Reporting Initiative (GRI)'s "Sustainability Reporting Guidelines 2006" and the Ministry of the Environment's "Environmental Report Guidelines 2007."



#### Disclaimer

This report contains forward-looking statements based on the NSG Group's management policies and plans. These statements are based on information available at the time of the report's compilation; therefore, the Group's actual performance and results may vary substantially from projections due to various contributing factors in the future management environment.

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\_everaging the Company Website

In addition to this Report, the NSG Group makes full use of its website to report on its CSR activities. The contents of this Report as well as more detailed information are provided on the website. Topics covered in this report for which related information is available online bear this mark.

### Message from the Chairman



Katsuji Fujimoto Chairman NSG Group

This is the second issue of the NSG Group's new format Corporate Social Responsibility (CSR) Report. The content reflects the expansion of the Company, both in sales and in geographical spread, brought about by the acquisition of Pilkington plc in 2006. The Report is intended to provide all our stakeholders with detail and data on our CSR performance to enable them to monitor our progress.

We define CSR as 'an activity that establishes a relationship of trust with all stakeholders in order to operate as a socially reliable company.' As a member of the Sumitomo Group, a consortium of independent Japanese companies with well-established records and histories reaching back more than 400 years, the NSG Group's management philosophy is based on the 'Sumitomo Spirit' of 'placing prime importance on trust', 'not pursuing easy gains,' and 'contributing to society through business.'

The business integration with Pilkington has not required significant changes in the Group's stance toward CSR, as the principles that had been followed by Pilkington were very similar to those already in operation in the NSG Group. Following the acquisition, the NSG Group basic philosophy that 'people are the most important asset of our company', was combined with Pilkington's policy, 'to achieve business success through professional, fair, ethical, legal and sustainable business practices.' In this way, the Group has established a new management policy that is more suited to the operations of a global company.

Today, the NSG Group is one of the world's leading glass manufacturers, with principal operations in 29 countries, sales in 130 countries and some 32,500 employees worldwide. To meet our objectives as a global glass manufacturer, we are implementing a 3-phase strategy, covering the 10-year period to FY17. Our four-year Medium-Term Plan, initiated in April 2007, represents Phase 1 and our current operational focus is firmly on achieving its objectives.

A major objective of Phase 1 is the creation of an international, integrated, global company. Having achieved a good integration of the Group's operations since the acquisition, we have now been able to simplify the organization. We have adopted a clear three business line structure: Building Products, Automotive and Specialty Glass. Global functions, such as Human Resources, Finance, Information Systems and Procurement, have been established to provide support.

Our core management policies are based on the concepts of 'open and fair dealings', 'thorough compliance with corporate ethics', and 'contribution to global environmental issues'. While striving to become 'a company with a spirit of innovation and a global presence', we aim to ensure that we enhance the Group's corporate value for all of our stakeholders.

In order to ensure that all employees understand what is expected of them, we have over the past year revised and reissued the NSG Group's 'Code of Conduct'. The Code takes into account the Group's values and principles, particularly the emphasis on Safety, taking personal ownership for actions and communicating with openness and involvement. It defines the conduct expected of both the Group and its employees across all areas of our business. It applies to relationships with colleagues, customers, suppliers, business partners, the community and all others with whom we have contact in daily business life.

In the area of Corporate Governance, the Company announced in February 2008 the decision to move to a 'Company with Committees' board structure. The former 'Corporate Auditors' model has been replaced by three board committees (Audit, Nomination and Compensation) and four external directors.

This brings the NSG Group into line with a growing number of leading Japanese corporations and with best practice. It introduces additional safeguards for shareholders, increases transparency and improves corporate governance. Throughout its history, the Group has focused on glass materials in its pursuit of innovation, driven by the Group's spirit of monozukuri (a passion for manufacturing excellence). The management philosophy of the Group aims to achieve a good balance between focusing energy on achieving short-term targets, and consistently seeking long-term business strategies. The Group's commitment to sustainability is covered in detail in this publication.

We will continue to strive to improve overall energy consumption and CO<sub>2</sub> emissions in all our operations and through our product range. Technologies for recycling glass and for addressing the issue of End of Life Vehicles are a significant focus. As a responsible manufacturer, the NSG Group is increasingly applying its technological skills to find solutions to the issue of climate change.

> Katsuji Fujimoto Chairman NSG Group

### **Our Global Operations** A Global Leader in Glass

The NSG Group is one the world's leading glass manufacturers and suppliers of building, automotive and specialty glass. The Group has manufacturing facilities in 29 countries, approximately 32,500 employees and markets its products in around 130 countries. Of the ¥865.6 billion in consolidated net sales recorded in fiscal 2008, around 80 percent was accounted for by Europe and Japan. In the same period, approximately 90 percent of Group sales were generated by the Automotive and Building Products business lines.

Company Name: Nippon Sheet Glass Co., Ltd. Unified Global Brand: NSG Group Head Office: 5-27, Mita 3-Chome, Minato-ku Established: November 22, 1918 Capital: ¥96,147 million Total Assets: ¥1,319.3 billion Net Sales: ¥865.6 billion (consolidated) **Employees:** 32,587 (consolidated) NSG Group Companies: 254

\*For information about the float glass production lines, please refer to pages 14 and 15.

web http://www.nsg.co.jp/ir/library/yuho.html Fiscal 2008 Business Report: http://www.nsggroup.net/ir/library/report.html Annual Report 2008 in English http://www.nsggroup.net/ir/annual.html



#### Consolidated Net Sales ¥865.6 billion (Fiscal 2008)





Automotive Japan

- Automotive Rest of world
- IT 🕘
- Glass Fiber
- Other







¥865.5 billion



### **Group Chief Executive's Introduction**



The NSG Group is a company founded on technological innovation in glass and invests in sustaining this technology to create value for our shareholders. We produce quality glass products that make an important contribution to improving living standards, to people's safety and wellbeing and to the conservation and generation of energy.

We are committed to operating our business in accordance with the principles of sustainable development, aiming to meet the needs of the present without compromising the ability of future generations to meet their own needs. We aim to achieve this by balancing the needs of all our stakeholders, managing the environmental impacts of our activities, developing our people, encouraging innovation in processes and products, working in harmony with the communities in which we operate and encouraging our customers, contractors and suppliers to do the same.

Consistent with the philosophy of the Sumitomo Group of Companies, we believe that people are the most important asset of our company. We value the health and safety of all our people above all other considerations and aim to ensure that we provide a working environment that allows our people to reach their full potential.

Our Safety programmes continue to emphasize the importance of improving behaviour and of individuals taking personal responsibility. All injuries at work are regarded as unnecessary and avoidable. No matter how minor, each one must be reported and investigated. Only by investigating and learning from such incidents will the desired levels of Safety performance be achieved. Details of our progress on Safety performance are shown in this Report.

We are constantly working to develop innovative new products and processes, which give increased benefits to our customers and the environment throughout their life cycle. We assess the life-cycle impacts of our products and processes with decisions based on sound science, seeking to reduce adverse environmental impact, maximising the reuse or recovery of resources and exercising responsible stewardship of land we hold.

We aim to develop long-term partnerships with our suppliers, preferring those who share our commitment. Suppliers of raw materials, manufactured products and services can make a very positive contribution to the performance of the NSG Group in terms of the environment, corporate social responsibility and sustainability. We also recognize that there are risks in these areas associated with suppliers that do not meet minimum standards and are continually improving our processes in respect of suppliers.

Glass for Solar Energy is an important potential growth area for the Group. The number of manufacturers of solar power installations is increasing and legislation on  $CO_2$  targets around the world is encouraging the use of solar



The NSG Group is well placed to supply products for all of the leading technologies in the growing Solar Energy generation sector.

as an energy source. Despite the economic slowdown, our Solar Energy business is showing resilience. We expect demand for solar cell glass to increase seven-fold over the next five years. We are well placed to supply products for all of the leading technologies and we have created a new Solar Energy business unit to capitalize on this growing demand.

The acquisition of Pilkington brought into the Group the company that invented the Float Glass Process and 2009 marks the fiftieth anniversary of the announcement of the invention. It revolutionized the world's glass industry and made possible the use of large expanses of glass, bringing light into buildings. It also made possible the development of energy-saving and solar control products, allowing architects and car designers to use increasingly large areas of glass in buildings and vehicles without significant heat loss or solar gain.



The Float Process made possible the development of energy-saving and solar control products. These allow architects to use large areas of glass in buildings without significant heat loss or solar gain.

Float glass was developed by a team led by Sir Alastair Pilkington and first offered for sale by Pilkington in 1959. Since then, the process has been greatly improved and refined, but still follows the same basic principles. The process was licensed worldwide and today over 90 per cent of the world production of flat glass is float glass. Globally, over 380 float lines are in operation, under construction or planned, with a combined output of around 1,000,000 tons of glass a week. The NSG Group owns or has interests in 51 lines worldwide

Since its inception, major environmental improvements have been made in the Float Glass Process. Emissions have been reduced significantly and substantial reductions have been made in energy consumption. Nevertheless, glass production will inevitably remain energy-intensive. We therefore work hard to minimize energy input, so that the usage of glass contributes net benefit to sustainable development. Our principal raw materials are mineral in nature and we recognize our obligation to ensure that in obtaining those minerals, natural habitats and biodiversity are preserved or enhanced.

We act as responsible members of our communities, by generating economic growth and supporting social, educational and cultural development. We believe that glass has a major part to play in society's attempt to reduce greenhouse gas emissions and to mitigate the effects of climate change.

Recognizing this, we support initiatives to utilize glass in order to reduce the energy consumption of buildings, vehicles and equipment or to generate or conserve energy. Our product range and the part it plays in sustainability are covered in the 'Special Feature' section of this Report. We are committed to conducting our business with integrity and in a safe, professional, legal and ethical manner, as defined in our company Code of Conduct and in ways that demonstrate the Group's corporate social responsibility.

It is our policy to comply with all relevant laws and regulations and where we believe necessary take additional measures to meet our sustainability objectives. An important issue relating to business conduct that has been further addressed over the past year is that of competition compliance. In November 2008, the Group received notification of a civil fine from the European Commission relating to alleged breaches of European competition law in the Automotive glass sector. We have subsequently announced our intention to appeal against this decision.

The need to comply with all competition laws in all countries has always been a fundamental requirement in our Company. Over the past two years, we have taken further action to strengthen our policies and procedures, with the publication of an integrated Group Competition Compliance Policy and a comprehensive training programme. The post of Group Competition Compliance Officer was established in 2008.

We aim to establish a constructive dialogue and relationships with all our stakeholders, seeking to play our full part in helping society to live within its environmental means.

This Report is part of the communications process through which we will publish our sustainable development targets and be accountable for our performance. To this end, we will ensure that our operations are conducted in accordance with recognized standards and our reported performance is independently verified.

We are all collectively responsible to those with whom we share one world to try to attain a more sustainable future for the next generation. I believe the NSG Group, as a manufacturer of advanced glazing products that help save, manage and generate energy, has a significant role to play in this process.

> Stuart Chambers Group Chief Executive NSG Group

### **Our Business Lines**

Our operations centre on three worldwide business lines: Building Products, supplying original equipment and refurbishment glass for the world's buildings; Automotive, producing glass and glazing systems for the original equipment and replacement automotive glazing markets and Specialty Glass, operating chiefly in the display, office equipment and glass fiber sectors.

3 Core Businesses		Main Products	
Building Products	SFiscal 2008 (Millions of yen)Sales¥402,462Operating income¥31,339By RegionEurope•Europe•Japan26%North America•Noth regions•10%	<ul> <li>Glass for the World's Buildings</li> <li>Glass for new buildings, refurbishment glass and processed glass for interiors</li> <li>47% share of NSG Group sales (in fiscal 2008)</li> <li>Organized regionally (Europe, Japan, North America, South America, China and South East Asia)</li> <li>12,382 employees in 23 countries</li> <li>Manufacturing facilities in 22 countries</li> <li>Ownership or interests in 51 float lines worldwide</li> </ul>	Main Products• Solar Control glass• Thermal Insulation glass• Fire Protection glazing• Noise Control glazing• Safety & Security glass• Self-Cleaning glass• Glass for photovoltaics
Automotive	Fiscal 2008 (Millions of yen)Sales¥364,819Operating income¥23,939By Region• Europe53%• Japan22%• North America15%• Other regions10%	<ul> <li>Supplying Every Major Vehicle Manufacturer in the World</li> <li>Manufacture and sale of original equipment (OE) and automotive glass replacement (AGR)</li> <li>42% share of NSG Group sales (fiscal 2008)</li> <li>Globally integrated organization structure</li> <li>Supplies major automakers in the world</li> <li>14,743 employees in 26 countries with automotive glass plants in 34 locations worldwide</li> <li>World's largest organization for the distribution and wholesale of AGR</li> </ul>	Main Products • Solar control glazing • Glazing systems • Laminated glass • Toughened glass • Security glazing • Integrated antennas • Water-repellent glazing
Specialty Glass	Fiscal 2008 (Millions of yen)Sales¥83,589Operating income¥9,029By ProductThin LCD glass30%© Copier/printer lenses19%© Glass chord16%© Air filters13%© Battery separators8%© Other14%	<ul> <li>World leader in the Glass Fiber Sector</li> <li>Manufacture and sale of Information/Electronics Materials and Devices and Glass Fiber products</li> <li>10% share of NSG Group sales (fiscal 2008)</li> <li>Pioneer in micro-optics</li> <li>World Leader in the Glass Fiber Business</li> <li>75% market share for glass cord for vehicle drive belts</li> <li>Global market leader for granulated flake-shaped GLASFLAKE®</li> </ul>	Main Products • Thin LCD Glass • Copier/printer lenses • Glass cord • Air filters • Battery separators • GLASFLAKE® • METASHINE®

#### **Routes to market**

The global market for flat glass in 2007 was approximately 50 million tonnes (~6 billion m<sup>2</sup>). Of this demand, over 30 million tonnes is high quality float glass. In terms of volume of glass consumed, Building Products is by far the largest sector (~45 million tonnes) with ~5 million tonnes going to Automotive. Significant growth is being driven by the use of glass in Solar Energy generation. 90 percent of the world's float glass is used in exterior and interior applications in buildings and 10 percent in vehicles.

The NSG Group owns or has interests in 51 float lines worldwide, giving the Group a 17 percent share of world float glass production.

# World's Float Glass MarketFor buildings90%New buildings40%Refurbishment40%

Interior glass	209
For Automotive	109
Original equipment (OE)	839
Aftermarket (AGR)	179

Source: 2008 Pilkington and the Flat Glass Industry.

10

Today's architects and car designers are using larger surface areas of glass in their designs, increasingly with added functionality and complexity. In buildings in particular, energy saving is a key driver. Kyoto CO<sub>2</sub> targets have driven tougher legislation for energy-saving glass and made insulated glazing units mandatory in many parts of Europe. Legislation requiring coated 'low-e' glasses that are particularly energy efficient is now widespread. In Automotive, solar control glass helps to reduce air conditioner load, with weight reduction another key factor. In the growing Solar Energy generation sector, the NSG Group is well placed to supply products for all three of the leading technologies; Crystalline PV, Thin Film PV and Concentrated Solar Power, in which contribution to solar system performance is paramount.





#### Glass Growth in Buildings, Vehicles and for Solar Energy

### **Our Manufacturing Processes**

#### At the heart of the world's glass industry is the Float Glass Process, developed by Pilkington in 1959 and now the world standard for high-quality glass production. The process manufactures clear, tinted and coated glass for buildings and clear and tinted glass

A float plant, which operates non-stop for between 10-15 years, makes around 6000 kilometres of glass a year. The process produces clear, tinted and coated glass for buildings and clear and tinted glass for vehicles. Over 380 float lines are in operation, under construction or planned worldwide with a combined output of about 1,000,000 tonnes of glass a week. The NSG Group operates, or has interests in, 51 float lines worldwide.

#### Float glass manufacture

The process, originally able to make only 6mm thick glass, now makes it as thin as 0.4mm and as thick as 25mm and in widths up to 3 metres. A 'batch' of precisely mixed raw materials is melted in the furnace. Molten glass, at approximately 1000°C, is poured continuously from the furnace onto a shallow bath of molten tin in a chemically controlled atmosphere. It floats on the tin, spreads out and forms a level surface. Thickness is controlled by the speed at which the solidifying glass ribbon is drawn off from the bath. After annealing (controlled cooling) the glass emerges as a 'fire' polished product with virtually parallel surfaces.

#### The economics of float glass

In the Float Glass Process, raw materials and energy are the single largest elements of cost, followed by overheads and prime labour. Silica sand is the main component by weight of the 'batch' (raw material mixture). Soda ash is one of the most expensive raw

Other



Average Float Production Cost Fiscal year ended March 31, 2008



10%

materials used in glass manufacturing and represents about 16 percent of batch weight, but around 60 percent of batch cost. Recycled glass (cullet) represents on average around 15 percent of the materials used. Its addition helps reduce the energy required in the process.

#### SECONDARY PROCESSING

Extra ingredients can be added to the glass raw materials at the melting stage to produce tinted products. Modified properties can be produced by means of surface coating (on or off-line). Plies of glass are bonded or laminated together with a layer of polymer film in between for use in safety and security applications. Glass can also be heat-treated (toughening), shaped, bent, silvered (mirrors), surface-worked, installed in multiple glazed units and, in Automotive, assembled in modular systems.

#### ENERGY

Energy accounts for around 20 percent of total cost in the float process. Since the 1960s the glass industry as a whole has reduced specific energy consumption by approximately 1.5 percent per year. The rate of reduction is now slowing as the thermodynamic limits of the process are approached.

2008 Pilkington and the Flat Glass Industry http://www.pilkington.com/resources/pfgi2007final.pdf Replacing glass in the buildings of the EU with low-e double glazed glass would reduce CO<sub>2</sub> emissions by

#### Float glass and environmental impact

Float glass offers clear environmental advantages in the application of its products. The total energy associated with glazing includes both the energy consumed in its manufacture and its impact on the energy consumed by the building or vehicle throughout the period it remains installed.

Use of advanced low-emissivity double glazing reduces heat loss through windows to less than 20 percent of single glazing (and less than 40 percent of normal double glazing). In Automotive, advanced products help to reduce fuel consumption by saving weight, and to reduce air conditioner load by the use of solar control glasses.

In the European Union (EU), the energy demand of buildings accounts for between 40 and 50 percent of total national energy consumption. Around half of buildings in the EU are still single-glazed. The energy saved by replacing all single and ordinary double glazing with low-emissivity (low-e) double glazing would save an estimated 140 million tonnes of CO<sub>2</sub> emissions annually across the member states of the EU.

- Manufacture Float glass production is a high-temperature, energy-intensive process. This results in the emission of combustion products and the high temperature oxidation of atmospheric nitrogen (i.e. carbon dioxide, sulphur dioxide and oxides of nitrogen). Furnace emissions also contain dust and traces of chlorides, fluorides and metals arising as impurities in the raw materials.
- Recycled glass Waste glass generated on-site ('cullet') is recycled to the furnace. Cullet is also a useful raw material for other parts of the glass industry, particularly the glass container sector. Up to 95 percent of waste glass from processing is recycled in some way.

Continuous Ribbon of Glas

3m wide, now solid

**Cross Cutters** 

Computer-controlled

	Ra	w N	late	rial	s
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### Blended and conveyed into melting furnace.

Raw materials	
Silica sand	51%
Soda ash	16%
Recycled glass	15%
Dolomite	13%
Limestone	4%
Sodium Sulphate	1%

#### Melting Furnace

#### Float Bath

Contains up to 2000 tonnes of molten glass at 1550°C.

Molten glass floats on molten tin in an inert atmosphere.





Cooling/ Annealing Lehi

Solidifying glass ribbon

# 140 million tonnes annually.

Water Float glass production does not present significant water pollution problems. Water is used mainly for cleaning and cooling and can easily be reused or treated.

Environmental improvements Since its inception, major environmental improvements have been made in the float process. Emissions have been reduced significantly and substantial reductions have been made. in energy consumption.

#### **Glass and Carbon Dioxide**

The manufacture of one square metre of low-e double glazing leads to the emission of 25 kg of CO<sub>2</sub>. However, the CO<sub>2</sub> saved by replacing one square metre of single glazing with low-e double glazing in a typical European building is 91kg per year, offsetting the CO<sub>2</sub> emitted during manufacture after only 3.5 months in use. If ordinary double glazing is replaced by low-e double glazing, the offset period is typically 10.5 months.

Source: Glass for Europe



#### **CSR Management and Corporate Governance**

### **Our Responsibilities**

The NSG Group Code of Conduct sets out the corporate social responsibilities shared by the Group and its employees for behaving in a professional, fair, ethical, legal and sustainable manner in relationships with fellow employees, customers, suppliers, business partners, the community and other stakeholders in the business.

The health and safety of employees, visitors and those living or working in the communities affected by NSG Group operations, the protection of the environment and the development of effective relationships with stakeholders in the business remain top priorities.

The NSG Group is a member of the Sumitomo Group and its management philosophy, 'people are the most important asset of our company,' is deeply rooted in the 400 year-old Sumitomo Spirit. This spirit underpins the NSG Group's CSR foundation, which espouses the basic ideas of 'open and fair,' 'thorough compliance with corporate ethics' and 'contribution to global environmental issues.'

With the acquisition of Pilkington plc in June 2006, the business scale of the NSG Group expanded significantly and along with it, the scope of its social responsibilities. Consequently, the Group reviewed from a global perspective the management philosophy it had established in 1976, and in July 2006 formulated the new NSG Group 'Values and Principles.'

#### **Values and Principles**

The concept 'people are the most important asset of our company' provided a firm basis for the Group's values and has been retained in the new management philosophy, which has been disseminated to all Group employees worldwide. The Group's 'Values and Principles' statement defines the ideals to which it aspires, in addition to the basic CSR concepts that guide all of its business activities.

#### **Code of Conduct**

NSG's core management policies are based on the concepts of 'open and fair dealings', 'thorough compliance with corporate ethics', and 'contribution to global environmental issues'. While striving to become 'a company with a spirit of innovation and a global presence', we aim to ensure that we enhance the Group's corporate value for all of our stakeholders. In order to ensure that all employees understand what is expected of them, we have over the past year revised and reissued the NSG Group's 'Code of Conduct'. The content of the Code takes into account the Group's values and principles, particularly the emphasis on safety, taking personal ownership for actions and communicating with

openness and involvement.

The Code defines the conduct expected of both the Group and its employees across all areas of our business. It applies to relationships with colleagues, customers, suppliers, business partners, the community and all others with whom we have contact in daily business life. The wide range of issues addressed in the Code reflects the many diverse activities that are involved in operating a successful global business. The overriding basis of the Code is that the Group will carry out these activities in a safe, professional, legal and ethical manner and in a way that demonstrates the Group's corporate social responsibility.

Wherever possible, the Code defines a fair and commonsense approach to doing business, while some elements are dictated by strict legal requirements. A summary document, 'The Way we do Business', covers the main points of the Code in a succinct pamphlet. Personal copies are distributed to all Group employees in their own language. Both the full Code and the summary document can be downloaded from the Group website.

### Key Features of The NSG Group Code Of Conduct

- Working safely
- Responsibility towards the environment
- Operating within the Law
- Cultural and ethical responsibilities
- Human rights and employment standards
- Avoiding conflicts of interest
- Rules regarding gifts, favours and payments
- Relationships with customers, suppliers, business partners and competitors
- Retention of accurate and complete records
- Relationships with the community
- Protection of personal and confidential information
- Responsibilities of individuals

### Risk Management, Compliance and Reporting of Concerns

Group procedures for the review and management of risk include CSR and have been used to determine CSR policy and priorities. Given the nature of the glass manufacturing process, HSE issues have been identified as top priorities.

The effective application of the NSG Group Code of Conduct is monitored through:

- annual self-assessments by individual businesses against standards set down in a series of statements of effective business control which includes the Code. Each business head also signs an annual letter of representation confirming that these standards have been achieved.
- regular on-site business audits carried out by the Group's internal audit function to ensure the effectiveness of the self-assessment process. The results of this process for the current year confirm a high level of compliance. Any exceptions are reviewed by the Audit Committee and appropriate action taken.

The Group's commitment to maintaining the highest standards of honesty, openness and accountability is backed by a reporting of concerns procedure. This aims to give individuals reassurance and support in reporting suspicions of illegal or improper behaviour by another member of the Group or by someone externally who is connected to the Group, such as a supplier or contractor. The procedure makes clear what employees should do if they have a concern and provides assurances that any concerns expressed will be dealt with seriously and fairly.

### **Our Values and Principles**

#### **Our Mission**

To be the global leader in the manufacture and supply of glass products, through the best use of our people and technology and the pursuit of innovation.

#### Our Slogan

First in Glass

#### **Our Values**

People are the most important asset of our company. We value:

- Trust and mutual respect
- Integrity and professionalism
- Team work and mutual support
- Open communication
- Initiative and creativity
- Passion and resilience
- Individual and social responsibility

#### **Our Stakeholders**

We aim to be judged as best in class by:

- Our Customers To be their preferred supplier for glass products and related services
- Our Employees

To be their preferred place to work

Our Shareholders

To be their preferred long-term investment

#### **Our Guiding Principles**

Success will be achieved by:

- Ensuring that all our decisions and actions add value to the company
- An obsession with safety, in the belief that all accidents are preventable
- The development of the potential and motivation of all employees to enable the use of the right people in the right place
- The achievement of defined quality standards to satisfy internal and external customers
- The development and use of market-leading technologies for products and process
- Monozukuri: having a passion for manufacturing excellence-through benchmarking, best practice and standard operating procedures
- Genchi Genbutsu: making decisions after going to the source to understand conditions on the shop floor and in other workplaces
- Making decisions based on data, facts and analysis
- Seeking to improve continuously in all our activities, through the application of the PDCA (Plan, Do, Check, Act) methodology
- Efficiency in everything we do, exploiting synergies and achieving cost leadership throughout
- A commitment to high standards of social responsibility in the communities and environments in which we operate.

July 2006

#### **CSR Management and Corporate Governance**

### **Our Corporate Governance**

The adoption of the 'Company with Committees' model brings the NSG Group into line with a growing number of leading Japanese corporations and with best practice. It introduces additional safeguards for shareholders, increases transparency and improves corporate governance.

In June 2006, the size and scope of the Company changed, following the acquisition of Pilkington plc. Combining the strengths of both companies has firmly established the NSG Group as one of the world's leading glass manufacturers. A process of integration, with the aim of creating a new entity focused on differentiating ourselves from competitors, is well advanced. This has required not only operational integration but also further developments in corporate governance to put in place a structure appropriate to an international corporation based in Japan.

### Clear Separation of Management Oversight and Execution Functions

Following the 142nd Ordinary General Meeting of Shareholders, held on June 27, 2008, the Company adopted a 'Company with Committees' board structure. This followed the announcement in April 2008 of changes in the senior management of the Company and in the structure and membership of the NSG Group Board. These included the appointment of the Chairman of the Board and the Chairman of the NSG Group. At the same time, Stuart Chambers was appointed President and CEO of the NSG Group, with responsibility for the profitable operation of all businesses within the Group. Stuart Chambers chairs an Executive Committee, which oversees the day-to-day management of the Group's businesses.

The Chairman of the Board has particular responsibility for corporate governance. The Chairman of the NSG Group ensures that the Company is run in accordance with the Group's long-term objectives and strategy and guiding values and principles. He also provides support to the Executive in communicating with the financial community, shareholders, governments and other external organizations of importance to the Group. Tomoaki Abe is Deputy Chairman.

A new NSG Group board structure has been established, with the former 'Corporate Auditors' model replaced by three board committees (Audit, Nomination and Compensation) and four external directors. Two new external directors joined the NSG Group Board.

The Board believes that the adoption of the 'Company with Committees' model brings the NSG Group into line with a growing number of leading Japanese corporations and with best practice. It introduces additional safeguards for shareholders, increases transparency and improves corporate governance.

#### Enhanced role of independent directors

Under the new system, the role of the external directors is strengthened. The Group Legal & Company Secretarial function provides information and other support as required to external directors. They are provided with the pertinent documents prior to the convening of a meeting of the Board of Directors, and receive advance external directors briefings.

The Directors of the Company handle basic management policy decisions, establishment of internal control systems, separation of duties of executive directors and monitoring of execution of duties by executive directors and others, through the Board of Directors meetings, held once every month as a rule. Business execution is carried out by executive directors appointed at the Board of Directors' meetings, who are given the authority by the Board of Directors.

#### An Open Management System



Simplified business structure

Compliance education for the NSG Group totaled

Having achieved a good integration of the Group's operations, we have now been able to simplify the organization. We have adopted a clear three-business line structure: Building Products, Automotive and Specialty Glass. Each of the business lines is managed on a global basis by a main board director.

#### **Company with Committees**

- Nomination Committee: This decides the details of the agenda items on appointment and removal of directors to be submitted to the General Meeting of Shareholders. The committee is chaired by a director, who is not simultaneously serving as an executive director, and consists of seven directors, including four external directors. The chairman of the Nomination Committee is Yozo Izuhara.
- Audit Committee: This conducts audits of the execution of duties by directors and executive directors, prepares audit reports and decides the details of agenda items on the appointment and removal of independent auditors, as well as their non-reappointment, that are to be submitted to the General Meeting of Shareholders. The committee holds regular meetings with independent auditors and the internal audit department. To gather the required information, the NSG Group has established an Audit Committee Office to assist the Committee's duties. The chairman of the Audit Committee is Tomoaki Abe.
- Compensation Committee: This makes decisions about individual compensation of directors and executive directors. The committee is chaired by an external director and consists of seven directors, including four external directors. The chairman of the Compensation Committee is Noritaka Kurauchi.

#### **Competition Compliance**

One particular issue relating to business conduct that has been addressed over the past year is that of competition compliance. The European Commission levied a fine of €140 million on the Building Products business, following the investigation into the European Building Products glass sector. This fine was paid during March 2008. On 9 December 2008, Pilkington Group Limited (a wholly owned subsidiary of the Company) received formal notification of a decision by the European Commission to levy a fine of €370 million on Pilkington Group Limited and certain of its wholly owned subsidiaries, following the conclusion of its investigation into alleged breaches of competition law by companies operating in the European car glass sector. Pilkington Group Limited does not agree with the decision and, on 16 December 2008, the Company announced that it intends to submit an appeal to the European Court of the First Instance. Notwithstanding such appeal, the fine is required to be paid within three months of the date of notification of the decision.

Responding to the issue, the Company has further reviewed control mechanisms and increased efforts to minimize the risk of

40 compliance training sessions were held, in which 700 employees participated

competition law non-compliance. The Group's Competition Law Compliance Policy has been reviewed and revised, based upon a zero tolerance policy for unauthorized contact with competitors. Procedures, effective from May 2007, require a formal assessment of the level of compliance risk for each manager, as part of the annual appraisal process. The Competition Compliance procedures are managed by a Competition Compliance Officer for the NSG Group, Deborah Valentine.

An integrated Group Competition Compliance Policy has been approved by the Executive Committee and endorsed by the NSG Group Board. This supersedes all previously published policies and further strengthens the rules on how everyone should approach this important issue. At the same time, detailed guidelines on the Group's Competition Compliance policy have been brought together in a new integrated document - the Group Competition Compliance Manual.

The introduction of these documents is part of a constant and continuing review of our control mechanisms and our efforts to minimize the risk of competition law non-compliance within our Group. The revised Policy builds on and reinforces the requirements of the Group's Code of Conduct. It makes it mandatory for Group directors, and managers, supervisors, employees and agents whose duties may bring them in contact with competitors, customers or suppliers, to be familiar with the Manual. The Policy mandates Business Line Head or Function Head approval for contacts with competitors required for genuine operational reasons and expressly forbids, on a 'zero tolerance' basis, any unauthorized contact with competitors.

The Policy also specifies the mandatory assessment by managers of those people who have contacts with competitors, customers and suppliers. Those personnel who fit into these categories are defined as being in 'Key Roles' and will be required to undergo formal competition compliance training. The Manual has been translated into all the principal languages used in the Group.

#### Japanese SOX Act (J-SOX) Progress Report

From the fiscal year commencing on and after April 1, 2008, all listed companies in Japan have applied a system of internal controls reporting based on the Financial Instruments and Exchange Act (colloquially known as J-SOX). The NSG Group will submit an Internal Controls Report to the Prime Minister together with an Annual Securities Report, subject to audit by its external auditor. With the J-SOX Steering Committee taking the lead, assessment of the design and operating effectiveness of Internal Control over Financial Reporting is now underway.

#### **Special Features**

Glass – a unique role in combating **Climate Change** 

Glass has a unique role to play in society's attempt to reduce greenhouse gas emissions and mitigate the effects of climate change. The energy used in making high performance products is quickly paid back.

Light, comfort, wellbeing, style, and sustainability are the benefits of today's highperforming windows and glass building facades. Glazing also has a role to play in reducing weight and air conditioning load in vehicles

Buildings are a major element of the environment in which millions of people live and work every day. Recognising the role of glass in reducing greenhouse gas emissions and mitigating the effects of climate change, the NSG Group is supporting initiatives to utilize glass in order to reduce the energy consumption of buildings.

More recently, Kyoto CO<sub>2</sub> targets, climate change, escalating fuel prices and concerns about energy security, have driven tougher legislation for energy-saving glass, thus making insulated glazing units mandatory in most parts of Europe and introducing legislation requiring energy efficient coated glasses. There is growing governmental support worldwide for alternative energy generation, including Solar.

Glass production will remain energy intensive. Our products are an important element of the construction process, but we are well aware of the need for appropriate waste management measures and recycling efforts when glass products reach the end of their useful lives

#### **Energy Conservation in Buildings**

Energy issues are key to the building glass industry, as glass products can make an important contribution to combating climate change.

In our largest market, Europe, research suggests that glass can help to attain the ambitious goal set by the EU's heads of state and government to reduce CO<sub>2</sub> emissions by at least 20 percent by 2020.

Different types of glass we have developed over the years, especially low-e double glazing and solar protective glazing, can significantly reduce the need for heating and cooling in buildings, thereby reducing energy consumption and associated CO<sub>2</sub> emissions.

Many older buildings are less energy efficient than they might otherwise be because they make use of obsolete energy-inefficient glass.

Therefore, we support measures, designed to encourage the uptake of existing environmentally friendly technologies.



The reduction of energy consumption in Buildings is a key factor in attaining Kyoto Protocol targets

#### CO<sub>2</sub> emissions and low-e double glazing

In 2005, the European glazing trade association, Glass for Europe (then known as GEPVP) published a study into the CO<sub>2</sub> savings potential of replacing ordinary single or double glazing with low-e glass, (for low-emissivity). It showed that CO<sub>2</sub> emissions from buildings which amount to 765 million tones of CO<sub>2</sub> per year in the EU, could be cut by 140 million tones if the current glazing was replaced by low-e double glazing.

Even taking into account the 4.6 million tonnes of CO<sub>2</sub> released per year by the building glass industry in its production processes to manufacture the additional glass required, the replacement of obsolete glass in old buildings and specification of energy efficient glass in all new buildings would result in a huge net benefit.

Low-e glass usually forms the inner pane of an insulating glass unit (IGU). A transparent metallic coating reflects heat back into the room rather than allowing it to escape through the windows. At the same time, low-e glass allows solar heat to pass into a building and warm the interior (this is known as 'passive solar heat gain').

Recent regulations call for the use of energy-efficient products to cut CO<sub>2</sub> emissions and protect the environment. Thermally insulating double-glazing is a way to meet national government targets and cut domestic fuel bills. For more details of such products produced by the NSG Group, see page 20 of this Report.

#### CO<sub>2</sub> emissions and solar control glazing

In regions where the ambient temperature is often uncomfortably hot, the increasing tendency, as people aspire to a better lifestyle or have more disposable income, is to install air conditioning and that of course brings with it an energy and carbon burden. In that case, the primary objective is to keep heat out.

Residential and non-residential buildings that use more energy than necessary to stay cool are a major source of unnecessary CO<sub>2</sub> emissions. The potential for solar control glass to cut CO<sub>2</sub> emissions from buildings has been analysed by the Dutch scientific institute TNO in a study undertaken for Glass for Europe.

Solar control glass allows sunlight to pass through glazing while radiating and reflecting away a large degree of the sun's heat. The indoor space stays bright and much cooler than would be the case if normal glass were used.

The TNO study concluded that between 15 and 80 million tonnes of CO2 emissions annually - roughly between 5 percent and 25 percent of the EU's target - could be avoided by the year 2020 by optimal use of solar control glass alone.



Pilkington Insulight Sun<sup>TM</sup> solar control glass keeps occupants cool inside the 'Cockpit', the futuristic headquarters of the Hessing Motor Corporation in the Netherlands



An advertising campaign for Pilkington energiKare™ energy-efficient glazing reminds consumers that low-e glass saves money as well as energy!

### **Glass in Buildings**

The NSG Group's products are at the heart of modern architecture, engineering and construction. They have a beneficial role to play in addressing some of the major environmental challenges of buildings, new and old.

Glass is used extensively in most buildings, both for exterior and interior use; as a construction material, for functionality, for decoration and for interior fittings.

Around the world, policy-makers have begun to realize how important the quality of our buildings is to the quality of the environment and to the overall quality of people's lives. Consequently, there is an increasing amount of policy and legislative activity which addresses the building sector, including the glass products that are used in buildings. The NSG Group is working closely with governments, trade associations, customers and consumers, to raise awareness of the beneficial properties of glass and glazing and promote its responsible use.

#### Adding important functionality to glass

Our products play a vital role in improving energy efficiency and reducing CO<sub>2</sub> emissions. But they also offer other advanced functionality, protecting against fire, insulating against noise, offering safety and security, privacy, decoration and even self-cleaning properties.

The functionality of our products is summarized in a number of 'benefit-led' categories. Each plays its part in helping to improve the built environment and to enhance the wellbeing of occupants of both commercial buildings and private dwellings.



#### Solar Control

In warm weather, solar control products dramatically reduce the effect of the sun's heat, minimising the need for air-conditioning.

#### \* Thermal Insulation

During cold weather, low-emissivity (low-e) products reflect heat back into buildings.

Fire Protection

Specially developed glasses to protect lives and valuables from fire.



A range of specialist glasses that possess enhanced acoustic insulating properties to meet the increasing demands for noise control.



#### Safety & Security

Glass that is used to reduce a risk of accident by impact, fracture or shattering. Glass that is able to withstand deliberate attacks of various kinds.



A

#### Self-Cleaning Pilkington Activ<sup>™</sup> dual-action self-cleaning glass uses the forces of nature to maintain its clear appearance without the need for

detergents. Decoration

Glass that is used when privacy and decoration are the main requirements.



Pilkington Planar™ structural glazing system.

#### Special Applications

A range of specialist glasses such as low-iron float, very thin float, curved glass, UMU™ switchable glass.

#### Solar Energy

Products used in the generation of solar power, including Pilkington Optiwhite™, Pilkington Sunplus™ and Pilkington TEC Glass™.

### A 'Super Window' for 21st Century buildings

Today's buildings frequently require more functions and benefits from glazing systems than the conventional function of transparency. The NSG Group's 'Super Window' combines a number of high performance products in one unit

#### Pilkington Activ™

is the world's first dual action self-cleaning glass. The superior coating technology absorbs ultraviolet radiation from the sun, causing a reaction on the surface <sub>External</sub> of the glass to break down and loosen organic dirt.

In the second part of the process, Pilkington Activ<sup>™</sup> is hydrophilic: instead of forming water droplets during rainfall, the water spreads evenly over the surface, taking the dirt with it. The glass does away with the need to use of detergents and ladders and other equipment for cleaning.

#### **Pilkington Pyrodur®**

is an advanced thin, clear fire-resistant laminate glass. Using a special clear intumescent interlayer, it offers an excellent combination of fire and impact performance, making it the ideal choice for internal fire-resistant doors and partitions.

#### Pilkington Optiphon<sup>™</sup>

is the ideal choice of glass in situations where there is excess noise from road, rail or air traffic, or other noise sources such as factories or nightclubs. A new PVB (polyvinylbutyral) interlayer provides enhanced sound insulation performance, attenuating outside noise, so that building occupants are not unduly disturbed.

#### Pilkington Optitherm<sup>™</sup>

is an off-line coated glass for use in insulating glass units. The neutral appearance of the unit creates a more aesthetically pleasing environment, by combining high light transmittance and low reflectance, whilst still providing a low emissivity coating and excellent thermal insulation – U value of  $1.1 \text{ W/m}^2\text{K}$ .



#### Window Energy Rating

Traditionally, selecting energy efficient windows has been difficult, due to the lack of independent and validated information. It was recognized that there was a need for a method that is both easy to understand and independent. In recent years, energy labelling of windows has been introduced in a number of EU member states - with considerable success. In the UK, the NSG Group has endorsed and supported the British Fenestration Rating Council (BFRC), on the introduction of a window rating system to meet this need for simple and accurate information. Each window rated by the BFRC has a unique label, displaying the following information: 1. The rating level – A, B, C, etc...

- 2. The energy rating e.g. -3 Kwh/m²/year) metre per year.
- 3. The window U value e.g. 1.4W/(m<sup>2</sup>·K)
- The effective neat loss due to air penetra
   The solar heat gain e.g. g=0.43.

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2. The energy rating e.g. -3 Kwh/m²/year). In this example the product will lose 3 kilowatt hours per square

4. The effective heat loss due to air penetration as L e.g. 0.01 W/(m<sup>2</sup>·K)

### **Glass in Vehicles**

Operating as Pilkington Automotive, the NSG Group is one of the world's leading suppliers of automotive glazing. We work closely with vehicle manufacturers in the development of Automotive glazing products that meet environmental demands, such as vehicle end-of-life and recycling issues.

#### **Solar Control Glazing for Cars**

The challenges for vehicle glazing are set to continue throughout this century. As the transparent barrier between the occupants and the outside world, the demands placed upon glass are enormous. Passenger comfort has long been the spur for continuous improvements to the solar performance of glass, but new demands and requirements are taking over and highlighting where glass can play an important role in the demands placed on tomorrow's vehicles.

According to the International Energy Agency, it is anticipated that current vehicle technologies do not contribute enough to halt the growing output of CO2. It has been estimated that by employing a combination of the best technologies available, there would still be an increase in CO<sub>2</sub> emissions of about 1.4 percent per annum between now and 2030.

Ancillary engine loading has been seen to contribute significantly to the overall CO<sub>2</sub> output, and air conditioning usage directly represents the largest ancillary load on a vehicle engine. Advanced solar control glass can make a large contribution to the reduction of air conditioning usage by reducing the solar heat gain.

Pilkington Automotive vehicle glazing products utilize advanced solar control by absorbing or reflecting the infra-red energy from the sun. Pilkington Automotive's range of optimized green and privacy solar absorbing glasses can reduce the heat entering a vehicle by up to 65 percent. This range of products, incorporating the Optikool, EZ-Kool, Legart, Sundym and Galaxsee branded products, also offers improved UV protection with low visible light reflectance combined with normal levels of glass durability.

The Group's coated windscreens and Pilkington Siglasol products, offer high performance infra-red reflective technology for laminated glazing covering all vehicle apertures. Considering that approximately 30 percent of the heat loading on a car's interior comes through the windscreen, the use of infra-red reflective glazings show benefits for reduced heat on the skin in direct sunlight and reduced air conditioning pull-down time.

With emerging hybrid drive and alternative fuel vehicles, it is anticipated that the use of, and demands on, solar control glazing will increase in the future. Further ongoing developments on Pilkington Automotive coating technology and glass compositions to produce advanced infra-red absorbing and high performance infra-red reflecting technology is anticipated to give even more opportunities for vehicle manufacturers to reduce CO2 output.



#### Lightweight Glazing

There can be over 13 individual pieces of glazing on a vehicle, all of which contribute to the overall vehicle mass and contribute dramatically towards the vehicle centre of gravity and stability.

NSG Group developments have been heavily focused on the introduction of lightweight glass and glazing technology, with the launch of reduced thickness laminated and toughened sidelights, backlights and rooflights products. Through continuous developments in our glass shaping capability to enable asymmetric windscreen constructions, we are committed to the future of glass and glazing products.

Exploiting the development of Pilkington Automotive shaping technology it is now possible for vehicle manufacturers to reduce up to mass of the glass components by up to 25 percent. Glass in vehicles offers more properties than simply being transparent, so when designing vehicles for reduced mass in the components, consideration needs to be given to acoustics, stiffness, sealing and guiding systems and solar control.



# glazing products.

#### **Glass and End-of-Life Vehicles**

Glass typically constitutes around 3 percent of the composition of an average car. The automotive glass industry has not been directly involved in the setting of End-of-Life (ELV) legislation, but the NSG Group is actively involved in work on the elimination of harmful materials in glass, ink, solder and other components used for automotive glass products. End-of-Life vehicle programs such as those in operation in Japan and the EU are expected to grow into global requirements as the elimination of hazardous materials becomes written into regional directives.-

The key objectives of the legal frameworks are and will continue to be focused on the elimination of hazardous substances and the re-use or re-cycling of components in order to minimize environmental impacts.-

There is a clear demand from vehicle manufacturers for suppliers to work with them to establish the most efficient and effective ways of achieving environmental objectives.

There is also an ongoing activity to understand the best recycling techniques for used and unused automotive glass products. Above and beyond glass, new encapsulation materials are continuously being investigated to enable a higher percentage of recycling to take place after the useful life of the vehicle has been realized.

Glass constitutes around



## 3% of the composition of an average car

Through our capabilities for full service supply and our development of lightweight toughened and laminated glazing, we have been able to work with our customers to deliver weight saving technology without compromising on passenger comfort or vehicle structural integrity.

Looking beyond the glass and focusing on the glazing systems that are used to mount and seal the products in vehicle apertures, Pilkington Automotive continuously strives to decrease the component content, with a view to reduced cost and weight. New technology areas, for example integral seals, significantly reduce processing steps and the amount of hardware needed to transform glass products to

### **Glass in Solar Energy Applications**

### Solar Energypower from the sun

Glass has an important role to play in the development of the growing Solar Energy sector. The NSG Group is well placed to supply products for all three of the leading technologies, converting power from the sun into clean renewable energy.

### Moving from hydrocarbon dependency to renewable energy

Over the past few years, legislation has been introduced around the world to address the issue of renewable energy, spurred on by the Kyoto Protocol and subsequent national targets. It is increasingly recognized that a move from hydrocarbons is essential, as supplies are finite and global warming is a reality.

The United States and the European Union in particular, are encouraging the production of renewable energy and in December 2008 the EU published the Renewable Energy Directive. Carbon-trading schemes encourage CO<sub>2</sub> reductions, adding further impetus to the development of renewable energy options. US government schemes designed to encourage 'green' industries are also expected to play an important part in establishing renewable technologies.

Government subsidies are increasingly playing a role in encouraging solar generation, with feed-in tariffs in countries such a Germany, Spain, Italy and Greece making it economic for solar generators to feed power into the national grid systems. The authorities in Japan have indicated likely support for a 50 percent subsidy for homeowner solar installations and US tax incentives are adding further impetus to these technologies. Even without such subsidies, many systems already make economic sense and costs are anticipated to fall further as the technology matures with grid parity expected to be achieved over the next few years.

The NSG Group is well placed to supply the three leading solar technologies and has established a new Solar Energy business unit to exploit this opportunity.



In 20 minutes, the amount of solar energy falling on the earth could power the planet for a year.

#### **Photovoltaic glass**

Glass is an integral and important element of solar modules, used to convert solar energy into electricity.

In traditional photovoltaics, the solar cells may be encapsulated using toughened high transmission glass, which protects the cells from the elements.

Increasingly, electrically conductive glass is used in photovoltaic modules as the front contact of the solar cell, to form a system which generates a direct electrical current. Where the power feeds into a grid, it is first converted into alternating current.

### NSG Group products support the three leading Solar Energy technologies

#### Thin film photovoltaic solar modules

**Technology characteristics:** Produces power at low cost per watt, but requires large surface areas for installations. Can be used in climates where the sun is not very strong and may be obscured by cloud.

**Glass type required:** Transparent Conductive Oxide Coating on Float glass. The glass both lets light through and helps conduct the electricity produced.

NSG Group Products: Pilkington TEC Glass<sup>™</sup> is a high performance, highly durable, electrically conductive glass used in a wide range of markets including photovoltaics, where it is used to construct thin film PV modules. With the Group's advanced technology, the coating properties can be 'tuned' to a wide variety of Thin Film PV technologies, including silicon and cadmium telluride based.

#### Crystalline photovoltaic solar modules

**Technology characteristics:** Highly efficient, but the PV cells are also expensive to make. So, best used in applications where space is at premium. Requires reasonably high solar radiation, but can tolerate some cloud cover.

**Glass type required:** Low Iron Rolled glass plus Anti-Reflective Coating, to ensure that the maximum amount of solar radiation hits the PV cells.

**NSG Group Products:** Pilkington **Sunplus™** is a high performance, low iron glass designed to maximize solar energy collection through very high light and solar transmission. The high solar energy transmission of Pilkington **Sunplus™** makes it an ideal choice for crystalline PV photovoltaic solar cells.

#### **Concentrated Solar Power applications**

**Technology characteristics:** Typically large area mirror arrays. Requires a large area and lots of sunshine. Particularly effective in sunny deserts

Glass type required: Low Iron Float glass

**NSG Group Products:** Pilkington **Optiwhite™** is an ultra-clear float glass with very low iron content and its high solar energy transmittance makes it ideal as a base substrate for mirrors used in concentrated solar power applications.







### **Our Environmental Policies and Management**

The NSG Group takes its environmental responsibilities extremely seriously. The Group's operations are required to meet all legislative standards as a minimum, and where local requirements are not considered sufficient to address an issue, the Group's corporate standards do.

Products from the NSG Group make important contributions to people's wellbeing, their quality of life and to the conservation of energy worldwide. Significant effort continues to be directed towards improving environmental performance and ensuring that quality products are manufactured that have a positive impact on the environment.

As one of the world's largest glass companies we believe that we have a responsibility to go further and to set an example to others. We all share one planet together and we have to play a full role in helping to manage the precious resources on that plant to the mutual benefit of everyone. This is after all the cornerstone of sustainable development, meeting the needs of the present without compromising the ability of future generations to meet their own needs.

In order to emphasize the importance we place on this matter we have developed a number of policies in this area.

#### **NSG Group Environmental Policy**

The NSG Group Environmental Policy defines our approach on environmental matters. In particular it outlines our management of both current activity and the legacy of past and inherited liability. It reinforces our commitment to using good scientific principles to try and predict and assess our impacts on the environment both positive and negative. We acknowledge that our activities will inevitably have an impact but we have taken steps to minimize the adverse nature of any impact and have put in place systems to try and ensure that we manage such impacts in a controlled manner.

Principal amongst the tools we use is our environmental management system, which as a matter of policy is certified to ISO 14001 for all our glass manufacturing and automotive manufacturing sites.

More recently, there has been an increasing recognition that the environment is only one part of a wider sustainability agenda. Care and respect for the environment must go hand in hand with the social and economic needs of society. We have decided therefore to more clearly state our position in our NSG Group Sustainability Policy which will now sit above and be complemented by our environmental policy.

Our Sustainability Policy draws together a number of policy issues and codes of conduct which govern our relationship with all our stakeholders (our workforce, our customers, our suppliers, our investors and shareholders and of course our neighbours and those with whom we live). Our sustainability policy in particularly emphasizes the life cycle aspects of our products and their use and our commitment to working with those who share our philosophy in this area. For more on the Group's Sustainability Policy, see page 34 of this Report.

#### Reporting

We are committed to reporting on our performance both good and bad. To this end we have decided to use calendar year 2007 as a starting point for reporting on the progress of the NSG Group. In the past both NSG and Pilkington have reported on environmental and safety performance. There were however considerable differences in some of the parameters used and of course both parts of the company have undergone considerable restructuring following the acquisition of Pilkington by NSG. Direct historical comparison is therefore difficult and it was felt more useful to allow the past reports to remain on their own merits but to build a new reporting structure based on the current business and geographic structure of the NSG Group.

The NSG Group continues to work with regulatory authorities worldwide on issues relating to historic industrial activity on and around Group premises. The safety of neighbours and employees and the protection of the environment remain of paramount concern.

#### **Data Collection**

Environmental and safety performance data is now collected right across the Group using an online electronic data reporting system known as Airsweb™

This database is multilingual and accessed over the corporate intranet. All sites are connected to the system either directly or via VPN allowing monthly updating of relevant information.



Pilkington's web-based Accident and Incident Reporting System



Login

Environmental data is collected under the broad headings of energy, emissions to air, water usage, emissions to water, recycling and waste. The data collected is based primarily on the core environmental performance indicator set of the Global Reporting Initiative (GRI).

In addition to the collection of environmental emissions and resource usage data the Airsweb™ system also incorporates an incident reporting system. This allows the timely reporting and recording of incident data both safety and environmental as well as provision for tracking the progress or remedial actions and communication of learning points.

Supplementing the routine monitoring of our business, the NSG Group also maintains a number of central registers which are used to guide our strategic development and maintain a high level of corporate governance in the sustainability field. For example a register of all furnaces their associated permits, relevant legislation and abatement capabilities is maintained and used to support the assessment of any proposed changes in operation or design.

To ensure a consistent and innovative approach, the NSG Group operates a number of multidisciplinary design panels whose task is to ensure full assessment and review of proposed changes. We utilize a stage gate process to ensure that an appropriate level of information and resource is applied to an issue at set points within the development of a project or proposal. This ensures both the most efficient use of our resources and encourages the use of a wide range of skills to assist innovation.

For glass manufacturing plants we have defined our strategic approach to abatement in order to ensure that across the world we hold fast to our principles even in parts of the world where legislative controls are less well developed.

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#### Certification

The Group has continued to certify its manufacturing facilities to the internationally recognized ISO14001 environmental standard and now has 69 certified sites around the world, representing 70 percent of business by turnover. Pilkington Automotive was one of the first companies in the automotive industry to achieve a corporate certificate for environmental management. A single DIN EN ISO 14001 certificate covers Pilkington Automotive sites worldwide



### **Our Energy and Resource Usage**

Float glass manufacture is an energy consuming process, but many of our products reduce energy consumption when used in buildings or vehicles. It is important to consider this overall balance when assessing environmental impact.

#### **Energy Usage**

#### Natural Gas

For both environmental and financial reasons and wherever practicable, the NSG Group uses natural gas as the fuel of choice for glass melting. Natural gas emissions are discussed below, but from a production viewpoint the fuel is easy to control, does not usually demand a large investment in local storage and has generally proved relatively reliable in delivery.

The company used 982 million cubic meters of natural gas in 2007. This equates approximately to 34.6 PJ of energy.

#### Heavy Fuel Oil

The second most utilized fuel was heavy fuel oil, of which we used 301 million liters in 2007, or 11.9 PJ. Heavy fuel oil is readily available and relatively low cost. It provides good heat transfer and is considered a good fuel for glass melting. Its principal disadvantages lie in the emissions caused during combustion and its physical characteristics and consequent difficulty in handling (e.g. it is very viscous at normal temperatures and therefore requires heated storage).

The NSG Group used 290 million liters of heavy fuel oil (11.5 PJ) in 2007.

#### Diesel Oil & LPG

The use of diesel oil and of liquid petroleum gas as fuels for float furnaces is limited generally by cost. Both are used as back-up fuels in case of the failure of the preferred fuel. Diesel oil is also widely used to power small engines and boilers.

In 2007 the Group's consumption of diesel oil was 39.4 million liters or 1.5 PJ and that of liquid petroleum gas 10.7 k tonnes or 0.5 PJ.

#### Electricity

Electricity is a major resource usage for the Group. The environmental impact associated with electricity is of course dependent on the method used to generate it.

During 2007 the Group used 2.4 TWh of electrical energy.

#### NSG Group Energy Usage in calendar year 2007 by fuel type



#### **Resource Usage**

#### **Renewable Resources**

It is often difficult to calculate the proportion of this energy generated from renewable resources. Renewable electricity is acquired in a number of ways. Some electrical power is directly generated on site from waste gases, using co-generation installations. Electricity supplied directly from wind or solar remains quite low. More is supplied via the existing grid supply system under so called 'green supply' contracts. In a number of jurisdictions, electricity suppliers have a legal obligation to generate a proportion of electricity from such sources.

In 2007 the Group received 8.7 GWh from renewables and waste heat directly, plus a further 38 GWh from combined heat and power.



The diversity of generation of grid supplies is taken into account when calculating carbon dioxide emissions resulting from the generation of electricity by taking this into account when using published carbon factors. No attempt has

Co-generation installation, Settimo Automotive plant, Italy

been made in this report to make a more accurate estimate of the overall renewable content of our supplied electricity, but this will be considered in the future.

#### Other resources

#### Timber

In Europe much of the glass is transported without packaging utilizing specialist vehicles known as 'Floatliners'. In these vehicles jumbo size glass is transported on steel stillages which do not require additional packaging. Outside of Europe more of the glass is transported in boxes and containers, often made of wood. Although much of the timber used by the Group comes from sus-

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# The total energy used by the NSG Group in 2007 was 56.78 T I (15.77 TWh)

tainable forestry, we are not yet in a position to be able to guarantee this worldwide and this remains an area for improvement.

#### The NSG Group used 260,000 cubic metres of timber (wood) in 2007; mainly in the transportation of glass.

#### Water

The glass-making process is not a particularly high user of water. Water is used for cooling in the process, but the majority of our plants operate with closed loop systems and so only require top up. Water is also used for washing glass within the plants, but there the need is for very high purity, so water is treated and then reused.

#### The Group used a total of 26.8 million cubic metres of water in 2007.

#### Recycled glass

The other notable resource used by the Group is cullet (re-cycled glass) bought in from external sources and re-melted to form new glass, so closing the recycling loop.

#### In 2007, the Group bought in 197,900 tonnes of cullet to supplement cullet from our own internal recycling.

For comparison - the Group made 4.7 million tonnes of glass for sale over the same period.



#### NSG Group Resource Usage by resource type Calendar Year 2007

### **Minimizing Environmental Impact**

Glass manufacture is an energy-intensive process, involving the melting of sand and other raw materials. The principal emissions from the process are to air and arise as products of the combustion of fuel and as carbon dioxide from the decomposition of the limestone and dolomite used in the process.

The NSG Group has undertaken environmental impact analysis of the float glass and automotive windscreen production processes and these reveal that the only significant emissions are carbon dioxide, oxides of nitrogen, oxides of sulphur and, to a far more limited extent, particulate matter.

The glass manufacturing process itself produces very little waste material. All trimmed glass is recycled back into the melting process and waste is limited to maintenance waste, occasional off specification raw material which cannot be usefully blended and packaging waste. If glass is produced which cannot conveniently be re-melted on site it is sent, where practicable, for external recycling.

#### Principal emissions from the NSG Group during 2007



#### Notes<sup>,</sup>

- 1. Units of measurement vary with each material and are normalised to accommodate the figures on one chart.
- 2. In this chart, for the sake of clarity, the hazardous air pollutants oxides of sulphur, nitrogen and particulates are shown as combined air pollutants.

#### Waste

Waste is classified under a series of headings. In many jurisdictions, materials for recycling are classified legally as waste. We have reported materials based not solely on legal classifications but on the actual practice. Thus, where 'waste material' has in fact been recovered or sent for recovery it appears under the heading 'product for recovery' and not as waste.

The classification of waste, hazardous or non-hazardous is itself dependant upon jurisdiction. We use local classifications where they exist. Where they are unclear we default to the European Union waste classification system

#### Recvcling

Glass for recycling is listed separately because it is a valuable resource. Wherever practicable we recycle any glass off-cuts or cullet within our own glass melting lines. Glass from our downstream operations and from those of our customers represents a potentially useful resource to us.

We gain a double benefit from the use of such cullet. First, the use of cullet to make glass reduces the requirement for raw materials and of course avoids the problem of disposing of what would otherwise be a waste material. Secondly, there is a net energy saving and consequent reduction in emissions since it takes less energy to melt glass than to melt the equivalent quantity of raw materials.

One of the significant sustainability advantages of glass as a material is that, unlike many other materials, it can be recycled indefinitely. The only real constraint in glass-making terms is color. Whilst it is possible to use clear glass cullet in the production of colored glass it is not practicable to do the reverse. However, this does not mean that all glass products can be recycled easily. Removal, segregation and transport impacts can affect the viability of recycling.

The NSG Group operations in Japan achieve some of the highest levels of recycling in the Group, with materials being handled at a dedicated recycling plant within the Chiba operations. Very high levels of recycling are also achieved in South America, particularly in Brazil.

In 2007, the NSG Group sent 375 thousand tonnes of glass for recycling and bought in nearly 198 thousand tonnes. In addition a total of 23 thousand tonnes of glass could not be successfully recycled and was sent for disposal. When the waste disposal option cannot be avoided, the Group utilizes the waste hierarchy to guide its disposal options. In this system landfill is the least favoured option. However, because significant tonnages of mineral materials arise for disposal we have not successfully eliminated landfill completely.

In 2007 NSG Group disposed of 66,740 tonnes of waste of which 2,715 tonnes of hazardous and 37,961 tonnes non hazardous waste were sent to landfill.

#### **Emissions to air**

Emissions to air give rise to the Group's highest potential environmental impact. These arise primarily from the combustion of fuel used to melt the raw materials. The principal materials emitted are oxides of sulphur and nitrogen. A third component is particulates, which arise partly from trace components in the fuel and partly from the glass formation itself.

#### Oxides of sulphur

The fuels used by the NSG Group, oils and natural gas, all contain sulphur compounds as contaminants. The sulphur content of natural gas is lower than that of the oils and this is one of the reasons natural gas is our preferred fuel where available. Heavy fuel oil contains the highest levels of sulphur of all the fuels we use and that readily available in Japan is particularly high. For this reason our furnaces in Japan are fitted with efficient gas-cleaning equipment to minimize release to air.

The combustion of such fuels leads to the oxidation of these sulphur compounds to produce a mixture of sulphur oxides commonly referred to as SOx, which is a primary cause of acid rain if emitted in quantity.

Oxides of sulphur also arise in more limited quantities from the sulphate contained in some raw materials. However, most sulphate that arises from the making of soda lime glass is released as sodium sulphate which is of low toxicity and is not a component of acid rain.

# In 2007, the NSG Group sent 375 thousand tonnes

of glass for recycling

#### **Oxides of nitrogen**

Nitrogen compounds released do not arise from the fuel but from the combustion air in which the fuel is burnt. At the high temperatures used in glass-making, the nitrogen in combustion air is oxidized to a mixture of nitrogen oxides (NOx).

There are three principal ways in which these oxides of nitrogen can be reduced or prevented. In an oxyfuel-fired furnace the combustion air is replaced by pure oxygen, eliminating the production of oxides of nitrogen. There is, however, an environmental impact associated with the production of the oxygen itself and when this is taken into account the overall environmental balance of this design is weakened.

The second option is to control the production of oxides of nitrogen within the furnace itself. The patented and award winning 3R process invented by Pilkington is an example of this technology. This process is beneficial in removing the more toxic oxides of nitrogen, but carries with it the disadvantage of increasing the emissions of carbon dioxide and is only used when furnaces are gas fired.

The third option is the use of selective catalytic reduction, in which aqueous ammonia is used to reduce the oxides of nitrogen to nitrogen and water. This requires the use of a substantial 'end of pipe' treatment plant consisting of three combined units. Acid gases are removed using a chemical scrubber (a form of chemical reactor) and particulates, including those formed by the scrubber reaction, are then removed using an electrostatic dust precipitator before the oxides of nitrogen are treated.

The selection between these options is dictated by a number of site-specific factors, including the precise product range produced, the fuel mix used on the furnace and local access to reclamation or recycling plants.

Carbon Dioxide emissions are covered in the following section 'Tackling Carbon Emissions'

### **Tackling Carbon Emissions**

Carbon dioxide is released in the glass-making process from two sources; the combustion of fossil fuel (combustion carbon dioxide) and the decomposition of limestone and dolomite from the 'batch' raw materials (process carbon dioxide).

These direct emissions occur from the furnaces and glassmaking. Bending furnaces within the Automotive business and glass toughening plants also burn fuel. Within the Group's Specialty Glass business, fuel is used to re-melt glass, to dry products, raise steam and also on many sites to generate electricity directly.

The majority of electricity generated worldwide consumes fossil fuels and releases carbon dioxide, thus raising the issue of how to account for these emissions.

We report both our direct carbon dioxide emissions including any released as a result of directly generating electricity on our own sites, and the emissions by the electricity generation industry producing the electricity we have used.

We calculate these electricity related emissions using data provided by the energy supply company or where this is not available using publicly available data sources.

The factors used to calculate the carbon dioxide released by electricity generators depend upon the fuel mix employed. This is becoming increasingly complex as generators seek to increase their use of renewable and sustainable sources of energy. There is often a delay between our wish to report and the publication of energy factors. Therefore, as more reliable factors become available we will attempt to update our information.

Carbon dioxide emission has slightly increased over the last five years as production capacity expanded to meet increasing demand. The Group's operations in Europe, however, have reduced carbon dioxide emissions per tonne of glass by 6.6 percent over the past three years-significantly better than its 6 percent target. Carbon trading improved that reduction to 8 percent.

Conversion from heavy oil to natural gas as the preferred fuel to melt glass, has contributed to almost halving carbon emissions over the last 40 years and a combination of actions; improving design, fuel efficiency and operation of furnaces, improved heat recovery and increasing the recycling of glass cullet has made further progress.



#### NSG Group Carbon Emissions 2007



In 2007, the NSG Group was responsible for the emission of 5 million tonnes of carbon dioxide in total, direct and indirect emissions. Our direct emissions were 4 million tonnes.

Our manufacture of glass emitted 4.02 million tonnes of carbon dioxide in total, including direct emissions of 3.6 million tonnes, (Europe 1.8 million tonnes total, 1.6 million tonnes direct: North America 0.78 million tonnes total, 0.64 million tonnes direct; South America 0.45 million tonnes total and 0.42 million tonnes direct, and China, Japan and SE Asia 1.0 million tonnes total and 0.88 million tonnes direct).

### **Carbon trading**

Greenhouse gas trading is the mechanism established under the Kyoto Protocol to allow permitted emission rights in greenhouse gases to be traded. From the manufacturer's viewpoint, this is a cost-mitigation mechanism, allowing cost effective emissions reductions whilst responding to fluctuating demand.

At the time of the production of the current Report, the European Union and UK Emission Trading Schemes are the only fully operational greenhouse gas trading schemes, although trading in the 'project mechanism credits' also takes place. The UK Emissions Trading Scheme covers the whole basket of greenhouse gases recognized under the Kyoto Protocol, whilst the EU Emissions Trading Scheme (EU ETS) covers carbon dioxide alone. The EU ETS is the first fully functional international carbon dioxide trading scheme in the world.

The NSG Group participates in both the UK ETS and the EU ETS. The company supports the concept of emissions trading as a helpful tool in achieving greenhouse gas reductions, but we recognize that it is just a tool and that the need for society to make actual reductions is paramount. The NSG Group is aware of discussions taking place in other parts of the world and is cooperating with authorities and others in the United States and Japan on the establishment of such schemes.

2007 was the final year of the first phase of the EU ETS. This scheme applies to all our European glass manufacturing facilities. However our UK sites, operating under UK Climate Change Agreements (UK CCA) and UK Emissions Trading Scheme, were legally opted-out of verification. As a policy decision, we included our UK sites in the independent verification audit process and all our prescribed facilities successfully passed. In the UK, additional requirements under the UK CCA were also met. For the second phase, there is no opt-out.

The EU ETS covers the Group's float and rolled glass manufacturing and other plants with large-scale combustion processes. We use risk modelling to explore the likely exposure of the business. The Company believes that, despite marked differences in the approach taken to allocations by individual member states, the allocated allowances for the Group will, with good energy management, be sufficient to cover expected emissions during the second phase.

Carbon dioxide emissions are recorded in different ways, reflecting variations in energy and climate change policy in different countries. The distinction between 'total' emissions and 'direct' emission is noted above. The EU ETS covers both direct emissions but the UK Climate Change Agreement relates to energy including supplied electricity and excludes process emissions, leading to complex conversion calculations when calculating related carbon dioxide obligations.

Emissions measured under the EU ETS in this way amounted to 1.5 million tonnes in 2007. In Europe, fewer gas supply constraints coupled with improved production efficiencies enabled average specific emission of carbon dioxide in glass manufacture, to be reduced some 6 percent over the previous year. Elsewhere in the world, the enforced reliance on heavy fuel oil meant the overall specific carbon dioxide emissions for the Group remained some 12 percent higher than in Europe.

This is not the complete picture. The advent of carbon trading means that increases in absolute emissions may be offset by the surrender of certified carbon dioxide allowances. In 2007, 66,000 tonnes of carbon dioxide allowances were surrendered to meet obligations under the UK CCA and the EU ETS.



### **Our Policy for Sustainability**

The NSG Group recognizes that we are all collectively responsible to those with whom we share one world to try to attain a more sustainable future for our descendants. The Group is working to be a sustainable company, producing high quality glass products that make an important contribution to improving living standards, to people's safety and wellbeing and to the generation and conservation of energy.

The NSG Group aims to achieve this by balancing the needs of all its stakeholders, managing its environmental impacts, developing its people, encouraging innovation in processes and products, working in harmony with the communities in which the Group operates and encouraging our customers, contractors and suppliers to do the same. As a member of the Sumitomo Group of Companies, we believe that people are the most important asset of our company, so we will ensure that our work environment allows our people to reach their full potential.

- We will conduct our business with integrity and in a safe, professional, legal and ethical manner as set down in our Code of Conduct and at all times in ways that demonstrate the Group's corporate social responsibility.
- We will comply with all relevant laws and regulations and take additional measures to meet our sustainability objectives.
- We will integrate sustainability considerations into our business decisions and ensure that our people are fully aware of and committed to the implementation and improvement of this policy.
- We will work with all our stakeholders to ensure no harm is done to the environment.

Our aim is that, by 2012, we will be recognized by our stakeholders as committed to this policy, through compliance and demonstrable leadership in key elements of our manufacturing processes and the application of our products.

- We value the health and safety of all our people above all other considerations.
- We will strive to develop innovative new products and processes which give increased benefits to our customers and the environment throughout their life cycle.
- We will assess the life cycle impacts of our products and processes with decisions based on sound science, seeking to reduce adverse environmental impact, maximize the reuse, recycling or recovery of resources and minimising the production of waste.
- We will manage responsibly all materials in a manner commensurate with their environmental risk and exercise responsible stewardship of those lands for which we are accountable.
- We will seek to develop long term partnerships with our suppliers, preferring those who share our commitment to sustainability.
- We will recognize the value of local relationships and take into consideration the whole life value offered by such arrangements.
- We will act as responsible members of our communities by generating economic growth and supporting social, educational and cultural development particularly where these relate to the underprivileged or those unable to afford to maintain a satisfactory heating or cooling regime.

We are committed to running our business in accordance with the principles of sustainable development, meeting the needs of the present generation without compromising the ability of future generations to meet their own needs.

Glass has a unique role to play in society's attempt to reduce greenhouse gas emissions and mitigate the effects of climate change. Recognizing this, we will support initiatives to utilize glass in order to reduce the energy consumption of buildings, vehicles and equipment or to generate or conserve energy. Glass production will remain energy intensive. Therefore, we have an obligation to minimize that energy use and to ensure that glass contributes maximum net benefit to sustainable development.

Our principal raw materials are mineral in nature, therefore we have a particular obligation to ensure that, in obtaining those minerals, natural habitats and biodiversity are preserved or enhanced.

- We will enter into constructive dialogue and relationships with our stakeholders, seeking to play our full part in helping society to live within its environmental means.
- We will publish our sustainable development targets and be accountable for our performance. To this end we will ensure that our operations are conducted in accordance with recognized standards and our reported performance is independently verified.

The Group Chief Executive has overall responsibility for this Policy, with the Chairman of the Audit Committee acting as custodian of good governance. The Director of Environment Health and Safety is responsible for the publication and monitoring of this policy. Business lines and functions are responsible for the implementation of this Policy.

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Stuart Chambers Group Chief Executiv NSG Group

NSG

with 2009

### **Our Shareholders**

Promoting Dialogue through Focused Global IR Activities



Kazumitsu Fujii Head of Corporate Communications

Excellent communications with all our stakeholders is a priority for the NSG Group. In communicating with our shareholders, potential investors, the financial community and regulatory authorities, our aim is to provide transparency, timeliness and accuracy.

Our overall objective is to provide as much information as possible to help our shareholders and potential shareholders understand the Company's strategy and performance, to enable them to take investment decisions.

#### **Direct Interaction with Investors**

The NSG Group holds mid-term and year-end financial results briefings for securities analysts and investors in Japan, with further communications in the intervening quarters. The CEO and Group Financial Director (GFD) directly present and discuss financial results and business strategy progress and the future outlook. Moreover, the IR team has given around 200 individual talks during the year to domestic and foreign investors following the release of financial results. Reflecting the increasingly high proportion of foreign investors, the CEO and GFD have arranged IR 'road shows' to create opportunities to talk with shareholders and investors in Europe, North America and Asia.



Group Chief Executive Stuart Chambers (left) and GFD Mike Powell address an analysts meeting in Tokyo

#### Changing Shareholder Composition Around 40% of our shareholders are now from outside Japan

The NSG Group is listed on the Tokyo Stock Exchange and the Osaka Securities Exchange. As of 31 March, 2008, the NSG Group had 669,551 thousand issued shares and 58,209 shareholders. The characteristics of the shareholder composition (ratio of shareholding by ownership) show that non-Japanese shareholders of the NSG Group have reached nearly 40 percent.

With the acquisition of Pilkington plc in June 2006 and the subsequent consolidation as a global corporation, non-resident foreign corporations and foreign individuals now own 39.69 percent of the NSG Group shares. The composition of shareholders includes the following investor types: 33.17 percent ownership by financial institutions and securities companies resident in Japan, 20.95 percent by individual investors, 6.0 percent by other corporate entities, and 0.19 percent treasury stock. The Group has expanded its global IR effort to meet the requirements of shareholders and potential investors around the world.

#### Composition of NSG Group Shareholders (Shareholding ratio by ownership)



#### Interacting with Diverse Shareholders and Investors Fast and Fair Information Disclosure

Consistent with its approach of being 'open and fair' and 'complying with corporate ethics', the NSG Group has established a basic IR policy regarding information disclosure standards and methods. As a listed company on the Tokyo Stock Exchange, the NSG Group discloses information in line with 'Rules on Timely Disclosure of Corporate Information by Issuers of Listed Securities', established by the Tokyo Stock Exchange.

In addition, even for information that does not fall under the category of timely disclosure rules, once it has been determined that the disclosure of information to investors is beneficial, arrangements are made to communicate such information swiftly and fairly.

#### **Proactively Providing IR Information**

A special individual investor's site is available for individual investors in Japan. IR information in English is provided within our English language IR site, which contains annual reports, business information, shareholder notifications, industry information and other data.

#### Ratings from Outside Institutions Internet IR Best Company Award

In May 2008, the NSG Group's IR site was once again selected by Daiwa Investor Relations Co., Ltd. as one of "Internet IR Best (investor communications) Company Sites."



#### **Overseas Plant Tours**

The IR department arranges overseas tours, designed to provide analysts with the opportunity to visit the Group's manufacturing operations outside Japan. This has enabled them to see for themselves the increased scope of the Group's manufacturing base and to assess the rate of integration. Most recently, a group of nine analysts visited the plant at Sandomierz in Poland, where the Group has both Building Products and Automotive operations. The CEO and GFD also participated in the visit, which included briefings by local management.

#### **SRI Index and Other Ratings**

In recent years, the Social Responsibility Investment (SRI), which rates companies in terms of their environmental, social, governance and other relevant activities, has attracted attention. The NSG Group was invited to join both the Morningstar Socially Responsible Investment Index and the Corporate Governance Fund of the Pension Fund Association.

#### **Publications**

The NSG Group produces a number of regular publications designed to give current and potential investors with as much information as possible about the Company, the industries in which we operate and the organization, strategy, targets and progress of the Group.



#### The Way we do Business

Produced for Group employees in all of the languages in which the Group operates, summarising the main points of the Group's Code of Conduct.



This is Pilkingston General introduction to the Building Products and Automotive businesses of the NSG Group.



**Pilkington and the Flat Glass Industry 2008** Detailed analysis of the world's Flat Glass industry and the NSG Group's position within it.

#### The Way we do Business

http://www.pilkington.com/pilkington-information/ downloads/code+of+conduct.htm

This is Pilkingston

http://www.pilkington.com/pilkington-information/ downloads/this+is+pilkington.htm

Pilkington and the Flat Glass Industry 2008 http://www.pilkington.com/pilkington-information/ downloads/pilkington+and+the+flat+glass+industry+ 2008.htm

### **Our Customers**

Aiming to be the preferred supplier of glass and glazing products to our customers

#### VOICE

Clemens Miller Managing Director Building Products Europe

We aim to be the supplier of choice of our customers. This means that all our businesses must be the most efficient, most reliable and most responsive supplier.

Most efficient means having the lowest delivered unit cost of what we supply.

Most reliable means that, having committed to a customer order, we deliver what they ordered, with the promised quality, when they expect it, in full, on time, every time, without paperwork mistakes.

Most responsive means that when our customers contact us by whatever method, they get an answer straightaway. In other words, they know where they stand with us.

#### Quality

#### Quality is a key feature in building successful relationships with our industry customers and end consumers

Quality is key because high quality can reduce waste throughout the supply chain, while improving production efficiencies. The scope of quality extensively encompasses design, development, manufacture, delivery, assembly and price of glass as well as customer support. In the NSG Group, the achievement of high quality is supported by the use of rigorous quality management systems and standards.

In the Building Products business, the Group has ISO 9000:2000 quality management certification in Europe, Japan, North and South America. New certifications have been achieved in Russia and China in recent months.

The European Building Products business has been a leading player in the development of new glass product standards for the European building industry. These standards have provided a route for glass manufacturers to meet the European Construction Products Directive and apply to virtually all NSG Group products used in buildings. Global supply chains in Building Products are increasing and the Group is actively contributing to the development of new global product standards through collaboration with working groups set up by organizations like the International Standards Organisation, ISO.

The global Pilkington Automotive OE organization operates a single quality management system to ensure the consistent quality of its products from wherever they are manufactured and supplied. It has a corporate ISO/TS16949:2002 (which is the internationally recognized automotive quality standard) certificate and is well advanced in its plans to extend this certification to operations in Japan and other parts of Asia.



Solar Energy business growth requires the supply of exemplary quality and service into global customers with micro-electronics industry expectations. The Group's products have passed rigorous qualifications and manufacturing plants in Europe, Japan, China and North America are now established suppliers.

Overall, the Group aims to provide customers with products that have safety, environmental and in-service benefits. These include personal protection, security, energy saving, solar control, noise reduction, fire protection, improved styling and enhanced visibility for vehicles and self-cleaning properties for glazing in buildings.

Support is also provided to customers in the selection and application of products, in their safe handling and storage and in evaluating their environmental impact.

The NSG Group discloses product and service information to customers online, through online sites hosted in

#### **CE Marking**

Demonstrating confidence in its quality management systems and the quality of its products, Building Products Europe applies the CE mark, which confirms achievement of harmonized European Norms for all products marketed inside the EU.

In glass manufacturing, CE Marking means that the product satisfies all the provisions of Directive 89/106/EC on construction products and other applicable marking directives. In addition, the CE Marking declares that the product carrying the mark complies with the harmonized European Norms (hENs), which are European technical standards, and has undergone appropriate conformity assessment procedures.

Harmonized European technical standards have been produced under a "Glass for Building" mandate given by the European Commission to the European standards making body, CEN. This mandate covers flat glass, profiled glass and glass block products.

CE Marking link

http://www.pilkington.com/applications/ce+marking/ uk\_ireland/default.htm

#### Awards Won for Quality and Marketing

#### **Building Products**

■ Pilkington Activ™ marketing and sales team received the Bronze Award in the Institute of Practitioners in Advertising (IPA) Effectiveness Awards (United Kingdom) ■ Pilkington Activ<sup>™</sup> campaign received the SWOT Marketing Award (United Kingdom) Prize at the 41st Ceramic Prize Awards ceremony hosted by the Ceramic Society of Japan (Japan) Pilkington Building Products UK won a Health and Safety Award at the UK G08 glazing industry 2008.

#### Automotive

Toyota Superior Quality Control Award from Toyota Motor Corp. (Japan)

- Achieved Ford's Q1 Quality Standard (Italy, Poland, Finland)
- National Economic Award from a Polish Business Newspaper (Poland)
- Received Supplier of the Year Award from Panasonic Automotive Systems America Inc. (PASA) (North America)

#### Specialty Glass

First-Class Value Engineering Proposal Award from Bridgestone Corporation for the streamlining of plasma TV production (Japan) Excellent Quality Award for LCD panels from Stanley Electric Co., Ltd. (Japan) Chairman Encouragement Award from the Japan Air Cleaning Association for the study of air filters (Japan) Excellent Supplier Award from Panasonic Storage Battery (Shenyang) Co., Ltd. (China) Best Supplier Award for Nanox by telecommunications manufacturer NEC Infrontia Thai Ltd.

38

# 23 countries

#### **Proactive use of e-Commerce**

The NSG Group makes extensive use of electronic marketing, through its commercial websites. It has also been active in developing a platform to exploit e-Commerce, particularly in the business-to-business (B2B) sector. The Group has developed and introduced e-Commerce solutions that are both standardized and tailored to local languages and business methods. Most customers and suppliers in the Building Products and Automotive businesses are now able to do business online. Customers are already using Pilkington Automotive's e-Commerce solutions via a large number of applications; Almost 100 percent of global OE sales are processed online; North America AGR operates 'e-Premier.net', offering an online accessory catalogue and inventory query facility along with electronic ordering, invoicing and payment. The proportion of customers ordering online is around 67 percent

The BP Commercial website includes an electronic 'Product Directory' to inform customers on the Company's product range and the specific benefits offered by each product category.

Mexicali plant recognized as one of the top three companies in Mexico City in an annual productivity award scheme (Mexico).

### **Our Employees**

Aiming to make the Group a preferred place in which to work

### **VOICE**

Tim Izzett Group Director of Human Resources

### Employees are our most important asset

The NSG Group reflects diversity in its workforce and believes that the range of nationalities, skills, qualifications and experience available in its many areas of operations are a positive benefit to our business. Our management philosophy values people as 'the most important asset of our company'. A major objective is to ensure that safety at work is paramount. All of the businesses have the objective of improving safety as a priority and safety performance and behaviours are closely monitored.

#### Relationship with Employees Employee standards that respect human rights

Our Code of Conduct acknowledges internationally proclaimed human rights and the impact these have on employment. Employment standards have been set, derived from external international human rights employment guidelines and the NSG Group's business requirements.

The Code and the Group's overall employment policy provide employees with reassurance on how they will be treated and guide employment policy and practice in individual businesses. Our equal opportunity policy aims to prohibit discrimination on the basis of race, colour, creed, religion, age, gender, sexual orientation, national origin, disability, union membership, political affiliation or any other status protected by law. This policy operates in all employment-related decisions.

#### Maximising the Potential of Individuals

Well-trained and developed people are crucial to the Group's success in maintaining its competitive edge and in achieving the high performance demanded by its customers and shareholders. The pursuit of high standards of performance, the on-going introduction of new technology and work practices, and the demanding roles created by a flat organization structure mean that continuous development of new skills and competencies is essential for everyone. The Group's people development policy emphasizes the importance of the training, retraining and continuous development of all employees.

On-the-job training is significant and focuses on raising safety standards and performance and enhancing skills through planned initiatives in the workplace.

#### **Consultation and communication**

A formal cascade system of regular communication and briefing within all businesses ensures employees receive updates on Group and local business objectives, targets, results and best practice at central and business line levels.

Every employee receives a monthly written briefing in his or her own language from the head of the respective business line. Everyone also receives a copy of the Group's employee magazine, MADO, every eight weeks in his or her own language. The Group Intranet, NSG Group Inside, is available to every employee on the company network

#### Group-wide Employee Survey Outcome 70% Positive

A global Employee Survey was conducted in September/October 2007 and will be repeated every two years. The purpose of the survey is to obtain employees' assessment of their level of job satisfaction within the NSG Group. The first global employee survey for the new Extensive Group-wide Employee Survey covering approximately

company revealed a positive result worldwide, with almost 70 percent of employees assessing their level of motivation and satisfaction as 'good'.

Over 80 percent of the 28,000 employees invited to respond to the survey did so.

Answers were analysed on a global, regional, business and site level and results were communicated to all employees together with action plans proposed in response to the issues raised. Globally, results were largely positive in the areas of quality, cooperation and health, safety and environment, and in respect of the Company's reputation. Employees were less satisfied with performance in the areas of personal development, communication and daily work. New procedures have already been put in place to address the issues raised.

#### **Summary by Driver**



Communications, personal development and quality are the three main issues for UK employees following the Group-wide opinion survey.

# 28,000 employees in 30 countries

#### Safety Performance 12% improvement in Safety Record but also tragedy

Our primary indicator of safety, the Significant Injury Rate, (SIR) (a measure of safety recording injuries requiring medical treatment or the reallocation of duties to allow an individual to continue working), improved 19% to 1.24 in 2008; In common with most other companies we also record our Lost Time Injury Rate (LTIR) - a record of work-related accidents or illnesses preventing individuals involved being able to report for work on the following day or shift. These are expressed as a rate per 200,000 hours (approximately the time worked by 100 people in one year). The LTIR was 0.29 in 2008; an improvement of 12 percent.

There were 417 injuries classified as significant and 130 lost time injuries in the year, for the total 32,500 Group employees. Tragically there were two fatal accidents on our sites in the financial year. An employee was run over by a forklift truck in the Rossford USA plant and a permanent contract driver was killed loading glass at the Kansai facility in Japan.

We have moved beyond reactive measures and now measure 'safety in four ways.' This means that in addition to SIR we measure incidents of high potential severity, our progress in behavioural safety and each site tracks monthly progress on three key safety actions. We believe that this gives a more complete assessment of true commitment and performance in safety.



### **Our Suppliers**

Maintaining an equitable relationship with suppliers and cooperating with them to meet social responsibilities

#### **VOICE**

Tom Rae Group Director of Procurement



We seek to build relationships with all our suppliers that are based on CSR standards similar to those in our own Code of Conduct

We work closely with them to ensure that their products and services not only meet design, cost, quality and performance requirements but are also backed by recognized quality standards, appropriate environmental practices and safe working procedures.

#### Philosophy toward Suppliers

Our products are manufactured using materials, products and services procured from suppliers throughout the world. The Group obtains a wide range of materials and services from outside suppliers and, therefore, suppliers constitute a significant stakeholder group.

To manufacture and supply superior quality glass products to customers the Group aims to build strong relationships with suppliers which are based on a framework of trust, cooperation and Corporate Social Responsibility (CSR). Corporate Social Responsibility means managing our business responsibly and sensitively for long term success and sustainability with respect to all stakeholders.

This framework is being set out in a Supplier Code of Conduct which will be launched to all suppliers early in 2009. The Supplier Code of Conduct takes into account our company's values and principles, particularly the emphasis on safety, taking personal ownership for our actions and communicating with openness and involvement.

### Key elements of the NSG Group Supplier Code of Conduct are:

- Our suppliers must carry out their business in a safe, professional, legal and ethical manner and in a way that demonstrates corporate social responsibility.
- All suppliers must accept personal responsibility for behaving professionally, ethically and with integrity and fairness.
- We respect, the laws, traditions and cultures in those countries in which we operate.
- Suppliers must strive to apply employment standards which promote the application of human rights.
- No intentional discrimination for recruitments, promotions, job transfer, dismissal and other employment related activities on the basis of race, color, creed, nationality, age, gender, sexual orientation, religion, origin, disability, union membership, political affiliation or other status protected by law.
- Local laws on age discrimination must be observed.
- A safe and healthy working environment must be provided by minimising as far as is reasonably practical, the causes of hazards inherent in the working environment.
- The law and regulations relating to employment in each country in which the supplier operates must be respected.
- We will not engage with suppliers who apply or support forced labour. Young people under the age of 15, or older if defined by law, should not be employed.
- Suppliers should seek to conserve natural resources such as reducing the consumption of energy and encourage recycling.
- Suppliers must manage any hazardous material in appropriate ways to protect employees and the environment.
- We seek to encourage suppliers to facilitate good environmental practices and promote the efficient use, reuse, recovery and of materials used in their manufacturing and processing.

#### **Supplier-Related Activities**

The following are examples of activities and projects which demonstrate NSG Group's commitment to CSR and sustainability. Where possible, the Group implements such activities across its operations in all regions. Good practices are shared through Global Procurement Category teams and spread throughout the Group. The Group is able to leverage its Global Procurement organization to achieve this spread of good practice effectively and efficiently.

#### Recycling

- In the Automotive business line all supplied materials are registered in the global IMDS (International Material Data System) system to ensure that the Group has complete visibility of material content to identify hazardous materials and also the opportunity for recycling. This data is shared openly with our Automotive customers to fully support their own recycling efforts.
- Cullet the Group recovers broken, waste glass (cullet) for use in the glass manufacturing process. Glass manufacturing plants are designed to ensure that cullet is recovered efficiently and returned to the raw glass manufacturing (float) process. Not only does this increase recycling but it also reduces the raw material and energy requirements to manufacture raw glass. In 2007, just under 1.5 million tonnes of cullet was recycled in NSG Group's manufacturing plants.
- Polyvinyl Butyral (PVB) is an organic compound originating from natural gas or oil which is used to manufacture laminated glass, mainly for automotive windscreens. PVB trims from the edges of the laminated glass are returned to PVB suppliers to be recycled in their manufacturing processes.
- Silver paste is used to provide an electrical conductive medium in automotive glass products. Silver is recovered from both containers and cloths by our suppliers.
- Packaging. NSG Group seeks to minimize its packaging and transportation consumption by improving the design of packaging to maximize the product densities for efficient shipping. The Group is also increasing the use of returnable, re-usable packaging. Wooden crates used to transport glass for the automotive glass replacement market are re-used ten times or more, thus minimising our consumption of wood resources. The wood used in the manufacture of these crates is also purchased only from sustainable sources.

#### Sustainability and conservation

- Glass manufacture is an energy intensive business. The NSG Group seeks to minimize its consumption of energy by the instigation of energy reduction projects throughout the operations.
- The Group is partnering specialist providers to implement highly efficient power generation plants working in a cogeneration mode (Heat and Electricity) or tri generation mode (Heat, Electricity and Cooling). A number of facilities are fully operational and some others are being studied.
- The Group also seeks to use excess energy from manufacturing to produce steam, hot water and electricity. Currently, three plants are under study to assess effective implementation.
- New equipment and plants are designed in collaboration with suppliers to maximize energy efficiency.
- The Group seeks to minimize its consumption of water by working with suppliers to recycle water and to install cuttingedge water treatment facilities. Such projects at the San Salvo and Primo plants in Italy have been implemented in 2008 and are now fully operational. Those water management projects reduce water and chemical consumption significantly, reduce also the waste of water and improve the quality of waste well above the maximum level of authorized ejections. Following the experience gained in Italy other plants are currently under scrutiny in Japan and India.



### **Our Local** Communities

Playing a responsible and responsive role in our local communities worldwide



David Roycroft Head of Corporate Affairs Pilkington Group Limited

#### We take very seriously our responsibilities towards the communities in which we operate around the world

We aim to ensure that our worldwide operations play a responsible and responsive role in the local communities in which they operate. Local businesses are responsible for consultation and dialogue with their local communities to ensure that the Group coexists harmoniously with its community partners to the benefit of all parties involved. Direct contributions complement the efforts of employees around the world who have supported voluntary programmes by raising money and providing their time and skills for education and community welfare purposes

#### Our approach to local communities

The NSG Group has manufacturing operations in local communities in 29 countries throughout the world including all of Europe, North and South America, and Asia. Each of these presents unique challenges and opportunities, ranging from employment and education to social welfare and support for local and national organizations. As a responsible and often prominent member of the local community, the NSG Group believes it is important to be involved actively by leveraging its core business and management resources to help to address local issues.

Group employees are encouraged to participate in appropriate community organizations. However, because needs vary from community to community, each of the Group's business units has some flexibility to identify the most appropriate way to grow with their respective communities.

#### Local Communities-the Foundation of the NSG Group

The local communities throughout the world in which the NSG Group operates are the foundation of the NSG Group's business and the lives of employees. Without a relationship of mutual benefit with these communities, the Group as a whole could not sustain its operations.

#### **NSG Group Community Direct Action**

#### Foster and Support Next-Generation Research

- Sponsors of the Royal College of Art Vehicle Design Award (UK)
- Nippon Sheet Glass Foundation for Materials Science and Engineering
- Asian research students of the Japan International Cooperation Agency (JICA) attachment to the Yokkaichi City Plant in Japan
- Sponsors of the Arkwright Scholarship scheme for students of technology Support for Sports and the Arts
- Commercial sponsorship of Rugby League -St. Helens Saints
- Co-sponsorship of international music festival in the City of Sandomierz, Poland Product Donations
- Supply of windshield glass for the Cambridge University Eco Racing Team solar car Donation of fireproof glass to the Middleton Railway Trust, Ltd. UK
- **Community Exchanges and Volunteer Work**
- PR support for Eco-Glass at the Sakura Night Festa in Sagamihara, Japan
- Educational activities for elementary and junior high-school students in Yokkaichi City, Japan
- Planted rows of cherry trees for beautification campaign (Maizuru Plant, Japan) Carried out building repair work at local schools in Argentina
- Natural Disaster Assistance and Social Welfare Activities
- Assisted earthquake-stricken areas in Sichuan Province, China
- Supported eradication of drug abuse in Sweden
- Funded Agam, a social service institution dedicated to children in Brazil Support for Mizuna Gakuen, a facility for people with disabilities
- Public Support for a Low-Carbon Society
- Sponsored an energy summit for sustainable
- buildinas Continuing support for Pilkington Energy
- Efficiency Trust (PEET) in UK Popularized Eco-Glass through the Flat Glass Association of Japan
- Cooperation with Business Groups
- Membership of U.K. CSR organization Business
- in The Community Supporter of the Sumitomo Foundation
- Nippon Keidanren 1 percent Club member



France, received the Best Desian Inte the UK Royal College of Arts 2008 Pilkington Vehicle Design Award.

Therefore, building good relations with local communities is a priority for NSG Group management. The Group's Code of Conduct, which has been translated into 20 languages, sets out clearly the way we expect to develop relations with local communities and employees are encouraged to make personal commitments to local causes. Where possible, such individual support is backed by company donations.

#### **Product Donations** Solar Car Windshield



The NSG Group sponsored the Cambridge University Eco-Race (CUER). CUER, a team of Cambridge University students and others, developed 'Affinity', a solar car prototype that runs entirely

off solar energy. Pilkington Automotive has supplied the car's complex panoramic windscreen as part of its sponsorship of the Cambridge University Eco Racing Team, which plans to compete in the 2,000-mile 2009 World Solar Challenge across Australia. The team's futuristic creation, which visited the Group's technology center at Lathom, UK, halfway through its week-long, 1014-mile trip from end to end of the UK, is a prototype for the eventual competition car.

#### Natural Disaster Assistance Relief Aid for Earthquake in Sichuan Province. China

The NSG Group made a major contribution in relief aid through the Japanese Red Cross Society for the earthquake damage suffered in Sichuan Province, China, in May 2008. The relief aid was allocated for aid materials including emergency evacuation facilities, water and food.

The NSG Group operates 17 manufacturing sites in China, employing some 2,800 people in the country. Immediately after the earthquake, the NSG Group discussed what would be the most

appropriate form of aid with colleagues in China. On behalf of the Group and all employees, relief funds were donated to the Japanese Red Cross Society, which is directly assisting the disasterstricken area.



Recognition of the Company's aid donation to the disaster-stricken earthquake area in Sichuan Province, China

2008 amounted to

# The NSG Group's direct spending on community activities in fiscal

#### **Next-Generation Research Assistance**

The Nippon Sheet Glass Foundation for Materials Science and Engineering (NSG Foundation) was established by Nippon Sheet Glass Co., Ltd. in 1979 to commemorate the 60th anniversary of NSG. NSG Foundation offers grants for research on inorganic materials used in various industries including IT and communication, biotechnology, energy, and environmental protection. Since its foundation, it has received 3,175 applications and disbursed a total of 1,168 million yen in aid to 835 selected applications. In recent years, the Foundation has been stepping up its activity by increasing grant amounts and expanding the list of eligible overseas recipients to include those in some countries in South East and East Asia. Since the foundation was established, a total of ¥1.168 billion in subsidies has been dispersed. In 2008, total research subsidies for 46 applications amounted to ¥62,750,000.

#### **Direct contributions to Local Communities** ¥112,890,000 in Direct Social Spending

In 2008, the NSG Group spent ¥112,890,000 on direct contributions to education, the arts, medicine, welfare, job creation and urban renewal. By region, Europe and Japan accounted for 72 percent of this total. The bulk of the remainder was spent on activities in South America. These contributions complemented the efforts of employees around the world who have supported voluntary programmes by raising money and providing their time and skills for education and community welfare purposes.

(Note: spending on activities in Japan does not include contributions to the Nippon Sheet Glass Foundation for Material Science and Engineering).



### **Third Party Opinion**



Specified Nonprofit Corporation: Junkan Workers Club Representative: Tamio Yamaguchi (left) Executive Director: Hiromitsu Kumetani (right)

In the opening of this report, information required for understanding the report, such as the NSG Group's global position, business description, planned business expansion, market overview, manufacturing processes and number of employees by field and region has been included as appropriate. Based on this information, readers are able to realize that the NSG Group is a global corporation, in the true sense of the word. Reading further—about CSR management, governance, risk management, compliance, the new reporting system for reports and the start-up of the online reporting system—the reader becomes acutely aware that the Group has steadily progressed in building an integrated, global company, a major Phase 1 objective of the Group's 3-phase strategy. Under these circumstances, we believe we made a wise decision to prepare the initial report in English; thereby creating a powerful report with an international perspective. A decision of this kind is highly unusual, even for globalized Japanese companies. In the future, we wish to focus on how to respond to stakeholder expectations in each region of the world using this format.

One of the highlights of this report is the Sustainability Policy. The policy is painstakingly organized and highly persuasive; dealing with NSG Group sustainability, it covers everything from the management of NSG-owned properties to the consideration of all life forms and biodiversity when extracting minerals from the earth. The Global Reporting Initiative (GRI) Guidelines ask, "How do the underlying questions contained in the sustainability report contribute or attempt to contribute to improving the economic, environmental and social conditions at the regional or global level?" The Sustainability Policy raises the specific policy item of "Let's not get complacent and think that it will be achieved in the future, let's look at existing needs and respond to them now," and this is the gate through which we are responding to underlying questions.

Moving forward, we will proceed from this gate and develop indices in response to individual policy items from the standpoint of "Seeking to get stakeholders to recognize our commitment to implementing these policies by 2012."

Our highly rated environmental impact reporting uses the online reporting system to appropriately gather information from the entire Group. Along with this system, we have created a new reporting system that can read painstakingly collated data on such items as large-scale energy consumption, air pollution, water consumption, water discharge, recycling as well as residue and metal emissions. The reporting system generates not only legally required reports, but reports based on actual conditions. At the same time, it attempts to provide bona fide lists of, for example, still non-guaranteed lumber throughout the world. In the future, the system will generate graphs of the long-term effects of changes in environmental policy items as well as performance self-assessments pertaining to particular fiscal years, future prospects and strategies.

This report has a clear focus that encompasses management policy (open and fair transactions, adherence to corporate ethics and contributions to the environment), Group priorities (health and safety, the environment and the effective improvement of stakeholder rela-

tions) and important matters (the promotion of proper disclosure and effective communication with stakeholders). However, how this focus breaks down into practical measures and the kind of performance it leads to are major concerns to our readers. Therefore, we will develop indices to track the effectiveness of sustainability policy and action items. This information will then be summarized and anyone looking at it will be able to understand the state of CSR at the NSG Group in a single glance.

Finally, to further improve the report and respond to stakeholder expectations, we would like to put forth two proposals. First, although we were praised for preparing the opening of the initial report in English, we have to admit that coverage of conditions in regions outside of Europe, such as Japan, was sparse. Looking at the social issues of each country and efforts to solve them is an important subject to be reported on; and as our policy states: "we believe it is important that the NSG Group get actively involved in solving these issues by leveraging its main business and management resources." Therefore, why don't we report on social issues by region at the end of the report? The report could then include not only environmental issues, but social issues as well. In Japan, for example, the treatment of temporary workers and how Japan deals with long working hours and the sharp increase in mental health disorders could be addressed.

Secondly, we should issue the reports earlier. Although some will assume that we had to make various schedule adjustments due to the integration, I have to say that the delay in reporting is far too long. Based on the principle of timely information disclosure, it is probably better that the report be issued within six months or so of the closing of the books. As you know, with respect to "appropriate timing," the reporting principles for the GRI guidelines for establishing quality state that "Simultaneously releasing the Sustainability Report and Financial Report may be of value to the stakeholder." Timely disclosure is part of CSR.

Junkan Workers Club: A civic group whose purpose is to research, support and implement measures for building a recycling-based society for citizens, businesses and government, taking into account the proper role of a recycling-based society that is in harmony with the natural ecosystem, which the next generation is to inherit. URL: http://www.nord-ise.com/junkan/