The Pilkington Sandoglass Case A British-Polish Joint Venture

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The Pilkington Group

Pilkington's history dates back to 1826 at St. Helen's in the United Kingdom. The location of the glass works was chosen thanks to access to raw material such as coal, limestone, dolomite, alkali and iron-free sand - all found within reasonable distance and thus easily transportable to the company. Until 1959, Pilkington Brothers Ltd produced both sheet glass and plate glass. Sheet glass was manufactured by means of a vertically driven ribbon of molten glass and was used for window glass. This production was inexpensive, but, on the other hand, the glass was optically distorted which made it unacceptable for the production of mirrors and automobile windscreens. For this kind of production a plate glass method had to be used in which molten glass was rolled into a plate with a waffled surface. However, this method required additional processes such as grinding and polishing and consequently also additional facilities. Due to high production costs, only a few manufacturers with big markets could afford such production. The production line needed investments of about $30-40 million and approximately 800 employees. The manufacturers tried to reduce the production costs. One important contribution was a "twin" grinding machine developed by Pilkington. This machine rationalized the grinding and polishing processes.

A far more important contribution, however, was the float glasstechnology developed by Pilkington in 1958. The process was a surprise to the entire industry since it was based on a completely new type of technology. The innovation implies that the molten glass floats on a molten tin, all based on a high techno-chemical process. It took Pilkington seven years to develop this process. This technique produces high quality glass at considerably lower costs than that of plate glass. However, costs would only be cut in high-scale operations. Only plants producing at least 2000 tonnes of glass per week would be profitable. Improvements in the float glass technology continued. In the mid-seventies, a wide thickness range of float glass was achieved (2,3 mm to 25 mm). By 1974, the float glass technology replaced existing plate glass techniques. 23 manufacturers in 13 countries (including Eastern Europe) operated some 51 float plants under Pilkington licences. When the thickness was considerably reduced, the float could also replace the sheet glass production.

The float glass technology innovation enabled Pilkington to make a change from their traditional commodity-producing business and to diversify into businesses with a production of, among other things, laminated glass for automobile windscreens in the 1970s and fibre glass products in the 1980s. Completely new products suitable for architectural segments, such as armourplate glass, were developed. This type of glass is used for products exposed to severe impacts, for example, squash court doors. New products, such as solar control and insulated glass, were developed, providing new opportunities for energy savings in construction.

Pilkington Sandoglass

Pilkington Sandoglass Glassworks - a British-Polish joint venture - was established in September 1993 with a capital of PLZ. 137.3 million which is equivalent to £ 36 million. This company is a successor to the Sandomierz Window Glass Works which has been manufacturing glass since the 1960s. Through the joint venture agreement, Pilkington Sandoglass became one of the biggest privatizations carried out in Poland. It took three years of negotiations for the Polish and British parties to come to an agreement.

Sandomierz Window Glass Works

In the inter-war period, Sandomierz was part of one of the new industrial regions called COP (translated into English: central industrial region) which was an area intended for heavy industry. At this time Sandomierz was situated in central Poland and was meant to become the capital of this region. Historical events, however, changed these plans.

In the 1960s, a political decision to start flat glass manufacturing in Sandomierz was taken thanks to existing raw materials and fuel resources. Good quality sand was available within thirty kilometres' reach and could preferably be transported on the river Wisla. Two gas pipelines from Russia passed this region.

Ten years later, in the 1970's Sandomierz Window Glass Works planned to build a float glass line and bought the required licence for float glass technology. Due to the turbulent political and economic situation in Poland in the 1980s the investment had to be postponed. At that time, the War State Government was not in favour of foreign investments.

In 1985, however, The Government Planning Committee decided that some of the production improvements should be financed with the support of foreign capital. Thus, the investments in the Sandomierz float glass line were revived.

Ever since that time, the company has tried hard to find appropriate Polish and foreign partners for the project. The company approached various firms and offered cooperation. They also used their connections at foreign trade companies and embassies in order to find the right partner.

Negotiations

The first worthwhile response came from a Japanese firm, Asahi Glass Co., which was highly involved in the Polish glass industry. In 1977, Asahi Glass Co. sold the licence for the technology of glass quality improvement according to the Fourcoult method (Asahi method).

The preparation of documents for the various parties (Sandomierz Window Glass Works, Asahi Glass Co and the International Finance Corporation - IFC) in order to establish partnership and financing (among other things, to find

banks willing to give credit) started in 1987 and went on until 1990. During this time, Sandomierz Window Glass Works also received offers of partnership from Saint Gobain, Societa Italiana Vetro, Guardian and Pilkington.

Around 1990, Pilkington became seriously interested in Eastern European countries. The "window of opportunities", Poland, emerged in 1990. The glassworks in Sandomierz was in negotiations with Japanese Asahi Glass at the time. Also the climate for foreign investments had changed in Poland with the introduction of market economy. The first contact between Pilkington and Sandomierz Window Glass Works was initiated in the spring of 1990 when a group of Pilkington engineers visited the company.

IFC and Sandomierz Window Glass Works were interested in longlasting cooperation with a foreign partner. Pilkington's offer filled these requirements. Asahi Glass Co was not able to make a better bid. Then Asahi Glass Co turned to the Czech republic where, through their Belgian subsidiary Glaverbel, they started to negotiate with the Czech flat glass company Sklo Union.

Pilkington Sandoglass became the Pilkington Group's tenth joint venture in Europe and the 31st in the world. Glen Nightingale, one of the European senior directors, considers this venture

"a happy marriage of Polish craftsmanship and Western management."

Exhibit 1:Historical Data of Sandomierz Window Glass Works

1962 Sandomierz Window Glass Works was founded as one of thirteen sheet glass manufacturers in Poland. Out of thirteen furnaces, two were located in Sandomierz.
1964 The introduction of sheet glass production was a political decision.
1975 The introduction of windscreen production.
1979 A first attempt to build a float line.
1987-90 Negotiations with Asahi Glass Co.
1990 Saint Gobain, SIV, Guardian and Pilkington as potential partners
1993 Joint venture Pilkington Sandoglass

Privatization

Pilkington Sandoglass was formed through a notarial deed on January 14, 1993. The initial share-capital of the company was 100 million PLZ. The shareholders were Pilkington International Holdings B.V. (40 per cent), Sandomierz Window Glass Works (30 per cent), the International Finance Corporation - IFC (15 per cent) and the European Bank for Reconstruction and Development (15 per cent).

On September 7, 1993, the share-capital was increased to 1,073,400 million PLZ. The State Treasury of Poland contributed in kind with the liquidated Sandomierz Window Glass Works. Otherwise the proportions of the holdings were unchanged.

The European Bank for Reconstruction and Development sold its shares on February 17, 1994 to the New European Investment Fund. Pilkington has a 40 per cent stake, has invested $25 million and has made commitments for still $107 million. IFC and the New East European Investment Fund bought equities worth nearly $20 million and both have a 15 per cent stake. The IFC was also the main money-lender for the venture. The remaining 30 per cent is owned by the Polish Treasury which contributed with the land, the buildings and the equipment of the outmoded sheet glass plant in Sandomierz. Sir Anthony Pilkington describes this as a genuine joint venture.

"This is not a foreign investment with a symbolic Polish presence. Nor is it a predatory investment by a foreign partner. This project is built on a real partnership."

Transformation

Poland used to have a considerable glass export industry with a production of more than 350.000 tonnes of flat glass. However, the flat glass was manufactured by old production method such as Pittsburgh or Fourcault. This is confirmed by Mr Borup as follows:

"I think our investment, along with that of our competitor, make it possible to reach similar levels again - this time in high technology production. We are going to modernize the industry within two or three years."

As a new owner, Pilkington has to live up to the expectations of the local community as well as those of the employees. It was widely believed by the employees that once the company was privatized, the new foreign owners would close it down. Should they keep it, it would mainly be a capitalistic exploitation. However, Pilkington's objective was to make this company financially viable - in other words, not only to cover the variable costs but also to make a profit by increasing the revenue and by enlarging the processing sections with the value added products. Pilkington offered the employees good wages, better professional perspectives for the future, employment in a modern plant and possibilities of training abroad. To the local community this implied continued glass production in Sandomierz and the development of the town.

To take over a state-owned company requires large efforts not only in investments but also in changing employee attitudes. We have a large number of examples from the Socialist period of poor company performance. A factory producing shoes, for example, could only produce left-foot shoes in order for the company to fulfil its quota. At that time, glass works, as well as all other state-

Exhibit 2:

Exhibit 2:Pilkington Sandoglass Ownership Structure

Exhibit 3

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Exhibit 4

owned companies, did not consider quality and cost in their production. In the future, however, companies will focus on market, quality and performance efficiency.

St Helen's Trust in Poland

Sandomierz is a town of 25.000 inhabitants located in South East Poland. The unemployment in this area is 20 per cent. The glassworks is the biggest employer. In case of lay-off the top managers of the glassworks have to negotiate with the leaders of both the glass makers' union and Solidarity. Pilkington has experience from its own country when it comes to redundancies. In the 1980s the company established St Helen's Trust to help unemployed workers set up businesses of their own. Similar ideas have been introduced in the town of Sandomierz which has been given £1 million in subsidies for this purpose.

Mr Borup says:

"Initially, we thought we would have to reduce the staff from 1 500 workers to 800. So far we have been lucky with our timing, and the closure of the first sheet plant coincided with the start-up of the float plant. We have eliminated 100 jobs, but also created 100 new ones. So employment today is exactly what is was at the end of 1993 when we started. However, when we close down the second sheet plant, it looks as if we will have to make about 250-300 people redundant. We are trying to find ways of creating new jobs in the area."

With changed production, the workers have been re-trained and encouraged to start a businesses of their own. In those cases a starting capital from St Helen trust has been helpful. The role of the foundation is to promote the town and the region. It is intended for those who want to start their own business in Sandomierz, not necessarily people from the glassworks. By April 1996, two hundred new jobs had been created.

Organization

By 1996 the organization chart has abandoned the technical, production and economic directorates of 1989 and adopted functional management levels comprising a technical director, a production director, a building and glass sales & marketing director, an automotive glass sales & marketing director, an administrative & financial director and, finally, a planning director.

The 1991 organization structure of Sandomierz Window Glass Works (see Exhibit 3) illustrates a typical structure of a Polish state company. It was extremely hierarchical and static with many organizational levels. The main decisions were made by the directors and their staffs with the permission of the board of employees. Decisions taken at this high level of management could not be satisfactory, since this level only in part had access to relevant information

and data. The lower levels of management in this type of organization could not make their own decisions, however, without the participation of top management.

The information system was inefficient. The decision-making process was extremely drawn out, since it was interrupted at each level of the organization for some time before it finally reached the lower level where the decision was going to be made. Very often decisions from the top were changed and outdated oncethey reached the lower levels. With a system like this it was impossible to adapt to a quickly changing environment.

The general director was appointed by an external body such as a ministry. The planning was also conducted by an external planning commission until 1979. Since the 1980, the planning has been delegated to the companies. At the top management level there were two antagonist forces - the general director and the board of employees. The board of employees was elected by the workers of the company. Their main purpose was to control the director's decision and to reject it in case it ran against their interests.

The most crucial issues in the company concerned the allocation of financial resources. Many times directors would like to allocate all or most of the profit to investments, when, on the other hand, the board of employees might prefer to use this money for employee needs. The outcome of such differences of opinion was dependent on the power of negotiation on both sides.

At the operational level of the Sandomierz Window Glass Works structure there are three vice directors' units: engineering vice director (1st vice director), production and sales vice director and finance vice director (the chief accountant).

The production and sales unit was in charge of both production matters and sales. Thus, one person handled both the purchasing of raw material and the selling of finished products. The selling was taking care of by external bodies. At that time, customers came to the company, not the other way around. Raw material costs were subsidized by the government, so this vice director's main responsibility was to secure the inputs. Another task was to coordinate production, purchasing and sales. This position was often headed by an engineer, since technical knowledge was needed. Knowledge of marketing or price negotiations with suppliers was not required.

The chief accountant was often head of the financial unit in Polish state companies. There was no cash flow and transactions were handled by means of documents. It was not until in the late 1980s that the company started to consider costs and cost calculation. It was not possible to measure the efficiency in company performance. The task of the finance department was merely simple bookkeeping and allocation of financial resources. The focus of the company was mainly on the production, not the market.

Pilkington Sandoglass' new organizational structure (April 1, 1996) is a functional company structure. (See Exhibit 4). In this organization we can find two main levels: top management level (general director and his staff) and operational level consisting of six functional unit directors in: engineering, manufacturing, marketing and sales of flat glass, marketing and sales of automotive glass, finance and administration and, finally, planning.

One of the main novelties in the new Sandomierz Window Glass Works structure is the division into one production and two marketing units, with special emphasis on marketing flat glass and automobile glass.

Another difference is found in the finance and administration unit. The chief accountant is no longer the vice director and chief of this unit.

Products

Pilkington Sandoglass manufactures one basic product

- Float glass

The glassworks also produces a large number of processed products

- Laminated glass (including windscreens)
- Toughened glass
- Multiple glazing units - insulating windows (air between glass sheets, double or triple glazing)

Twenty per cent of the float glass is used for inhouse production. In order to make the production more efficient, a number of rationalization measures have been taken. One of them is to outsource maintenance units.

Differences in Old and New Production

The glass drawing by the Pittsburgh method was a heavy and physically demanding job. The float glass technique is comparatively easier. The new float line was built as a turn-key delivery. The installation of equipment was delivered by suppliers on the basis of best tender. The suppliers were responsible for the technical installation, for the organization of the production and a clean environment, both inside and outside the company. The management contractor was an English firm which hired Polish sub-suppliers to do the job: i.e. to build the construction as well as to install the equipment. The Polish workers were trained to manage the production in all details. The high technology equipment was imported from England, Belgium, Austria, Switzerland, Italy and Germany. The local technicians were trained for production maintenance.Unlike the old production of sheet glass, the float production requires some new quality- oriented thinking on the part of the managers and workers.

Thus, an official quality policy was signed by the general director and sent out to every part of the production. The necessity for quality was felt everywhere and penetrated the organization. On the bulletin boards simple funny pictures and jokes would awaken people's sense of quality. The ultimate goal must be 100 per cent quality. Not just 99,9 per cent. What could happen if you produced a product with 0.1 per cent less quality? Examples from other industries than glass show four air crashes a year at Los Angeles airport, or hundred faulty bank transactions per month. The ambition is to make quality thinking permeate all levels of the organization. (See Exhibit 5). The quality policy is displayed on the bulletin boards, or as posters in visible places, etc.

Exhibit 5: Pilkington Sandoglass Quality Policy

Our basic aim is to gain a leading position on the national market and to continuously increase our shares in the foreign float glass market. In order to achieve this, we are going to meet our customers' requirements in the following way:

- *by continuously improving the quality of our products in order to meet quality standards and the extraordinary requirements of our customers*
- *by establishing close contacts and cooperation with our customers in order to univocally identify their needs*
- *by cooperating with raw material suppliers in order to stabilize the quality level of the production so that it will comply with our requirements*
- *by dealing only with suppliers who offer quality system certification*
- *by attempting to make long-term contracts with suppliers as well as with customers*
- *by systematically improving employee qualifications by means of professional training, by involving the employees and making them committed to quality issues and by taking advantage of their abilities*
- *by continuously improving efficiency and organization in all places of work*
- *by introducing new technologies and technical equipment*
- *by producing goods which comply with national and international safety regulations*

by introducing and continuously developing a quality warrant system in conformity with ISO 9002 and to obtain an ISO certificate before the end of 1996

General Director

Sandomierz, December 1995 Jonas C-G Borup

Construction of a New Float Line

In structuring the new float line, organization experiences from other Pilkington subsidiaries in other countries were utilized. The new structure is the result of combined experiences from Brazil (best production organization and internal supplier structure including cleaning), from Germany (best quality) and from Sweden (the computer information system). These competencies have been transferred to and implemented in the Sandomierz company. Since the implementation worked out successfully, the facilities in Sandomierz will be used as a training centre for staff from recently established Pilkington subsidiaries. The Chileans, for example, will be trained in Sandomierz. Pilkington's aim is to provide customers with the best service in order to obtain competitive advantage.

Competitors

In Eastern Europe, Pilkington competes with their global competitors. For several years back there have been about seven float lines in Russia.

After 1990, new operations started by Guardian in Hungary. Asahi Glass competes through its Belgian-Czech subsidiary, Glavunion. In 1996, French multinational company St. Gobain opens its first float line in Dabrowa Gornicza in Poland. Also, Gardian builds its additional float line in Leipzig.

The need of a large investment capital for, for example, the construction of furnaces, reduces the competitors in the toughened glass market to only three (two of whom are Pilkington - Szczakowa and Jaroszowiec). Pilkington Sandoglass is one of the biggest manufacturers in Europe with regard to toughened glass for refrigerators and other white goods products. As far as windscreens are concerned, there is only one competitor. In glazing (heat insulation) there are 400-600 competitors on the Polish market.

Human Resource Management

Exhibit 6: Pilkington Sandoglass Personnel

September 1993	31st March 1994	31st March 1995
1513	1420	1427 *

* due to increased production of MGU and toughened glass

Source: Annual Report 1993/94 and 1994/95

Polish workers spent about 1 150 working-days in 1994/95 to attend training in England, Germany and Brazil. 7 200 "man days" altogether have been spent on training.

The objective of the transformation is to make Pilkington Sandoglass a market-oriented company. The changes proceed according to plans. Mr Borup, chief executive officer and country manager of Pilkington Poland, is convinced of Polish managers' improved competence. Furthermore, the aim is to find suitable staff, to slim down the organizational structure and to get rid of the hierarchical organizational structure with its many layers. The organizational structure will have to be flattened.

Pilkington puts large efforts into the training of both technical and management personnel. Some management training is conducted by Lublin Business School (6x3 days with 22-25 employees participating).

Exhibit 7: Pilkington Sandoglass Economic Results

	1993/94*	**1994/95**	**Growth**
Turnover	**38,8 million PLZ**	**109 million PLZ**	**180,9%**
Profit			
Profit on sale	**2,639 million PLZ**	**12,538 million PLZ**	**375%**
Margin of profit	**5%**	**11,5%**	
Net profit	**3,298 million PLZ**	**9,533 million PLZ**	**189%**
Sales			
sheet glass	**92,337 tonnes**	**101,146 tonnes**	**9,54%**
included:			
home sales	49,862 t	64,733 t	29,8%
processing	19,391 t	21,645 t	16,8%
export	23,084 t	14,767 t	-36%
MGU	**314,613 m^2**	**197,000 m^2**	**-37,4%**
Windscreen	**263,000 m^2**	**352,000 m^2**	**33,8%**
Toughened glass	**1,123,000 m^2**	**1,307,000 m^2**	**16,4%**
Float glass**		**12,212 t**	
Float glass***		**34,500 t**	

* refers to a period of seven months only

** from Pilkington Sandoglass

*** from Pilkington's Glass Works

Source: Annual Report 1993/94 and 1994/95

The aim of the training is also to increase cost awareness. The managers have to learn that all costs have to be considered and that maintenance also costs. Although the fixed costs could be relatively low, the maintenance costs could be proportionately high.

Even if management competence has improved, there is still a lot to be done, especially in accounting management and strategic management.

Other achievements have been made in the IT-field. In 1993 there were only four computers in the company. In 1995 a new IT network of 100 computers was installed.

During 1995, four expatriates were working at Pilkington Sandoglass Poland, mainly as advisors in production, management, marketing and finance.

The turn-over (March 31, 1994 - March 31, 1995) was 109.040.091 PLZ and the profit 507.042 PLZ. This should be compared with the seven-month period September 1993 to March 1994 when the turn-over was 38.782.292 PLZ and the profit 200.701 PLZ.

Conclusions

Poland is an important market for Pilkington Sandoglass. The partnership is based on the tradition of Polish glass making and on high technology delivered by Pilkington which enables the upgrading of the glass production with value added products for both the Polish market and the export market. Pilkington's global strategy reads:

"Let the local people sell the glass".

Student Assignments

Question I

a) You are appointed new managing director of this plant. Your first task is to assess what changes have been achieved during the last two years.

(For teachers: the assessment should describe how it was before the transformation and how it is today. Then make the student aware that it is not just a matter of structural change (a simple reconstruction) but also a change in peoples' attitudes and behaviour. A theory from "Restructuring of organization" and literature on corporate culture could be used in the class discussions).

b) Your second task is to prepare material for the board meeting due resources, marketing and competition.

(For teachers: use literature on managing strategic changes, learning organization, competence development, etc.)