

An American-Polish postgraduate studies training programme for top managers

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ABSTRACT: The complicated restructuring processes of the Polish heavy industry have generated the need for intense training among the top industrial managers who have mostly an engineering background. In 1994, a two-semester American-Polish post-diploma study programme in the environmentally friendly restructuring of industry was started at the Silesian University of Technology, Gliwice, Poland, which was the result of an agreement of cooperation between the Polish University and the Hubert H. Humphrey Institute of Public Affairs at the University of Minnesota, Minneapolis, USA. Over the past eight years, 176 people completed the two-semester course and gained vast managerial, ecological and technological expertise. The participants were comprised of presidents of companies, as well as senior executives from various metallurgical plants and power plants. There were 162 of these graduates who received the prestigious diploma issued jointly by both universities involved in the project. The diploma theses prepared by the students are of high theoretical and practical value, as they deal with organisational and technological issues important for the student's company. The eighth cycle of the studies is scheduled to start in February 2002.

INTRODUCTION

The Polish economy has been undergoing a process of intense transformation for the past 13 years. When analysing the beginnings, one has to note that the economic changes have been connected with the shift from an extremely centralised economy characteristic of the communist system to a market economy of capitalism.

Despite various difficulties, the passage has been very successful, which is reflected in high economic growth. On the other hand, the high level of unemployment, which has recently reached levels of more than 17%, is undoubtedly a negative factor. The process of restructuring proves particularly difficult and complex in the case of heavy industry.

Restructuring regions of heavy industry is not only a financial, technological or organisational problem, it also (perhaps even first of all) entails serious social consequences, such as job cuts, the necessity to open new workplaces, training, etc. Many workers employed in heavy industry (like miners, steelworkers, etc) resent seeking new qualifications. These workers are often attached to their work, which has sometimes been the traditional occupation in the family for several generations.

The problem of sustainable development and environmental protection forms an important aspect of industry restructuring [1]. The dynamic development of heavy industry in Upper Silesia in Poland in the past has resulted in serious negative consequences for the local ecology. At present, both increases in social ecological awareness and the global character of the economy require that economic development be accompanied by a respect for the environment.

Poland, as a potential future European Union member, has to adjust its economy to recognised world standards. Furthermore,

the change has to be accomplished within a short period of time.

Upper Silesia

Economic growth, combined with minimising the negative impact on the environment, is particularly difficult to achieve in Upper Silesia. The region lies in the south of Poland, near the Czech and Slovak borders. It covers only slightly more than 2% of the country's area but is inhabited by almost 10 million people. The area has numerous coalmines, metallurgical plants, power plants and chemical factories. The small region produces about 10% of the Gross Domestic Product (GDP).

The fast industrial development of the region began early in the 20th Century and caused great damage to the environment, which can still be felt today. The introduction of many pro-ecological installations brought a considerable reduction in the emission of gases and liquid waste, but the problems of solid waste and the contamination of the soil are still awaiting a solution. It is estimated that the small area of Upper Silesia houses almost 50% of all solid waste, some of which are very difficult to recycle or neutralise.

AMERICAN-POLISH POST-DIPLOMA STUDIES

The programme of American-Polish Post-Diploma Studies undertook the ambitious task of training top industry managers in the Upper Silesian region. In the course of two-semester studies, the managers were supplied with a considerable amount of managerial and technological knowledge. The curriculum was based on American models; similar programmes already applied in American universities were used. The curriculum for the American-Polish Post-Diploma Studies was developed by a team of experts from the Silesian University of Technology, Gliwice, Poland and the University

of Minnesota, Minneapolis, USA. This was part of the Environmental Training Programme for Central and Eastern Europe (ETP), which was financed by the United States Agency for International Development (USAID).

The ETP covered six countries in the region, namely: Poland, the Czech Republic, Slovakia, Hungary, Romania and Bulgaria. It was supervised by a consortium consisting of a few American universities and other institutions, presided over by the Polish-born Prof. Zbigniew Bochniarz, who was Director of the Center for Nations in Transition at the Hubert H. Humphrey Institute of Public Affairs at the University of Minnesota.

The American-Polish Post-Diploma Studies were inaugurated in autumn 1994, after an agreement had been signed between the Faculty of Materials Science, Metallurgy and Transport at the Silesian University of Technology and the Hubert H. Humphrey Institute of Public Affairs at the University of Minnesota.

The curriculum comprised of 210 hours of interactive lectures, in which various case studies were discussed, both from American and Polish industry. The classroom language was Polish and the lectures delivered in English were translated consecutively into Polish. The lectures were grouped in blocks running on two consecutive days. These blocks occurred no more than four times a month.

Half of the programme was devoted to management, with elements of environment protection, and covered:

- Strategic planning.
- Marketing.
- Market and ecological institutions.
- Strategy of restructuring.
- Social aspects of industry restructuring.
- Environment management.
- Ecological and economic law.

American professors and experts delivered most lectures in that group and came from the University of Minnesota, Carnegie Mellon University, University of Pittsburgh, Oregon State University, Duquesne University and the University of Southern Indiana. The students also listened to short lectures given by experts from the World Environment Center and Environmental Protection Agency.

The other block of subjects concentrated on technological issues, with considerable emphasis placed on the environment, and included:

- Ecological reviews.
- Pollution prevention.
- Waste management and recycling.
- Efficient use of energy.
- Modern environment-friendly technologies.

Professors and experts from the Silesian University of Technology, University of Silesia, Warsaw School of Economics and other Polish institutions delivered most of the lectures in these subjects. The participants received full sets of handouts for all subjects taught in the course of studies. Most materials were subsequently published as a textbook, bound in identical green covers and the same graphic form used. Names

of the organisers and the sponsoring institutions were printed on the cover, namely:

- Faculty of Materials Science, Metallurgy and Transport, Silesian University of Technology.
- Environmental Training Project for Central and Eastern Europe.
- United States Agency for International Development.
- National Fund for Environmental Protection and Water Management, Warsaw, Poland.
- Voivodship Fund for Environmental Protection and Water Management, Katowice, Poland.

A number of other didactic materials had been made available as well.

THE FIRST CYCLE

In the first year of the programme, 38 senior managers from the steel and iron industry took part; 35 of them prepared diploma theses, utilitarian in character and relevant to their companies.

All of the theses attained a very high level of accomplishment. Two of the theses were singled out as outstanding: one was devoted to waste management in foundries, while the other analysed the negative impact of a metallurgical plant on the natural environment [2][3].

THE SECOND CYCLE

The second year of studies was directed at managers from plants involved with non-ferrous metals. There were 28 senior executives who began their studies and 24 completed them [4][5]. The curriculum had not significantly changed; only small adjustments were made, notably, a lecture in logistics had been introduced. According to the earlier agreements, Polish professors and specialists delivered most lectures. Some of them had cooperated with American colleagues in the preceding year as the so-called co-teachers.

As before, participants in the second year of the Studies received full sets of handouts in the form of a book with 16 books published altogether. Additional teaching materials were also prepared. Three diploma theses were marked as outstanding: one was devoted to the economical aspects of introducing an environment protection programme in a copper plant; another concentrated on a structural analysis of wastes in the zinc and leadplants wherein the author examined the sources of pollutants, their chemical composition and the environmental risk accompanying storage. The third thesis dealt with the utilisation of communal waste.

THE THIRD CYCLE

The third year of the Studies was directed at managers from power plants, heat power plants and other institutions within the power sector. The curriculum was not significantly different from the preceding year. The only newly introduced elements were lectures in public relations and human resources management. Thirty people from 21 institutions completed the studies.

Six diploma theses were considered outstanding: one was devoted to the technical and technological solutions for

environment protection applied in the newest Polish power plant; another dealt with the directions and methods of restructuring put in practice in the Bielsko-Biala power plant (southern Poland); while the third concentrated on the plan for the development of companies undertaking the modernisation in the power-engineering sector. The fourth thesis dealt with environmentally friendly restructuring in a power plant planning to enter the stock market. The other theses discussed the technological and economic aspects of the reduction of SO₂ emission and modernisation and investments in a power plant based on the local fuel market [6][7].

THE FOURTH CYCLE

The fourth year of the American-Polish Post-Diploma Studies was directed at managers from various types of heavy industry. Fifteen people from nine institutions participated in the programme [8]. The curriculum had been slightly modified by widening the scope of environment management systems. There were 15 books and several complementary materials published in that year.

The standard of the diploma theses was very high and, consequently, as many as six of them were awarded the outstanding mark. The first of those dealt with an environmentally friendly restructuring of a factory producing heading machines in the context of changes in the mining industry in Poland. Another thesis discussed the environmental impact of steel works situated centrally in a large city; while another concentrated on the technological modernisation of the hot-dip process in the production of crude lead for a higher cost efficiency and a less negative influence on the environment. The subject of the fourth thesis looked at the restructuring of a coalmine that would not only bring financial gains but also improve the natural environment. The fifth thesis discussed company adjustments to comply with the Act of Environment Protection and Shaping, while the sixth thesis dealt with economical aspects of environment management in a steel plant.

THE FIFTH CYCLE

In the fifth year of studies, 23 participants from 17 institutions operating in different kinds of heavy industry took part [8][9]. The curriculum had not been significantly changed. Only one subject was added to the management block: technology management. Due to the cooperation with the University of Silesia, as many as six American professors were employed, which is more than in the preceding years. Specialists also delivered lectures from France, Spain and Germany. Teaching materials accompanying all lectures were printed.

Twenty-two students produced diploma theses, five of which were found to be outstanding. Their subjects of the theses covered: company information policies for crisis situations; heaviest pollutants and meeting the demands of environment protection; the possibility of a crisis situation in a research-and-testing institution in economic transformation; an analysis of the ecological productivity and cost-effectiveness of an installation for desulphurisation of waste gases in a power plant; and a pro-innovative policy in a power plant and its influence on ecological restructuring, particularly for the reduction of nitric oxides.

THE SIXTH CYCLE

Seventeen participants from 10 enterprises participated in the sixth cycle of the studies and represented different forms of heavy industry, but mostly power engineering. Diploma theses prepared by the participants were connected with environmentally friendly technologies, new strategic and marketing plans, etc.

All thesis topics closely matched the strategy from their own companies [10]. The first thesis tackled wastewater usage at the Łagisza Power Plant. Membrane technologies enabled the solution of some of the water problems encountered. The second thesis covered the restructuring programme of the Łaziska Power Plant with reference to a project on the environment protection managing system. The third thesis looked at waste management at the Siersza Power Plant regarding the range of disposal and the utilisation of furnace and process waste materials. The thesis covered the idea of creating a capital group around a chosen leader and followed the example of the Jaworzno Power Plant. The structure of the company Southern Power Concern is about to be set up. This company is to consolidate seven utilities of power generating and combined heat and power generating units. Its main purpose is to successfully become privatised, according to the principle: *big can do more*.

THE SEVENTH CYCLE

Twenty graduates from 13 enterprises participated in the seventh edition of the studies [11][12]. All participants represented power plants, heat power plants and other power engineering companies. A large group represented the Southern Energy Concern, which was established in January 2001.

Six of the defended diploma theses were found to be outstanding. The first thesis dealt with the current status of energy efficiency of electric drives used in Polish industry. Two other distinguished theses considered marketing and human resources management in maintenance services. The fourth thesis discussed waste management issues in a typical power plant. Another thesis discussed multi-utility and multi-service regional enterprises. The sixth distinguished thesis covered the optimisation of investment outlays in the area of environmental protection in the Łaziska Power Plant.

CONCLUSIONS

In summary, 176 senior managers from 85 different institutions participated in the studies from 1994 to 2001. Figure 1 shows the number of participants compared to the number of graduates.

There were 162 participants who graduated and received the prestigious diplomas authorised by both partner universities. Among the 162 alumni, directors and members of the board of directors in their respective institutions were in a clear majority (60.9%) (see Figure 2).

There were 62 textbooks published, as well as a few dozen duplicated didactic materials. Nineteen American professors from seven universities, nine American experts from various institutions, two German lecturers, one French, one Spanish, 16 professors from the Polish universities and 19 lecturers from other institutions delivered various lectures.

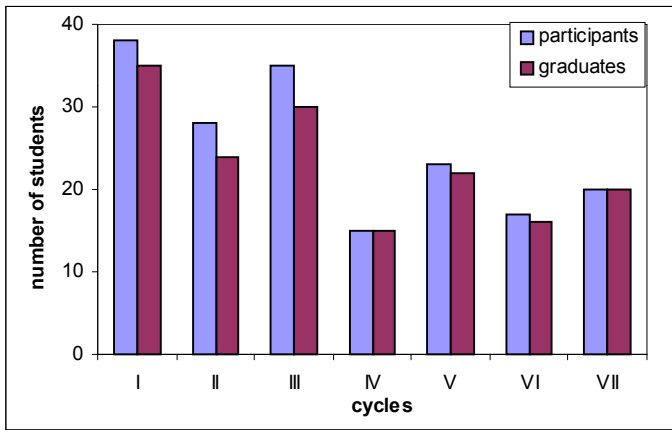


Figure 1: Participants and graduates of the studies in the relevant cycles.

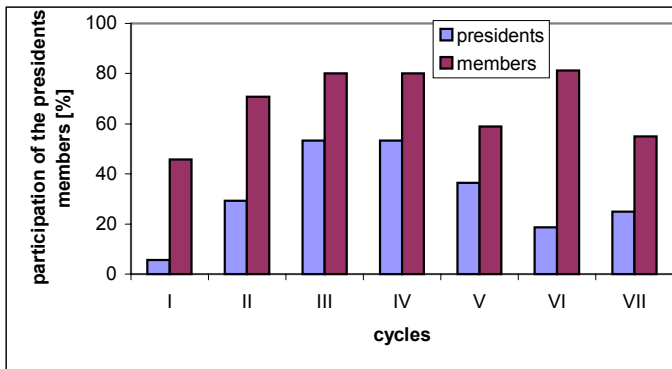


Figure 2: Participation by board presidents and board members in the cycles of the studies.

The alumni have established an Alumni Club, which serves as a platform for discussion and the sharing of viewpoints. Completing the studies has also positively influenced the professional careers of many former students. Furthermore, cooperation between the Silesian University of Technology and the heavy industry in the region had improved.

The diploma theses successfully defended at the end of the studies have been put in practice in the industrial environment and have brought huge economic gains and positive ecological results. Demand for the studies remains quite high, despite the

fact that USAID has stopped its activities and its financial support in Poland. The last three courses were fully self-supported.

It has been planned that future American-Polish Post-Diploma Studies will be turned into a standard university postgraduate programme for engineers who have several years' experience in their industry. Work has also started on the question of how to use the expertise from the studies in the teaching of undergraduate and graduate students, as well as PhD students.

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