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**Valuation Analysis  
of the Joint Venture  
Between  
Huta Warszawa  
and  
Lucchini Siderurgica S.p.A.**

**VALUATION ANALYSIS  
OF THE JOINT VENTURE  
BETWEEN  
HUTA WARSZAWA  
AND  
LUCCHINI SIDERURGICA S.p.A.**

**January 4, 1992**

**Coopers & Lybrand has prepared  
this document  
for the United States Agency  
for International Development, Washington, D.C.**

January 13, 1992

Mr. Mark Karns  
Agency for International Development  
ENE/RME/ED  
Room 6923 NS  
Department of State  
320 - 21st Street  
Washington D.C. 20523

Dear Mr. Karns:

We are pleased to submit our analysis of the future potential value of a proposed joint venture ("JV") between Huta Warszawa ("Huta" or the "Company") located in Warsaw, Poland, and Lucchini Siderurgica S.p.A. ("Lucchini"), located in Brescia, Italy.

This report is in the English language. There will also be a translation of this report into the Polish language. We recognize that, in translation, certain concepts may be interpreted in different ways. Where there are such differences, the English version will prevail.

Objective

The purpose of our analysis has been twofold. The primary purpose has been to assist management in opening discussions with leading creditors of Huta. In addition, this report is intended to assist the process of developing a formal agreement between Lucchini and Huta to form a joint venture.

The valuation estimates in this report provide an indication of the potential future values of the proposed joint venture and current debt holders' possible equity investment in the new joint venture. These estimated values reflect future values and, for illustrative purposes, we have selected exit points 3 and 5 years in the future from the date of investment. These estimates provide one potential indicative range of investment values in the new joint venture with regard to Huta Warszawa's current creditors. These estimates should not be construed as providing definite values, nor of guaranteeing the future value, nor of assuring potential investors that a market would exist in the future for their interests. Ultimately, the amounts to be realized depend on what purchaser(s) are prepared to agree to.

Mr. Mark Karns  
January 13, 1992  
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These estimates represent a minority interest and do not include a control premium for the right to alter management salaries, change dividend policy, or make other adjustments to operations of the joint venture. Based on consideration of existing price-to-earnings (P/E) multiples in Poland and other Eastern European countries, price-to-earnings multiples in Western markets, and Poland's expected overall economic prospects over the next three to five years as the benefits of a market economy are realized, we have selected P/E multiples applicable to the operating joint venture of between 7 and 9. These were higher than current P/E multiples applicable to Poland but lower than the multiples for companies in the West.

For purposes of this analysis, we also assumed that there is a "put" right for the creditors' shares in the new joint venture enabling the creditors to sell their shares to Lucchini or another strategic investor at the future fair market value of those shares. Without such a "put" right, the shares would require "lack of marketability" discounts of 30-50 percent.

During the course of our work, we relied on forecasts of future business operations provided by McLellan and Partners, Ltd. ("McLellan") and corroborated by Huta management. We have not examined the forecasted data or the assumptions underlying the forecasted data and do not express an opinion or any other form of assurance on the forecasted data and related assumptions. Furthermore, there will usually be differences between forecasted and actual results, because events and circumstances frequently do not occur as expected, and these differences may be material.

#### Scope of Our Work

The scope of our analysis included the following:

- Visits to the central office and plant of Huta.
- Discussions with key management concerning the business operations, market strategy, financial condition and future prospects.
- An analysis of the Company's historical financial performance.
- An analysis of projections for future business operations provided in a feasibility study completed by McLellan, subsequently corroborated by Company management.

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- An analysis of historical and expected trends in the steel industry.
- Translation of Polish financial statements to "Western style" format.
- Research on the Polish economy and the steel industry in Poland.
- Valuation sensitivity analysis.

In conjunction with our work, we were provided with information that we accepted as fairly reflecting business operations.

Our analysis reflects only information that was known or available to us as of October 31, 1991. Events occurring subsequent to this date did not enter into our analysis, nor did they affect our recommendations of future value.

#### Recommendations

Based on the data and conclusions in the report which follows and subject to the accompanying statement of limiting conditions, the range of recommended future value indications for the Huta-Lucchini operating joint venture in billions of zlotys (at current price levels) is as follows:

<u>Percentage Ownership</u>	<u>Future Year*</u>	
	<u>Year 3</u>	<u>Year 5</u>
100%	875 to 1,125	1,161 to 1,493
49%	429 to 551	569 to 732
35%	306 to 394	407 to 523
20%	175 to 225	232 to 299

\* from date of investment

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Thank you for this opportunity to perform this analysis. If you have any questions, we would be pleased to discuss the valuation methodologies utilized in this report.

Very truly yours,

*Coopers & Lybrand*

**HTS**  
MDG:cl

cc: Mr. Marek Krawczyk  
Industrial Development Agency  
Republic of Poland

**HUTA WARSZAWA -  
LUCCHINI JOINT VENTURE**

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**HUTA WARSZAWA -  
LUCCHINI JOINT VENTURE**

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## STATEMENT OF LIMITING CONDITIONS

1. Nothing has come to our attention to cause us to believe that the facts and data set forth in this report are not correct.
2. Neither Coopers & Lybrand nor any of its employees has a financial interest in the property appraised.
3. The fee for this report is not contingent upon values reported.
4. No investigation of the title of the property has been made, and owner's claim to the property has been assumed to be valid. No consideration has been given to liens or encumbrances which may be against the property except as specifically stated in this report.
5. No environmental impact study has been ordered or made. Full compliance with applicable Polish government environmental regulations and laws is assumed unless otherwise stated, defined, and considered in the report. It is also assumed that all required licenses either have been or can be obtained or renewed for any use which the report covers.
6. Information furnished by others was assumed to be reliable.
7. No responsibility is assumed for matters of a legal nature.
8. This report is for the purposes stated and should not be used for any other purpose.

9. Neither all nor part of the contents of this report shall be disseminated to the public through advertising, public relations, news, sales or any other public media without prior approval of Coopers & Lybrand.
10. In the course of our analysis, we were provided with both written and verbal information, including financial and operating data, which we accepted as accurate without verification.
11. We have used certain forecasted data supplied by management, and others, in our valuation. We have not examined the forecasted data or the assumptions underlying the forecasted data and do not express an opinion or any other form of assurance on the forecasted data and related assumptions.
12. The estimates of future operations herein are solely for use in the valuation and are not intended for use as forecasts or projections of future operations. In addition, there will usually be differences between estimated and actual results because events and circumstances frequently do not occur as expected and those differences may be material.
13. The value recommendations contained herein are not intended to represent the future values of the enterprise at any time other than the dates of valuation. Future changes in market conditions could result in value recommendations substantially different than those presented in this report based on currently available information. We assume no responsibility for changes in market conditions or for the inability of the owner to ultimately locate a purchaser at the value estimate provided.
14. We have no responsibility to update this report for events and circumstances occurring after the date of valuation.

## **EXECUTIVE SUMMARY**

### **Introduction**

The purpose of our analysis is twofold. The primary purpose has been to assist management in opening discussions with leading creditors of Huta. In addition, this report is intended to assist the process of developing a formal agreement between Lucchini and Huta to form a joint venture.

### **Overview**

The valuation estimates in this report provide an indication of the potential future values of the proposed joint venture and current debt holders possible equity investment in the new joint venture. These estimated values reflect future values and for illustrative purposes, we have selected exit points 3 and 5 years in the future from the date of investment. These estimates provide one potential indicative range of investment values in the new joint venture with regard to Huta Warszawa's current creditors. These estimates should not be construed as providing definite values, nor of guaranteeing the future value, nor of assuring potential investors that a market would exist in the future for their interests. Ultimately, the amounts to be realized depend on what purchaser(s) are prepared to agree to.

These estimates represent a minority interest and do not include a control premium for the right to alter management salaries, change dividend policy, or make other adjustments to Company operations. Based on consideration of existing price-to-earnings (P/E) multiples in Poland and other Eastern European countries, price-to-earnings multiples in Western markets, and Poland's expected overall economic prospects over the next three to five years as the benefits of a market economy are realized, we have selected P/E multiples applicable to the operating joint venture

of between 7 and 9. These are higher than current P/E multiples applicable to Poland but lower than the multiples for companies in the West.

For purposes of this analysis, we also assumed that there is a "put" right for the creditors' shares in the new joint venture enabling the creditors to sell their shares to Lucchini or another strategic investor at the future fair market value of those shares. Without such a "put" right, the shares would require "lack of marketability" discounts of 30-50 percent.

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#### Scope

The scope of our analysis has included:

- Visits to the central office and plant of Huta.
- Discussions with key management concerning the business operations, market strategy, financial condition and future prospects.
- An analysis of the Company's historical financial performance.

- An analysis of projections for future business operations provided in a feasibility study completed by McLellan, and subsequently corroborated by Company management.
- An analysis of historical and expected industry and economic trends in the steel industry.
- Translation of Polish financial statements to "Western style" format.
- Research on the Polish economy and the steel industry in Poland.
- Valuation sensitivity analysis.

#### Company Overview

Huta Warszawa is located approximately ten kilometers northwest of Warsaw. The Company's products include high grade alloy and carbon steel for engineering applications.

Steel production transforms scrap metal via open hearth and electric furnaces. It is then cast into ingots which are processed by the rolling mills which produce round, rectangular and square bar and flats ranging from 5.5 millimeters in diameter to 130 millimeters in diameter.

There are three rolling mills and the process is dependent on product and market requirements. The products are finished in straight lengths and coils. Ingot is also used as feedstock to the forge which produces rolls for steel rolling mills, crank shafts for large engines, drive shafts and other similar products.

Heat treatment, machining, peeling, polishing and drawing activities are also performed.

### Proposed Joint Venture Structure

Lucchini and Huta have agreed to establish an initial joint venture (JVC-1). Because of the variety of participants, the ultimate joint venture will be preceded by several intermediate steps. (See Exhibit A on page 8 for an illustration of the transaction).

Huta will transfer production related assets which, according to management, have an estimated market value of approximately \$26 million, to a new joint stock company known as Huta S.A. After the formation of JVC-I, Huta and Lucchini will create JVC-II and dissolve JVC-I.

Huta will then transfer the production related assets from Huta S.A. to JVC-II. Concurrently, Lucchini is to transfer cash, promissory notes, fixed assets and technical know-how with a total value of \$32 million to JVC-II. Polish financial and/or industrial development institutions will also contribute \$5 million of cash to JVC-II.

As a result of these contributions, the final ownership percentages in JVC-II shall be as follows:

Lucchini	51%
Huta S.A., Other Institutions and the State Treasury	<u>49%</u>
Total	<u>100%</u>

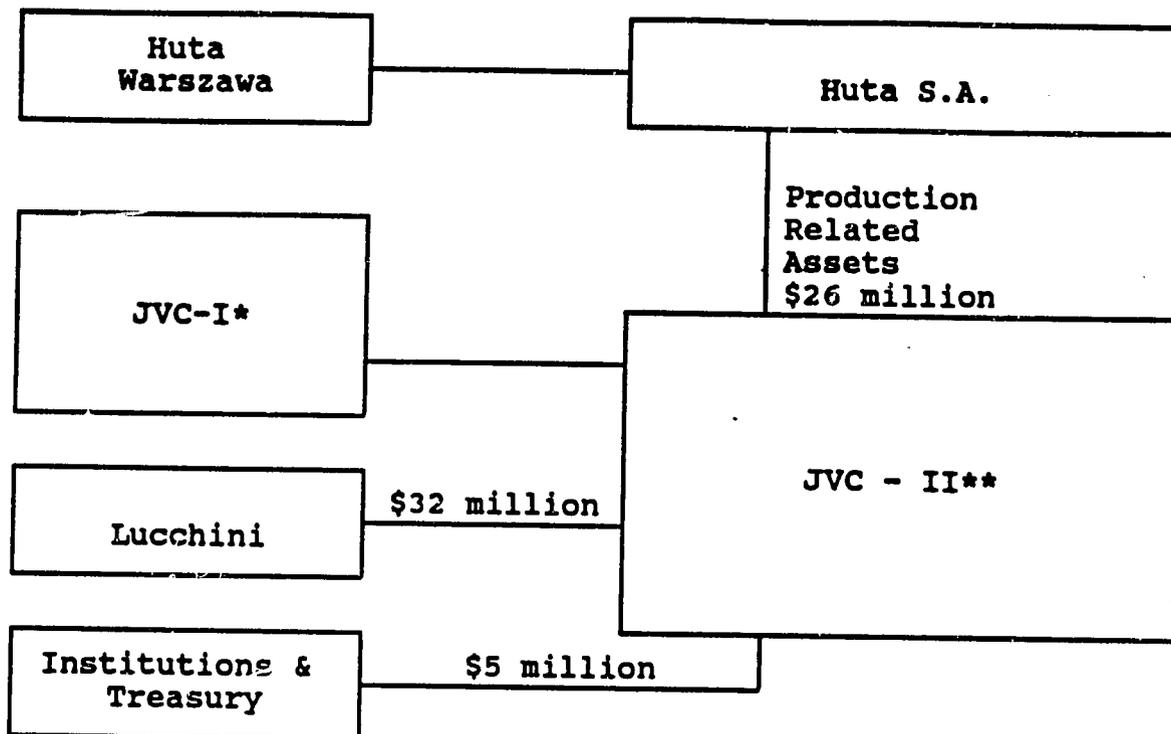
## Recommendations

Based on the data and conclusions in the report which follows and subject to the preceding statement of limiting conditions, the range of recommended future values for the Company in billions of zlotys (at current price levels) is as follows:

<u>Percentage Ownership</u>	<u>Future Year*</u>	
	<u>Year 3</u>	<u>Year 5</u>
100%	875 to 1,125	1,161 to 1,493
49%	429 to 551	569 to 732
35%	306 to 394	407 to 523
20%	175 to 225	232 to 299

\* from date of investment

**Exhibit A  
Proposed Joint Venture Structure**



	Preliminary* Ownership Percentages	Final** Ownership Percentages
Lucchini	<u>51%</u>	<u>51%</u>
Huta S.A., Financial/ Development Institutions and Polish treasury	<u>49%</u> <u>100%</u>	<u>49%(1)</u> <u>100%</u>

**Note:**

(1) Polish treasury withholds no significant ownership after transformation, but will retain certain voting rights.

## 1.0 POLAND - COUNTRY BACKGROUND

### 1.1 Poland

Poland is located in Eastern Europe in the same general latitude as southern Canada. Natural barriers form its boundaries on the north (the Baltic Sea) and the south (the Carpathian Mountains along the border with Czechoslovakia). In an east-west direction, the country is part of a continuous plain that starts in central Europe and continues to the Ural Mountains.

Poland has the second largest population in Eastern Europe (after the former Soviet Union). Today, it is ethnically homogeneous (98 percent Polish) in contrast with the pre-World War II period, when there were significant ethnic minorities - 4.5 million Ukrainians, 1 million Byelorussians and 800,000 Germans. Most Germans left Poland at the end of the war, while many Ukrainians and Byelorussians moved to territories which were incorporated into the Soviet Union.

### 1.2 Political and Economic History

In July 1944, the Soviet Union installed a Communist-controlled "Polish Committee of National Liberation" at Zublin, the area of Poland that advancing Soviet armies had brought under their control during World War II. In January 1945, the Soviet Union recognized this committee as the Polish Government.

Following the Yalta Conference of early 1945, a Polish Provisional Government of National Unity was formed in June 1945; the United States recognized it in the next month. Although the Yalta agreement called for free elections, those held in January 1947 were controlled by the Communist Party. The communists then established a regime entirely under their domination.

## Communist Party Domination

In October 1956, after the 20th Soviet Party Congress at Moscow and riots in Poznam, a shake-up in the Communist regime returned Wladyslaw Gomulka to the party as the first secretary. Gomulka, a former head of the Polish Communist Party, had been ousted in 1948 and later imprisoned for "nationalistic tendencies".

In 1970, workers were discontented with general economic conditions and they staged several strikes on the Baltic coast. Disturbances and strikes in the port cities of Gdansk, Gdynia and Szczecin, triggered by price increases for essential consumer goods, reflected deep dissatisfaction with living and working conditions in the country. Gomulka was replaced as first secretary by Eduard Gierek.

## Solidarity Movement

On August 31, 1980, workers at the Lenin Shipyard in Gdansk, led by an electrician named Lech Walesa, signed a 21 point agreement with the government which ended the union's first successful strike. Workers were guaranteed the right to form independent trade unions and to strike. After the Gdansk agreement was signed, a new national union movement - "Solidarity" - swept Poland.

Alarmed by the rapid deterioration of the Communist Party's authority following the Gdansk agreement, the Soviet Union proceeded with a massive buildup of its forces along Poland's border in December 1980. In February 1981, Defense Minister General Wojciech Jaruzelski assumed the position of Prime Minister. In October 1981, he was named party First Secretary. At the first Solidarity National Congress in September-October 1981, Lech Walesa was elected national chairman of the workers' union.

The period from 1982 through 1986 was marred by numerous confrontations between the government and members of the Solidarity Movement. The government repeatedly imposed martial law. This was met by economic sanctions from the United States and other Western countries.

The government's inability to stop Poland's economic decline led to waves of strikes across the country in May through August, 1988. In an attempt to take control of the situation, the government gave de facto recognition to Solidarity, and, on August 31, Interior Minister Kiszczak began talks with Lech Walesa. Agreement was reached in April 1989 providing for partially free elections and a bicameral National Assembly.

After two failed attempts by the Communists to form a government, President Jaruzelski asked Solidarity activist Tadeusz Mazowiecki to form a government. As a result, Poland had a government dominated by noncommunists.

In October 1990, the constitution was amended to curtail the term of President Jaruzelski. In December, Lech Walesa became the first popularly elected president of Poland. The next general election for President is expected to be held in 1992.

### The Economy

Since the Second World War, Poland has become an industrialized economy, though agriculture remains relatively important in terms of employment. Compared with West European economies, Poland is still poor. According to the World Bank, average real wages increased 9 percent in 1989 while the cost of living increased 254 percent.

As in other East European countries, central planning was installed in the late 1940s. A commitment was made to rapid

industrialization with central planning as an instrument to mobilize and allocate resources. This contributed to high growth rates in the 1950s. However, consumption and living standards increased slowly, fueling discontent and forcing the first reconsideration of the merits of central economic planning. The government attempted to reform the economy in the late 1960s and 1970s. These attempts failed, however, and the economic and political structure slowly disintegrated. By 1981, industrial output began a continuous decline.

After emergency measures were established in 1982, the government developed a three year "stabilization" plan which included a resource savings and anti-inflation program. The main thrust of this plan was to divert resources from investment to consumption and exports.

A trade surplus with the West emerged in 1982 and was maintained through 1985. This was due more to import curbs than to an increase in exports. The performance of manufactured exports to the West was one of the consistently weak aspects of Polish economic performance during 1982-85.

By the mid-1980s the economy was still fragile. Growth slowed sharply in 1985 and, despite a recovery in production in 1986, many Polish economists became pessimistic regarding the lack of progress in reforms.

The first two years of the 1986-90 plan had mixed results. Growth was a satisfactory 4.9 percent in 1986 but a dismal 1.9 percent in 1987, due largely to the effect on agriculture of a particularly bad winter. The economy surged again in 1988 with growth of 4.9 percent but stagnated in 1989. In 1990, Poland experienced an annual decrease of 20 percent in gross output as compared to 1989.

Inflationary pressures continued to grow in both 1987 and 1988. By 1989, the Polish economy entered into a period of stagflation. The 1989 inflation rate was 244 percent.

Overall, Poland's poor economic performance during the 1980s resulted in the dramatic political changes which are still evidenced today.

### 1.3 Current Political Environment

The present government structure reflects compromises made by the former communist government's inability to stop Poland's economic decline. For the first time in recent history, political power is shared by communists and non-communist parties.

The bicameral legislature is made up of the 460-member Sejm (Lower House) and the 100-member Senate (Upper House).

The constitution was amended in September 1990 to allow election of the President by a general vote. The President nominates a prime minister who, together with his cabinet members, must be approved by the Sejm. A new constitution is being drafted and must be approved by the parliament elected in 1991.

Under the leadership of Finance Minister Leszek Balcerowicz the 585 percent hyperinflation experienced in 1990 was reduced and the currency was stabilized. But since then, the highly restrictive monetary and fiscal policies worsened the economic condition for many Poles and they retaliated against pro-market politicians. In the October 27, 1991 elections, reform parties garnered only 22 percent of the vote. Twenty nine parties won seats, with none getting more than 13 percent.

#### **1.4 Economic Reform Program**

The Sejm passed legislation in December 1989 regarding economic reforms. The monthly inflation rate decreased from 78.6 percent in January 1990 to 4.9 percent in November. As a result, the currency was stabilized. At the same time, however, industrial production fell by 25 percent, average real incomes decreased by more than 20 percent and average real wages decreased by almost 30 percent.

A vital element of the economic reform program is the privatization of state owned enterprises. Enabling legislation was passed by the Sejm in July 1990. A Ministry of Ownership Transformation has been created to oversee the conversion of the state enterprises into private firms and prepare guidelines for the creation of a stock market. The challenge facing the Polish government is how to privatize thousands of state enterprises while preventing profiteering, and to cushion the workforce against unemployment as many large, unprofitable state firms face insolvency.

#### **1.5 Current Economic Performance**

Industrial production in June 1991 was 16 percent lower than a year earlier. Over the first half of 1991, industrial sales were 9.4 percent lower than over the same 1990 period. Inflation, however, seems to have been brought under control and has fallen steadily each month since January. The June 1991 monthly inflation rate was expected to be about 2 percent. The May monthly inflation rate was only 2.7 percent.

In June 1991, sales of finished goods were reduced 16 percent compared to a similar period ended June 1990, with a decline in activity in many industries. Over the January to May period (as compared with a similar period in 1990), the electrical and

mechanical engineering sector was most adversely affected with a 20.1 percent decline in production. This was mainly attributable to the loss of sales to the troubled Soviet market. Metallurgy production also fell sharply (15.5 percent) as did light industry output (10.1 percent). The only growth sectors were wood and paper (3.3 percent) and food (5.7 percent).

There has also been a steady decline in industrial profitability (calculated as the ratio of after tax profits to production costs), decreasing from 10.2 percent (January-March, 1991) to 9.3 percent (January-April, 1991). Non-ferrous metallurgy remains one of the most profitable industrial branches with a profitability indicator of 28.7 percent.

Performance of specific economic indicators follows:

#### Unemployment

Unemployment continues to grow as the country moves toward a market economy. At the end of 1990, there were 1.1 million unemployed people, or approximately 6 percent of the total workforce. This figure has grown to 1.7 million as of June 1991.

#### Gross Domestic Product

Gross domestic output for the first 6 months of 1991 was 15 percent lower than the period from June through December, 1990. Output in the public sector in the last quarter of 1990 was 8 percent lower than the first quarter ended March 31, 1991. Private sector output rose 17 percent for the period June through December, 1990 and 19.5 percent for the period January through June, 1991.

## Inflation

Historically, annual inflation has ranged from 17.7 percent in 1986 to 585 percent in 1990. Inflation during the first 6 months of 1991 was running at an annual rate of 39 percent. However, for the full 1991 year, annual inflation was projected to be 85 percent. This increase appears to be the result of lifting price controls on selected products. (See following Exhibit 1A).

## Trade

In comparison with the second half of 1990, the first 6 months of 1991 showed exports decreasing 14 percent and imports increasing by 11 percent. Exports to the European Community increased by 28 percent.

The overall trade deficit was \$89 million for the first six months of 1991. As of 1989, 25 percent of all exports were to the Soviet Union and 14.2 percent were to the former East Germany. Another 20 percent was equally allocated to the U.K., Czechoslovakia, old East Germany and Austria.

## Future Prospects

Despite recent economic performance, Poland is at the forefront of economic change in Eastern Europe. The United States and other Western countries continue to support the growth of a free enterprise economy by providing direct aid, restructuring debt and rescheduling payments. Each of these factors will continue to encourage private investment in Poland.

**ECONOMIC STRUCTURE OF THE REPUBLIC OF POLAND**  
Latest available figures

Exhibit 1A

Macroeconomic indicators	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u> (a)
NMP at market prices Zl bn	10,697	14,013	24,995	104,952	625,461
Real NMP growth %	4.9	1.9	4.9	(0.2)	(13.0)
Consumer price inflation %	17.7	26.0	60.0	251.0	585.0
Population mn (end year)	37.6	37.8	37.9	38.0	38.2
Hard currency:					
exports fob \$ bn	5.6	6.4	8.0	8.9	11.9
imports fob \$ bn	4.7	5.4	6.9	7.4	8.1
current account \$ bn	(0.8)	(0.1)	(0.3) (b)	(1.6) (b)	1.4 (c)
Reserves excl gold \$ bn (Dec)	0.7	1.5	2.1	2.3	5.2 (d)
Gross external hard currency debt \$ bn (Dec)	33.5	39.2	39.2	38.9	46.6
Commercial rate (av) Zl per \$	175.3	265.1	430.6	1,439.2	9,500.0
August 5, 1991 Zl 11,074 per \$					

Origins of NMP 1989	<u>% of total</u>	Components of NMP 1989	<u>% of total</u>
Agriculture, forestry & fishing	13	Consumption	79
Mining, manufacturing & utilities	48	of which:	
Construction	12	private consumption	67
Others	27	social consumption	12
Total	100	Net investment in fixed capital	12
		Increase in stocks	8
		Total	100

Principal hard currency exports 1989	<u>\$ mn cif</u>	Principal hard currency imports 1989	<u>\$ mn fob</u>
Engineering	2,256	Engineering	2,408
Agricultural produce & food	1,689	Food & agriculture	1,441
Metallurgy	1,275	Chemicals	1,384
Fuel & energy	1,024	Metallurgy	691
Chemicals	1,003	Energy	399
Total incl others	8,897	Total incl others	7,376

Main destinations of exports 1989	<u>% of total</u>	Main origins of imports 1989	<u>% of total</u>
USSR	24.8	USSR	18.1
West Germany	14.2	West Germany	15.7
UK	6.5	Austria	6.0
Czechoslovakia	5.5	Czechoslovakia	5.7
East Germany	4.2	Switzerland	5.3
Austria	3.5	East Germany	4.5

Notes:

(a) Preliminary; (b) IMF estimate; (c) GUS estimate, end November; (d) End November actual.

Source: The Economist Intelligence Unit, Country Profile - 1991.

## **2.0 THE GLOBAL STEEL INDUSTRY**

In this section, we describe the global steel industry. Specifically, we discuss: (1) the evolution of steel manufacturing technology; (2) current production, capacity, and trade trends of steel products and (3) historical success factors in the industry.

### **2.1 Evolution of Technology in the Steel Industry**

From the beginning of the iron age in about 1,000 B.C., steelmaking has been primarily a process of melting iron ore at high temperatures in a contained area. Over hundreds of years, primitive forges evolved into blast furnaces, with little change in technology other than increased size, improved design and accelerated operation.

The first blast furnace was built in America in the 17th century, but no technological changes occurred until the early 1900s, with the advent of the open hearth furnace (OHF). The OHF was an improvement over previous designs because it produced higher quality steel (needed for auto body parts) and utilized a high proportion of scrap. In the OHF, molten iron, scrap and limestone are charged (loaded) into a shallow steelmaking area known as a hearth, which is open to flames that emanate alternately from opposite ends of the furnace. Theoretically, an open hearth can use blast furnace iron or steel scrap alone, but most are operated using both in about equal proportions.

The number of OHFs peaked in 1968 but accounted for only 16 percent of world steel production in 1990.<sup>1</sup>

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<sup>1</sup>Source: International Iron and Steel Institute (IISI)

The technological replacement for the OHF is the basic oxygen furnace (BOF), pioneered in Austria after World War II. The concept of using oxygen in a pneumatic steel melting process originated in the mid-1800s but, at that time, technology for bulk production of oxygen was unavailable. The BOF uses as its primary raw material pig iron from a blast furnace. The other source of metal, scrap steel, is also charged into the top of a tilted BOF. The fuel is oxygen, which is blown through the roof of the furnace via a lance. Newer BOF techniques also involve feeding the oxygen through the bottom of the steelmaking vessel.

The primary advantage of BOF steelmaking is speed: the introduction of pure oxygen into the mixture of molten iron and scrap steel produces a vigorous chemical reaction that accelerates the process. A BOF can make approximately 300 tons of steel in approximately 45 minutes, while an OHF requires approximately eight hours to make the same tonnage. Most grades of steel can be made in BOFs. In 1990, BOFs accounted for approximately 57 percent of world steel production.

Electric arc furnaces (EAFs) first were used for production of alloy, stainless and tool steels, but, since the 1940s, have become the mainstays of minimills (limited commodity line steel mills) for production of lower quality products such as bars, wire rod and light-to-medium structural shapes from scrap. Although the EAF's share of world steel production accounted for only 28 percent of the total in 1990, they will account for a larger percentage of steel production in the future as outdated and inefficient open hearth furnaces continue to be replaced.

In EAF technology, the "heat", or batch of melting steel, is precisely controlled, as an electric current arcs from the furnace to melt the steel. In this process, scrap steel or, sometimes, directly reduced iron ore, can be charged or loaded into the EAF. On older, more expensive blast furnace technology,

iron is separated from iron ore by intense heat from burning coke, with limestone acting as the purifying agent, whereas EAF technology basically remelts scrap steel.

### Types of Steel Mills

The conventional steel mill is also known as an integrated plant. It begins with iron ore and ends with finished or semi-finished steel products. Mixtures of lump ore, pellets (sinter), sized limestone and coke are charged together into a blast furnace to make pig iron. In the refining step, the objective is to remove carbon from the pig iron to make steel having a carbon content of 1.7 percent or less. Pig iron, scrap, lime and fluxes are put into a steel making furnace (EAF or BOF), where carbon, manganese and silicon are removed or reduced to specified levels by controlled oxidation; contaminants such as phosphorous and sulphur are also removed. The steel is cast into ingots, which are later reheated and broken into slabs, billets or blooms (see Glossary of Terms, Appendix A) that are sent to a rolling mill to be shaped into products. Large integrated steel mills are increasingly installing continuous slab casting machines to replace the ingot-mold procedure. An integrated plant has more extensive operations and makes more steel per production facility than a minimill.

The minimill operation dispenses with the ironmaking steps of the conventional steel plant and begins with steel scrap, flux and (occasionally) directly reduced iron. The scrap is melted in an electric furnace, poured into a ladler and transferred into a continuous-casting machine. From the casting machine, the steel emerges as a continuous billet or bloom that is cut off at suitable lengths. It is then sent into the rolling mill where only a small number of products are made. These include rods and bars and structural shapes for light construction. Over the past ten years, some minimills have expanded their line of products to

include such items as pipe, plate, narrow strip and narrow sheets.

### Continuous Casting

Compared with conventional steelmaking techniques, continuous casting is far less complicated and results in a product of superior quality. Steps eliminated from the production process include time-consuming ingot teeming, stripping, soaking and certain preliminary rolling steps. In continuous casting, molten steel from the furnace (i.e., an OHF, BOF or EAF) is carried in a ladle and transferred to a refractory-lined container, or tundish, at the top of the caster. After the molten metal is poured into the tundish, it is fed continuously into the caster. It then flows downward (under carefully controlled conditions) in a continuous ribbon. As the steel moves through a series of water-cooled molds in the caster, it is sprayed with water, chilled and begins to solidify. Guided by roller aprons, the ribbon of steel is gradually directed onto a horizontal plane where, in a solid form, it is levelled and cut into predetermined lengths. Thus, semifinished shapes can be produced in a single process that runs from the furnace to the finishing mill.

While continuous casting does not add new melting capacity, it does reduce time-consuming refining tasks and cuts production cycle times which result in higher outputs.

In 1990, Eastern Europe continuously cast approximately 22 percent of their output compared to 64 percent of total world continuous cast output. Japan leads world production with 94 percent of its products continuously cast, followed by Western Europe with 90 percent and the United States at 67 percent. Poland has only 7 percent continuously cast products (see following table).

	<u>(Furnace Types)</u>			<u>Total</u>	<u>Continuous Cast Output</u>
	<u>Oxygen</u>	<u>Electric</u>	<u>Open- Hearth</u>		
	%	%	%	%	%
<b><u>Eastern Europe</u></b>					
Czechoslovakia	47	14	39	100	12
Poland	53	18	29	100	7
Romania	54	24	22	100	37
German Dem. Rep.	34	32	34	100	41
Hungary	51	7	42	100	64
Bulgaria	50	40	10	100	15
<b>Total Eastern Europe</b>	<b>46</b>	<b>20</b>	<b>31</b>	<b>100</b>	<b>22</b>
Russia	35	13	52	100	18
Western Europe	67	32	1	100	90
United States	60	37	3	100	67
Japan	69	31	--	100	94
<b>Total World Market</b>	<b>57</b>	<b>28</b>	<b>16</b>	<b>100</b>	<b>64</b>

Source: International Iron & Steel Institute (IISI)

## 2.2 Current Production, Capacity and Trade Trends

### Impact of Global Recession on the Steel Industry

The world recession continues to affect the steel industry as a result of the steady decline in capital expansion in almost all country's economies. This negative trend is expected to continue throughout 1992. World economic recovery is expected to be the slowest in recent history. This will further complicate the operating and competitive environment for most steel companies. As a result, there is likely to be increased pressure for steel companies to export steel products to maintain production levels.

Global economic growth in 1992 will be limited to 1 to 2 percent. This is consistent with the 1 to 1.3 percent growth that was projected for 1991. Economic growth will not be generated from capital goods or construction in most European markets because of relatively high interest rates and excess manufacturing capacity.

Globally, there is excess capacity throughout the world steel industry. Steel demand lags available supply, putting downward pressure on market prices.

### Recent Trends in World Steel Production

World steel production was 770.1 million metric tons in 1990. This compares to 785.5 million metric tons in 1989. Steel production in Eastern Europe declined from 61.2 million metric tons in 1988 to 49.1 million metric tons in 1990. In Western Europe, production declined from 164.3 million metric tons in 1988 to 161.7 million metric tons in 1990.

Trade tensions are mounting in Eastern Europe. Traditional trading relationships are changing dramatically and eliminating guaranteed sales between long standing trade partners. With the

economic and political collapse of the Soviet Union, steel production in Eastern Europe will likely decline in the short term.

There will likely be turmoil in the steel industry as short term demand declines and as prices are adjusted to reflect current market conditions. The weakest companies will probably be eliminated thus allowing the surviving companies to increase capacity utilization.

New trade competition will likely result as companies attempt to offset the domestic economic downturn by increasing exports. Concurrently, individual countries will likely implement trade restrictions to protect their domestic markets.

### Steel Trade Trends in Eastern Europe

Eastern European countries are importing less steel. Most countries have attempted to bolster exports to Western Europe and the U.S. to counter declining steel production and poor domestic economic performance. Net steel exports amounted to 5.4 million metric tons in 1989 as compared to 3.9 million metric tons in 1988.

### 2.3 Historical Success Factors in the Steel Industry

The most successful steel companies contain costs through utilizing capacity more efficiently, controlling raw materials and labor costs, and implementing innovative manufacturing technology.

### Capacity Utilization

Full production is necessary to fully apply overhead. The steel manufacturing industry is heavily capital intensive and overhead

costs are substantial. When companies do not fully utilize capacity, overhead (per product unit) increases which, in turn, reduces price competitiveness. This problem is further complicated if market conditions cause steel products to sell at low prices. As utilization is under pressure, the probability of losses increases. If a producer selects a low price product strategy, costs may be reduced through technical improvements like utilizing continuous casting technology.

#### Control of Raw Material Costs

Availability and prices of raw material sources will directly impact the competitiveness of steel products. Steel scrap is the primary source of raw material input at Huta Warszawa. Prices for raw material may increase in the short term as a result of changing trade relationships between countries in Eastern Europe. Prices for scrap metal will depend on supply. When this occurs, the Company should consider changing its product mix to take advantage of higher priced products.

#### Control of Labor Costs

Eastern European steel manufacturers benefit from low labor costs. The average wage at Huta Warszawa is approximately \$1.00 per hour. This compares to \$15 per hour in the United States.

This benefit will continue in Eastern European countries as long as wage controls remain. However, as more companies privatize, there is likely to be increased pressure on Eastern European governments to raise wages to improve living standards.

### Use of Updated Manufacturing Technology

There is also continuous pressure to improve manufacturing technology to minimize throughput costs. This will require significant investment in research and development costs.

### **3.0 HUTA WARSZAWA OVERVIEW**

#### **3.1 Background**

Huta Warszawa was established in 1957 by the Central Government of Poland as one of 20 steelmills in the country. It is located between the residential Warsaw district of Mlociny and a national park, producing steel entirely from scrap. The plant houses a charging bay, two steel plants, three rolling mills, a cold strip mill, a drawing mill, a forging shop, and an iron foundry. The steel plants include three open hearth furnaces built in the late 1950s (currently shut down), and five electric arc furnaces built in the late 1960s. Furnace capacities are 70 metric tons and 50 metric tons, respectively, for the two different technologies.

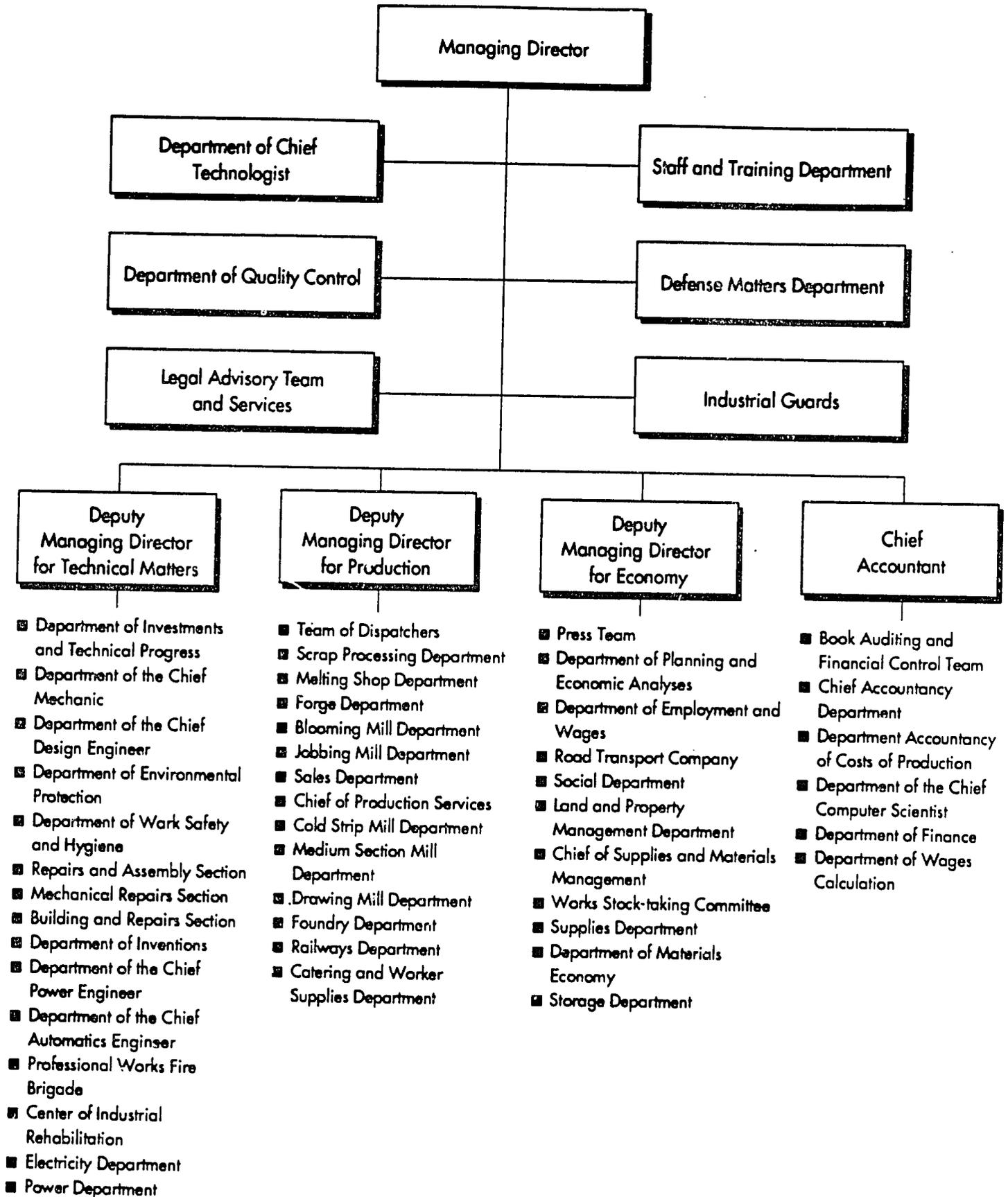
The company's products include high grade alloy and carbon steel for engineering applications, bearing steel, tool steel and stainless steel. Prior to the 1989 revolution in Poland, Huta Warszawa employed approximately 11,000 people. Today, with many idle facilities, the Company employs 5,500 people. Raw steel production at the mill has been dropping steadily since 1980, down from earlier levels of 720,000 tons per annum to 450,000 tons in 1989 and 373,216 tons in 1990. Production departments include melting, stamping and hammering, blooming, jobbing, cold strip mill, drawing mill and heat treatment department, medium section mill and foundry (see following Exhibit 3A).

Output by Production Department

1. Melting Shop
  - Liquid steel produced in open hearth furnaces and electric arc furnaces
2. Stamping and Hammering
  - Forgings
  - Rings
  - Bars
  - Rollers
  - Shafts
  - Other forged products
3. Blooming Mill
  - Rolled products
    - Billets
    - Blooms
    - Bars
4. Jobbing Mill
  - Rolled products
    - Wire rods
    - Square and round bars
    - Hoops
5. Cold Strip Mill
  - Cold rolled strips
6. Drawing Mill and Heat Treatment Department
  - Drawn products
    - Drawn, ground and reeled bars
    - Strip coils
7. Medium Section Mill Department
  - Rolled Products
    - Round bars
    - Flat irons
    - Square bars
8. Foundry
  - Cast steel
  - Cast iron

### Current Organization Structure

Huta Warszawa's management consists of a Managing Director who directs the overall activities of the steel mill. The Managing Director and directors of other departments work closely with the Workers Council (similar to a trade union) elected by the steelworkers to make decisions on certain issues. (See following Exhibit 3B).



### Current Sales and Production

Exhibits 3C and 3D summarize Huta's current sales by major product categories and geographical markets. It is important to note that export sales currently represent a modest 6.4 percent and 5.9 percent of tonnage and revenues, respectively.

HUTA WARSZAWA -  
LUCCHINI JOINT VENTURE

Exhibit 3C

SALES BY PRODUCT LINE

(in millions Zloty)

For the 10 months ending October 31, 1991

Product Line	Tons	%	Amount	%
Rolled Products	153,806	77.1%	611,835.1	66.6%
Export	6,276	3.1%	20,764.3	2.3%
Cold Rolled Products	10,966	5.5%	66,366.1	7.2%
Export	116	0.1%	818.6	0.1%
Drawn Products	15,595	7.8%	98,689.9	10.7%
Export	—	—	—	0.0%
Turned Products	5,817	2.9%	34,990.0	3.8%
Export	1,403	0.7%	6,366.7	0.7%
Raw Forgings	6,078	3.0%	41,533.6	4.5%
Export	2,072	1.0%	9,883.3	1.1%
Processed Forgings	4,951	2.5%	47,398.8	5.2%
Export	2,891	1.4%	16,226.1	1.8%
Steel Castings	921	0.5%	6,479.7	0.7%
Export	—	0.0%	—	0.0%
Cylpepsy	76	0.0%	193.4	0.0%
Export	—	0.0%	—	0.0%
Other Sales	—	0.0%	9,952.9	1.1%
Scrap	1,330	0.7%	1,598.6	0.2%
<b>Total Sales</b>	<b>199,540</b>	<b>100%</b>	<b>919,038</b>	<b>100%</b>
<b>Export Total</b>	<b>12,758</b>	<b>6.4%</b>	<b>54,059</b>	<b>5.9%</b>

**HUTA WARSZAWA -  
LUCCHINI JOINT VENTURE**

**Exhibit 3D**

**EXPORT SALES BY MARKET**

(in billions Zloty)

For the 10 months ending October 31, 1991

<b>Country</b>	<b>Amount (Tons)</b>	<b>%</b>	<b>Value</b>	<b>%</b>
Hungary	268.2	2.1%	1,374.4	2.5%
Yugoslavia	58.6	0.5%	348.4	0.6%
France	903.2	7.1%	4,522.4	8.4%
Holland	197.5	1.5%	906.0	1.7%
Germany	9,831.7	77.1%	41,029.2	75.9%
Sweden	23.5	0.2%	81.8	0.2%
United Kingdom	221.8	1.7%	765.9	1.4%
United States	22.3	0.2%	107.7	0.2%
Egypt	438.2	3.4%	1,516.4	2.8%
Switzerland	23.8	0.2%	153.0	0.3%
Australia	258.2	2.0%	1,676.9	3.1%
Norway	23.2	0.2%	480.0	0.9%
Austria	0.0	0.0%	19.1	0.0%
Kenya	51.2	0.4%	316.4	0.6%
Nepal	391.6	3.1%	583.1	1.1%
Other	45.0	0.4%	178.3	0.3%
<b>Total</b>	<b>12,758.0</b>	<b>100%</b>	<b>54,059.0</b>	<b>100%</b>

### 3.2 Historical Technology

#### Technology of Huta Warszawa

The Huta Warszawa facility operates as a minimill since it dispenses with the ironmaking steps of the conventional steel plant and begins with steel scrap, flux and directly reduced iron. Steel production of high quality alloy and carbon steel for bearings, crank shafts, drive shafts, screws and bolts, and other similar products are produced via open hearth and electric arc furnaces.

Company management estimates that 96 percent of the 440,000 ton production in 1990 consists of high quality steel. The steel plant includes three 70-ton natural gas and oxygen fired open hearth furnaces (OHF) installed between 1958 and 1960 and five 50-ton electric arc furnaces (EAF) installed in 1958. The open hearth furnaces are manual type operations with an average processing time of approximately eight and one-half hours. All three OHF furnaces underwent major overhauls or rebuilding in 1979 but are currently idle and will be eliminated during the future planned modernization planned by Huta Warszawa. The semi-automatic top charged EAFs were last overhauled or rebuilt in 1990, and will remain in operation after the planned modernization.

Other major facilities at Huta Warszawa include the following:

1. 850 mm Slabbing Mill - Installed in 1960 and includes one rotary 850 mm duo cage roll, ten bickamber furnaces, one 850 ton shear and seven heat treating furnaces.
2. 650 mm Big Section Rolling Mill - Installed in 1961 and includes three 650 mm rolling stands, two 4 zone gas-fired

furnaces, one 450 ton hot cutting shear, two circular saws, one heat treat furnace and twelve automatic grinders.

3. 350 mm Medium Section Rolling Mill - Installed in 1968 and includes one 550 mm rolling stand, four 400 mm rolling stands, four 350 mm rolling stands, two 350 mm finishing system rolling stands, two mixed-gas and one natural gas walking furnaces, five heat treat furnaces, one 800 ton hot cutting shear, one flying shear, straighteners, centerless grinders and circular saws.
4. 250 mm Small Section Rolling Mill - Installed in 1962 and includes six 350 mm rolling stands, fourteen 250 mm finishing rolling stands, scale breakers, shears, coilers, straighteners and two heat treat furnaces.
5. Cold Strip Mill - Installed in 1965 and includes various size rolling stands, platteners, annealing furnaces, and sulfuric acid pickling plant.
6. Drawing Mill - Installed in 1961 and includes various drawing benches and mills, furnaces, cutting devices, one compressed-air hammer, shears, straighteners, polishers and grinders.
7. Forging Shop - Installed in 1958-1960 and includes one 3,000 ton hydraulic press, one 1250 ton press, one each five ton and one ton hammers, twelve heating furnaces and sixteen heat treat furnaces.
8. Steel and Iron Foundry - Installed in 1957 and includes one 5 ton arc furnace and one 6 ton cupola furnace.

9. Blooming Mill - Installed 1960 and includes stripping cranes, soaking pits, rolling stands, drawing lines, and shears.

In addition to the above, the plant includes areas for scrap processing, ladle metallurgy, production quality, research and development, maintenance and repairs, steel heat treating, and electrical and engineering.

Total tonnage output by product for Huta Warszawa is as follows:

<u>Product Description</u>	<u>1990 Quantity</u>	<u>Projected 1991 Quantity</u>
Blooming Mill Blooms	49,212	24,689
Heavy Section Mill Billets (thick)	58,112	62,435
Medium Section Mill Billets	114,553	63,141
Jobbing Mill Thin Bars	62,747	59,028
Cold Strip Mill Cold roll strip	23,478	14,923
Drawing Mill Drawn/polished steel	43,533	27,159
Hammerforge & Press Rough forgings	11,650	7,705
Raw Machining Division Raw machines forgings	7,803	6,167
Cast Steel Foundry Steel castings	<u>2,128</u>	<u>1,192</u>
Total tonnage	<u>373,216</u>	<u>266,419</u>

#### 4.0 FINANCIAL ANALYSIS

##### Basis of Financial Statements

The Company maintains its books and records according to Polish accounting principles. There are significant differences between Polish standards and International Accounting Standards ("IAS"). The Polish financial statements of Huta have been restated to conform to an IAS style format. We have relied entirely on management representations and have not subjected this data to audit procedures.

Cashflow projections were obtained from information provided in a feasibility study conducted by McLellan. We did not produce an independent cash flow analysis due to the lack of historical and future financial information provided by Huta Warszawa.

##### Balance Sheets for December 31, 1990 and October 31, 1991

As of October 31, 1991, Huta reported net equity of 924 billion zloty compared to 1,175 billion zloty reported at year-end 1990 (See Exhibits 4A and 4B). The decline in equity is primarily attributed to the operating losses of 248 billion zloty experienced by Huta during the ten month period ending October 31, 1991.

The limited relevance of the book "Equity" amount shown is highlighted by several factors. First, accounts receivable balances of 477 billion zloty now represent 45 percent of Management's projected 1991 sales. This is equal to an average receivable turnover of 163 days. This level is significantly greater than average turnover experienced by steel companies in

HUTA WARSZAWA –  
LUCCHINI JOINT VENTURE  
Summary Historical Balance Sheet Data (1) (2)  
(in million zloty)

Exhibit 4A

	12/31/90 <u>Mln zł</u>	10/31/91 <u>Mln zł</u>
Fixed Assets	1,016,590	999,409
Intangibles	186	237
Investments	4	28
<b>Current Assets</b>		
Cash at Bank	13,931	13,125
Accounts Receivable	368,044	476,688
Other Receivables	14,367	38,619
Inventories	<u>252,606</u>	<u>300,992</u>
Total Current Assets	648,948	829,424
<b>Current Liabilities</b>		
Trade Creditors	234,185	473,440
Taxation	28,181	103,690
Other Creditors	9,687	55,981
Bank Loans	198,026	252,039
Social Welfare Funds and Other	20,016	7,551
Total Current Liabilities	<u>490,095</u>	<u>892,701</u>
Net Current Assets	158,853	(63,277)
Provisions and Deferred Income	341	12,706
Equity	<u><u>1,175,292</u></u>	<u><u>923,691</u></u>

Notes:

- (1) Based on data provided by company management presented without audit.  
(2) Format based on International Accounting Standards.

**HUTA WARSZAWA -  
LUCCHINI JOINT VENTURE  
Detailed Balance Sheet at October 31, 1991 (1)  
(in million zloty)**

Exhibit 4B

<u>Assets</u>	
1. Fixed Assets	999,409
1.1 Buildings	769,037
1.2 Technical equipment, machines production and trade fixtures	117,544
1.3 Transportation equipment	16,933
1.4 Other fixed assets	6,542
1.5 Fixtures	600
1.6 Assets under construction	88,753
2. Intangible Assets	237
3. Shares in Other Companies	28
4. Inventories	300,992
4.1 Materials	169,602
4.2 Work in progress	130,480
4.3 Trade goods	910
5. Cash/Bank	13,125
6. Accounts Receivable	476,688
7. Other Receivables	2,432
8. Interperiodical Settlements	36,187
<b>Total</b>	<b><u><u>1,829,098</u></u></b>
<u>Liabilities</u>	
1. Trade Liabilities	473,440
2. Taxation Payable	103,690
3. Other Liabilities	55,981
4. Bank Loans	252,039
4.1 Long-term bank loans	826
4.2 Other bank loans	227,132
4.3 Overdue bank loans	24,081
5. Non-core Activity Funding	7,551
6. Provisions and Deferred Income	12,706
7. Equity	923,691
<b>Total</b>	<b><u><u>1,829,098</u></u></b>

**Note:**

(1) Based on data prepared by Company management presented without audit.

the United States of approximately 46 days.<sup>2</sup> These balances also represent a dramatic deterioration from the 81 day turnover experienced by the Company in 1990. Based on the poor turnover being experienced, a significant amount of these balances may ultimately not be collectible.

In addition, inventory levels of 301 billion zloty represent 29 percent of projected 1991 cost of sales (i.e., average inventory turnover of 104 days). This is greater than the average of 57 days for steel companies in the United States. This also compares unfavorably with the 69 day turnover experienced by the Company in 1990. Much of this inventory may not be saleable, or may be saleable at prices significantly lower than the balances reflected on the financial statements.

Due to the buildup of accounts receivable and inventories, the Company has been forced to finance these assets with higher levels of supplier credit and bank loans. Many of these credits became past due during 1991.

Finally, fixed assets include property and equipment with book values that appear to be greater than market values due to the existence of old, outdated technology. As summarized in Exhibits 4C and 4D, fixed assets include buildings, technical equipment, production machinery and trade fixtures.

Under Polish accounting principles, buildings and property are depreciated over periods as long as 40 years. These depreciation lives are likely in excess of their economic lives.

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<sup>2</sup> "Manufacturers-Blast Furnaces, Steel Works, Rolling Mills", Annual Statement Studies, Robert Morris Associates, 1991.

**HUTA WARSZAWA –  
LUCCHINI JOINT VENTURE**  
Fixed Assets as of November 30, 1991 (1) (2)  
(in million zloty)

Exhibit 4C

<u>Category</u>	<u>Depreciation Rates (%)</u>	<u>Gross Fixed Assets</u>	<u>Accumulated Depreciation</u>	<u>Net Fixed Assets</u>	<u>Percent Accumulated Depreciation</u>
Green areas	0	10	0	10	0.0%
Buildings	2.5–4–5	1,406,410	640,549	765,861	45.5%
Boilers and power machines	7	40,534	30,220	10,314	74.6%
Universal machines, plant and equipment	8.5–10–12.5–14	628,150	588,391	39,759	93.7%
Special usage machines, plants and equipment	8.5–10–12.5–14	399,034	383,600	15,434	96.1%
Technical equipment	8.5–10–12.5–14–20	379,339	329,761	49,578	86.9%
Transportation equipment	6–12–17.5	55,140	38,507	16,633	69.8%
Tools, device, movables and equipment	10–17–20	28,564	22,173	6,391	77.6%
<b>Total Fixed Assets</b>		<b>2,937,181</b>	<b>2,033,201</b>	<b>903,980</b>	<b>69.2%</b>

**Note:**

- (1) These fixed asset exhibits differ from the balance sheet totals primarily due to exclusion of assets under construction of 88,753 million zloty.
- (2) Based on data provided by Company management presented without audit.

**HUTA WARSZAWA -  
LUCCHINI JOINT VENTURE  
Fixed Assets as of November 30, 1991 (1) (2)  
(in million zloty)**

**Exhibit 4D**

<u>Group</u>	<u>Gross Fixed Assets</u>	<u>Depreciation</u>	<u>Net Fixed Assets</u>	<u>Percent Depreciation</u>
Production	2,190.000	1,586.382	603.618	72.4%
General and Administrative Offices	592.613	399.581	193.032	67.4%
Social Assets (3)	154.568	47.238	107.330	30.6%
<b>Total</b>	<b>2,937.181</b>	<b>2,033.201</b>	<b>903.980</b>	<b>69.2%</b>

**Note:**

- (1) These fixed asset exhibits differ from the balance sheet totals due primarily to exclusion of assets under construction of 88,753 million zloty.
- (2) Based on data provided by Company management presented without audit.
- (3) Includes Company housing, recreational facilities and other assets not related to production. The Social Assets are not expected to be contributed to the operating joint venture.

Income Statements for fiscal year 1990 and for the ten month period ended 10/31/91

In 1990, the Company reported sales of 1,654 billion zloty, pretax income of 331 billion zloty, and after tax income of 147 billion zloty (See following Exhibit 4E). This represents a net after tax return on sales of 8.9 percent.

The Company experienced a substantial decrease in sales for the first 10 months of 1991. Sales of 919 billion zloty for the ten months ended October 31, 1991 represent 55.6 percent of 1990 sales. Projected sales in zloty for the 1991 calendar year are expected to drop 35 percent from 1990's levels.

The Company reported a deficit gross margin as fixed overhead and other costs were allocated to reduced volume. In addition, higher interest expenses resulted in a operating deficit for the 1991 ten month period of 176 billion zloty. After deducting tax liabilities, the Company reported an after tax operating deficit of 248 billion zloty.

The Company was subject to taxes in spite of an operating loss because its taxes are calculated not only on income, but also sales turnover, capital levels, and excessive wages.

The entry of Lucchini as a foreign joint venture partner will result in a tax holiday of five years. This could significantly benefit future earnings and cash flow.

HUTA WARSZAWA -  
LUCCHINI JOINT VENTURE

Exhibit 4E

Income Statements  
For 1990 and Ten Months Ending October 31, 1991 (1)

	1990		10 months ending October 31, 1991	
	(in Bln Zl)	%	(in Bln Zl)	%
Sales	1,653,771	100%	919,039	100%
Cost of Goods Sold	1,342,149	81%	957,302	104%
Gross Margin on Sales	311,622	19%	(38,263)	-4%
Other Income	1,100	0%	19,917	2%
Extraordinary Income (Loss)	18,100	1%	(22,056)	-2%
Financial Costs (2)	--	--	(122,444)	-13%
Other Costs (2)	--	--	(13,447)	-1%
Turnover Tax (2)	--	--	(25)	0%
Net Income Before Taxes	330,822	20%	(176,318)	-19%
Taxes (3)	183,900	11%	(71,543)	-8%
Net Income After Taxes	146,922	9%	(247,861)	-27%

Notes:

(1) Based on data provided by Company management without audit.

(2) Breakdown for 1990 not available.

(3) 1990 Taxes comprised of income tax, \$148,600; excess wages tax, \$2,600; Dividends tax on capital assets, \$32,100; turnover taxes & other corrections, \$600. Breakdown for 1991 not available.

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Cash Flow Projections for 1991 and First Six Months 1992

The Company's projected cash flow for 1991 and the first six months of 1992 is shown in Exhibit 4F. This cash flow does not consider the effects of the Huta-Lucchini JV on sales, expenses or cashflow. For 1991, the Company projects a cash flow deficit of approximately 98 billion zloty caused primarily by reduced levels of sales, higher input costs, slower collection of accounts receivable, higher bank interest charges, and extraordinary losses.

After projected repayment of a 90 billion zloty loan (principal plus accrued interest) in February 1992, the Company's cash flow remains in a deficit position. Based on these projections, the Company will continue to experience cash flow difficulties without obtaining additional working capital.



HUTA WARSZAWA -  
LUCCHINI JOINT VENTURE  
Projected Cash Flow for Huta without Joint Venture Partner  
For 1991 and First Half 1992  
(in million zloty)

Exhibit 4F  
Page 2 of 3

Acct. Nbr	Category	<u>Dec 91</u>	<u>Full Year 1991</u>	<u>Jan 92</u>	<u>Feb 92</u>	<u>Mar 92</u>	<u>Apr 92</u>	<u>May 92</u>	<u>Jun 92</u>
14	- decrease of the number of products (accounts of section 6)	(2.500)	--	--	--	--	--	--	--
15	+ decrease of liabilities	--	--	--	--	--	--	--	--
16	- increase of liabilities	(120.000)	(340.000)	(28.000)	(19.000)	(29.000)	(35.000)	(40.000)	(40.000)
17	Expenditures for future periods, losses, interest	100.000	100.000	5.000	5.000	6.000	6.000	6.000	6.000
18	II. Total cash expenditures from operations	38.200	986.000	77.700	86.700	106.200	95.500	104.700	104.700
19	Interest on credits and loans (account 462)	13.500	149.000	21.200	14.830	10.800	10.800	10.800	10.800
20	Repayment of credits and loans	--	--	--	90.000	--	--	--	--
21	III. Total financial expenditures	13.500	149.000	21.200	104.830	10.800	10.800	10.800	10.800
22	IV. Cash flow before discretionary items and external financing	(9.500)	(166.000)	(20.400)	(103.030)	(7.500)	(11.800)	(11.000)	(11.000)
23	Investment expenses	5.000	75.000	3.000	3.000	3.000	3.000	3.000	3.000
24	Research and development expenses not included in other costs	--	--	--	--	--	--	--	--
25	Dividends for stockholders	--	--	--	--	--	--	--	--
26	Other payouts	--	7.800	--	--	--	--	--	--

HUTA WARSZAWA –  
LUCCHINI JOINT VENTURE  
Projected Cash Flow for Huta without Joint Venture Partner  
For 1991 and First Half 1992  
(in million zloty)

Exhibit 4F  
Page 3 of 3

Acct. Nbr	Category	Dec 91	Full Year 1991	Jan 92	Feb 92	Mar 92	Apr 92	May 92	Jun 92
27	Other payments from net profits	--	3.500	--	--	--	--	--	--
28	V. Total expenses determined by the owners	5.000	86.300	3.000	3.000	3.000	3.000	3.000	3.000
29	Sale of bonds	--	--	--	--	--	--	--	--
30	Increase of capital (issue of shares or stocks)	--	--	--	--	--	--	--	--
31	Increase of existing credits or loans	13.500	154.000	--	--	--	--	--	--
32	VI. Total cash flow from external borrowings	13.500	154.000	--	--	--	--	--	--
33	VII. Cashflow surplus (deficit)	(1.000)	(98.300)	(23.400)	(106.030)	(10.500)	(14.800)	(14.000)	(14.000)

Assumptions:

1. All cash flows are for the current state enterprise prior to privatization.
2. Interest rates assumed at current levels.
3. Other options, i.e., dividends paid according to existing regulations.
4. In the case of converting the enterprise to a joint venture, the following differences could be applicable:
  - 8- Decrease of expenses due to nonoperating properties excluded from JV.
  - 19 and 20- In the case of partial or total debt/equity swaps, loan repayments will be eliminated or reduced.
  - 9- Obligatory dividend to state would be eliminated.

Projections from Company management prepared without audit. Classifications not according to Western format.

## Ratio Analysis

The following ratio analysis provides additional details on the Company's historical financial performance for the year ending December 31, 1990 and the ten months ending October 31, 1991.

### Financial Ratios - Profitability

#### Net Profit Margin

Net profit margin is calculated as after tax earnings divided by net revenues (sales). The Company's net profit margin was 9 percent in 1990. This compares to a negative margin of 27 percent for the 10 months ended October 31, 1991. The decrease in the current year is due primarily to fixed overhead costs being applied to a reduced volume. As previously mentioned, 1991 sales are projected to be 35 percent lower than experienced in 1990.

#### Return on Equity

Return on equity is the ratio of after tax earnings divided by equity. The company's return on equity was 13 percent in 1990 and negative 27 percent for the ten months ended October 31, 1991.

### Return on Assets

Return on assets is the ratio of after tax earnings divided by total assets. The company's return on assets was 9 percent in 1990 and negative 14 percent for the first ten months of 1991. Production and revenue have declined more rapidly than offsetting reductions in expenses. Moreover, inventories and receivables have steadily increased due to poor economic conditions.

### Financial Ratios - Asset Management

#### Net Revenue/Total Assets

Asset turnover is the ratio of net sales divided by total assets and is used to measure the efficiency of asset utilization. This ratio was 99 percent in 1990 and 58 percent based on projected 1991 sales. Capacity utilization and total sales have declined dramatically since the end of 1990 due to domestic economic problems in Poland.

#### Receivable Turnover

Receivable turnover is the ratio of net sales to total outstanding receivables. This ratio was 4.5 at December 31, 1990 and 2.2 based on projected 1991 sales. This indicates a decreasing trend in receivable collections for the current year. This negative trend reduces the company's cash inflows. In addition, the longer collection period of the receivables, the greater the risk to the Company of not being able to collect money due.

## Financial Ratios - Financial Risk

### Total Debt/Total Capital

This ratio is equal to total interest bearing debt divided by total invested capital (debt plus equity). This shows the proportion of the Company's capital structure financed with debt. This ratio was 14 percent for 1990 compared to 21 percent as of October 31, 1991.

While this ratio is considered conservative by most standards, the trend is negative.

## Financial Ratios - Liquidity Management

### Working Capital/Net Revenues

This ratio indicates the company's ability to manage working capital (current assets less current liabilities). This ratio was 10 percent for 1990 but a projected deficit of 6 percent for 1991. A decline in this ratio indicates that the Company has had to delay payment to trade suppliers and increase bank borrowings to fund operating expenses and current assets. This decline is evidence of the Company's severe liquidity problem.

### Current Ratio

This ratio is equal to current assets divided by current liabilities and measures the company's overall liquidity. Huta Warszawa's current ratio was 1.32 as of December 31, 1990 compared to .93 as of October 31, 1991. A current ratio of less than one, combined with poor turnover of receivables and inventory, further demonstrates the Company's poor liquidity.

## **5.0 DESCRIPTION OF JOINT VENTURE**

As part of the restructuring of the Polish economy, the State Treasury of Poland is in the process of privatizing many state run enterprises. Huta Warszawa is one of these major state enterprises targeted for privatization.

Huta faces two major challenges. In the short run, Huta must restore a positive cash flow in order to continue in business. However, the greater long term challenge is to modernize the production processes and learn to effectively compete in a market economy. The Lucchini-Huta Joint Venture is intended to accomplish these objectives. The following sections describe the general structure of the proposed joint venture.

### **5.1 Proposed Joint Venture Structure**

Lucchini and Huta have agreed to establish an initial joint venture (JVC-1). Because of the variety of participants, the ultimate joint venture will be preceded by several intermediate steps. (See Exhibit A on page 8 for an illustration of the transaction).

Huta will transfer production related assets which management stated has an estimated market value of approximately \$26 million to a new joint stock company known as Huta S.A. After the formation of JVC-I, Huta and Lucchini will create JVC-II and dissolve JVC-I.

Huta will then transfer the production related assets from Huta S.A. to JVC-II. Concurrently, Lucchini is to transfer cash, promissory notes, fixed assets and technical know-how with a total value of \$32 million to JVC-II. Polish financial and/or industrial development institutions will also contribute \$5 million of cash to JVC-II.

As a result of these contributions, the final ownership percentages in JVC-II shall be as follows:

Lucchini	51%
Huta S.A., Other Institutions and the State Treasury	<u>49%</u>
Total	<u>100%</u>

## 6.0 DESCRIPTION OF MODERNIZATION PROGRAM

### 6.1 Summary of Modernization Plan

#### Objectives

The objectives of the modernization plan for the joint venture are three-fold. The first two objectives are quality improvement and production efficiency. The joint venture must achieve these goals in order to provide quality steel products in a competitive world marketplace. These objectives are to be achieved in Stage 1 of the modernization plan. The third objective is capacity expansion. The Huta Joint Venture must achieve this goal in order to meet the projected market demand and meet their financial goals.

#### Timing

The modernization plan under the planned joint venture is scheduled to take place in two stages, each lasting twenty-four months (see following Exhibit 6A). The first stage is to begin in January 1992 and is to be completed by December 1993. The second stage is to begin in January 1994 and is to be completed by December 1995.

#### Capital Investment

##### Stage 1:

The capital investment in this stage will be approximately 790 billion zloty over the two-year period. The major equipment purchases will be a continuous casting machine, electric arc furnaces, material handling systems, environmental systems, water treatment plants and scrap yard equipment.

HUTA WARSZAWA -  
LUCCHINI JOINT VENTURE

Exhibit 6A

5-Year Capital Expenditure Plan  
(In billion Zloty or as noted.)

Stage 1	1992	1993	1994	1995	1996	Total
Continuous Casting Machine	9,839	4,919	0	0	0	14,758
Water Treatment Plants	3,433	1,717	0	0	0	5,150
Electric Arc Furnace 1	3,333	1,667	0	0	0	5,000
Ladle Furnace 1	2,253	1,126	0	0	0	3,379
Environmental Systems 1	6,228	3,114	0	0	0	9,342
Material Handling System 1	1,068	534	0	0	0	1,602
Scrap Yard Equipment	2,384	596	0	0	0	2,980
Electric Arc Furnace 2	2,500	2,500	0	0	0	5,000
Environmental Systems 2	4,671	4,572	0	0	0	9,343
Material Handling System 2	801	801	0	0	0	1,602
<b>Stage 2</b>						
New Rolling Mill	0	0	35,000	35,000	0	70,000
<b>Total ECU (000's)</b>	<b>36,510</b>	<b>21,646</b>	<b>35,000</b>	<b>35,000</b>	<b>0</b>	<b>128,156</b>
<b>Total Zlotys (000,000's)</b>	<b>495,477</b>	<b>293,758</b>	<b>474,985</b>	<b>474,985</b>	<b>0</b>	<b>1,739,205</b>
<b>Exchange rate: 1 ECU =</b>	<b>13,571 Zlotys</b>					

## Stage 2:

The capital investment in this stage will be approximately 950 billion zloty over the two-year period. The major equipment purchase will be a new rolling mill.

### Sources of Capital

The expected sources of capital for the modernization plan include the initial Lucchini investment, internally generated funds and loans from commercial banks and international development agencies. The successful completion of Huta Warszawa-Lucchini Joint Venture will provide a portion of the initial capital for the modernization program. Internally generated funds from operations will depend on the Huta joint venture attaining its operating objectives.

Finally, the remaining funds are expected to come from a variety of commercial banks and international development agencies. The overall ability of the joint venture to implement this modernization plan is heavily dependent on these external sources of funds.

### 6.2 Summary of Capital Investment Program

The new capital requirements are listed below:

- One continuous casting machine;
- Water treatment plants;
- Two electric arc furnaces and ladle cars;
- One ladle furnace, ladles and ladle car;
- Dust collection and cleaning systems for direct collection from furnaces;
- Noise control systems;
- Slag pots and transfer cars;

- Alloy storage and distribution system;
- Scrap shear and scrap press;
- Scrap baskets and transfer cars;
- One rolling mill.

In addition, the following existing equipment will be used to complete the total production capability within the steelmaking and rolling areas:

- Open scrap yard area;
- Process area buildings and cranes;
- Dust collection and cleaning for secondary collection from buildings and ladle furnaces;
- One ladle furnace;
- One 60 ton electric arc furnace;
- One vacuum arc degassing unit;
- Ingot mold preparation and casting;
- Blooming mill;
- Heavy section mill.

### 6.3 Objectives of Modernization

The objectives of the modernization program are to improve quality throughout the process, thereby improving the finished products. It is anticipated that improvements will be realized in the areas of steel quality, steel tolerances, surface defects, higher yields, electrical usage, refractories, labor and cycle times.

#### Steel Quality

Installation of bottom tapping electric arc furnaces will improve steel quality through better control of slag transfer to ladles. New ladle furnaces will enhance the control of alloying levels through better temperature controls. Modern ingot mold

procedures will reduce non-metallic inclusions in the steel by better control of refractory quality in the ladles.

### Steel Tolerances

Installation of new rolling mill equipment will increase control of steel tolerances through on-line measurement and adjustment.

### Product Surface Defects

Installation of new rolling mill equipment will result in better tracking and identification of surface defects reducing the amount of inferior products which reach the market place. Continuously cast billets will also give a better surface quality after rolling.

### Higher Yields

It is anticipated that the installation of ladle furnaces will insure better alloy yields and better scrap to liquid steel yields. Continuous casting will increase liquid steel outputs that will produce higher yields of rolling mill feedstock, resulting in increased rolling mill output.

### Electrical Usage

Electrical energy will be saved because less steel and alloys will need to be melted with new technology. Electric arc furnace high power performance will reduce processing cycle time losses resulting in reduced energy input overall. Better temperature control in ladle furnaces will also reduce energy input.

### Refractory Consumption

Reduced processing temperature and holding time in electrical arc furnaces will reduce refractory consumption. Watercooled sidewalls and roofs reduce refractory volumes and consumption in the electric arc furnaces and the continuous casting process.

### Labor

The overall number of processing units will be reduced. This will be reflected in the number of operators required.

### Cycle Times

The scrap shear and bucket press enables a furnace charge of approximately 86 tons to be achieved by two charges instead of three or four; therefore reducing cycle time at the arc furnace by three to eight minutes. Ultra high power, oxygen gas burner, oxygen carbon lance and eccentric bottom tapping all contribute to a reduction in cycle time at the electric arc furnaces.

Finally, an increased yield in most of the process areas increases the amount of finished product which can be produced.

## **7.0 VALUATION THEORY AND METHODOLOGY**

### **7.1 Purpose of Valuation Analysis of Proposed Joint Venture**

The primary purpose has been to assist management in opening discussions with leading creditors of Huta. In addition, this report is intended to assist the process of developing a formal agreement between Lucchini and Huta to form a joint venture.

The valuation estimates in this report provide an indication of the potential future values of the proposed joint venture and current debt holders' possible equity investment in the new joint venture. These estimated values reflect future values and, for illustrative purposes, we have selected exit points 3 and 5 years in the future from the date of investment. These estimates provide one potential indicative range of investment values in the new joint venture with regard to Huta Warszawa's current creditors. These estimates should not be construed as providing definite values, nor of guaranteeing the future value, nor of assuring potential investors that a market would exist in the future for their interests. Ultimately, the amounts to be realized depend on what purchaser(s) are prepared to agree to.

### **7.2 Definitions**

#### **7.2.1 Premise of Value**

Our valuation analysis is based on the premise of fair market value. Fair market value is defined as the amount for which property would exchange between a willing buyer and a willing seller, neither being under abnormal pressure, each having full knowledge of all relevant facts, and with fairness to both.

### **7.2.2 General Assumptions**

For purposes of this valuation, we also assume that the business will continue operation as a going concern. This is in contrast to liquidation value where it is assumed that the sum of the proceeds from sale of assets exceeds the value of the company based on its profitability as a going concern.

Under the premise of going concern, the future potential value of the operating joint venture is not represented by the value of specific assets, but, rather, the value is based on future cash flow and profit of the operating company.

### **7.3 Valuation Factors**

The factors to consider in valuing an enterprise include the following:

1. Nature of the business
2. Outlook for the general economy
3. Condition and outlook of the industry
4. Financial condition of the business
5. Capacity to produce cash flow
6. Prior transactions for the shares of the enterprise
7. Forecasts of future operations

#### **7.4 Analysis of Valuation Approaches**

In conducting our valuation analysis, we have considered the three commonly employed approaches to valuing the stock of closely held companies: the Market Approach, the Cost Approach, and the Income or Discounted Cash Flow ("DCF") Approach.

The Market Approach indicates the value of the subject company by comparing it to similar firms whose stock is publicly traded. A group of comparable publicly traded firms are selected and data on stock price versus various financial measures is developed. The valuation estimate is made by applying composite ratios from the comparable firms to the subject firm.

The Cost Approach is utilized through application of the Adjusted Net Assets Method. In the Adjusted Net Asset Method, an analysis of the fixed assets, investments and financial assets is conducted to arrive at a fair market value for the total assets of the firm as a going concern. The total value is then netted against the fair market value of all the liabilities of the firm, resulting in an indicated net value attributable to the subject company's stock.

In the DCF approach to the valuation of an enterprise, the cash flows of the firm are projected for a period of years. Cash flows here represent the after-tax cash that could be taken out of the business without impairing future profitability. In estimating cash flow, the future sales and operating costs of the firm are projected based on past experience as well as future developments that could change the firm's operating performance. The future available cash flows and a terminal value, if applicable, of the firm are then discounted to present value.

The Adjusted Net Assets Approach is used primarily to value holding companies and those enterprises with significant

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proportions of marketable assets. Since most of Huta's assets have little usefulness outside of the Company's business, we excluded this approach.

The DCF approach is not utilized in the valuation analysis of the Lucchini-Huta JV. This approach requires application of a discount rate to convert future free cash flow to its present value. Due to the difficulty of forecasting beyond five years and the difficulty of selecting an appropriate discount rate for the free cash flow that is ultimately projected, we excluded this approach.

The approach which we utilized is a "market model" known as the Multiple of Earnings Method. Due to the availability of such multiples both for Western steel companies, and the recent emergence of a stock market in Eastern Europe (e.g., Hungary), we selected the Multiple of Earnings Method as most appropriate to apply to the proposed joint venture.

#### 7.5 Risk Factors Applicable to Huta

Before applying the Market Approach, it is important to identify the primary risk factors applicable to Huta.

##### General Economic Factors

The performance of the joint venture may be hampered by the performance of the Polish economy. The economy has recently been experiencing a severe economic recession as it makes the transition from a planned economy to a market economy. This period has been accompanied by slow or negative growth in GNP, increasing unemployment, and unstable price levels.

The collapse of the Soviet Union has been particularly disruptive. The former Soviet Union was both a supplier of low

cost raw materials and energy, and a major purchaser of Polish products.

While Huta did not make significant sales to the former Soviet Union, it did obtain much of its raw materials and energy from the former Soviet Union. Moreover, many of Huta's customers have been affected by the decrease in Soviet demand. As many of Huta's customers face insolvency, the Company will be vulnerable to declining sales.

### Inflation

The Polish economy has experienced severe inflation beginning in 1988. For example, the inflation rate was 585 percent in 1990. While inflation has dropped substantially since 1990, the 1991 rate, projected to be 85 percent, is still well above levels experienced in the West.

In an environment of high inflation, the joint venture may be adversely affected by increases in the cost of raw materials, labor and other inputs. Moreover, monetary assets, including cash and receivables, are subject to decreases in purchasing power.

### Devaluation Risk

The government has sharply devalued the zloty against Western currencies in order to stimulate exports, and also to maintain parity between Polish and international markets.

The effects of devaluation can be mitigated to the extent that they can be reasonably anticipated. However, in cases of unexpected devaluations due to political or other factors, the costs of production can rise more quickly than Huta's ability to raise prices.

At the present time, the zloty is reported to be overvalued. This perception is due to the relatively stable exchange rate for the zloty for 1991 in spite of inflation currently averaging 85 percent per year. While this factor can benefit a company like Huta by reducing the cost of imported raw materials, the joint venture may suffer from a cost disadvantage in export markets.

### Political Risks

Poland has been undergoing radical transformation of both its political structure and its economy as it undergoes the difficult transition to a market based economy. This transition has proven to be difficult as managers and workers face a new and, for them, an untried environment.

As the economy has plunged into severe recession and unemployment becomes a major political liability, there has been considerable pressure to slow down or reverse the pace of economic reforms.

In the event that the Polish government responds to such political pressures by reestablishing government controls or asserting stimulative fiscal and monetary policies, the economy could again experience hyperinflation. Furthermore, by financially supporting those enterprises not viable in a market economy, resources are diverted away from more productive enterprises that offer greater potential for growth and increases in employment.

### Credit and Liquidity Risk

In order to reduce inflation and promote market reforms, the government has sharply reduced the availability of credit. Credit that is available accrues interest at rates between 50 and 100 percent. While this policy has dramatically cut inflation, it also threatens to force many companies into insolvency.

Massive business failures could cause unemployment, political instability, lower national income, and further deterioration of the economy. While this restrictive monetary policy may prove to be beneficial by eliminating inefficient enterprises, businesses considered viable are experiencing reduced liquidity and cash flow as many of their customers are unable to pay their debts.

### Risk of Enforcement of Legal Rights

Poland has a largely underdeveloped legal system regarding property rights, litigation, and other business practices considered crucial to the successful functioning of a market economy. While this system is being formed, it may be difficult to obtain effective enforcement of certain rights in the judicial system.

The legal risks are illustrated by the considerable uncertainties that surround land ownership. At present, it is unclear whether land will be included in those enterprises that are privatized. There is also a threat that previous owners of the land underlying state owned enterprises will file restitution claims for either return of the land or financial compensation.

### 7.6 Reliance on Others for Projections

In making our assessment of future profitability, we have relied on projections provided by the management consulting firm of McLellan and Partners, Ltd, as corroborated by Huta management. (See Valuation Model Assumptions at conclusion of report). We recommend that these assumptions be reviewed on a periodic basis and as new information becomes available.

## **7.7 Application of Multiple of Earnings Model**

The earnings (profit) multiple method is a market based methodology which involves applying a suitable multiple (price earnings or "P/E" ratio) to maintainable earnings (profits). The P/E ratio equals the market price (number of shares of stock multiplied by the stock price) divided by annual earnings. Maintainable earnings represent the after-tax profits for the subject company which would occur in the normal course of business.

### **7.7.1 Determination of Proforma Earnings**

We base our estimates for the proposed operating joint venture on projected earnings in years 3 and 5 (see Exhibit 7A). This conforms to two possible exit points for an investor in the JV. The year 3 projections reflect the completion of phase I of the Huta modernization program. Both revenues and costs show considerable improvements over previous years. In addition to experiencing increased sales based on improvements in the Polish and world economy, the joint venture is expecting considerable reductions in costs due to the effect of productivity improvements.

Year 5 projected results reflect the benefits of completion of phase II of the modernization program coupled with increased sales generated both from further improvement in the Polish economy and increased market share in the high grade steel domestic market segment. The joint venture is also expected to benefit from increased levels of export sales due to access to markets opened up by the Italian joint venture partner.

### 7.7.2 Selection of Market Multiple

In selecting an appropriate market multiple for the joint venture, we considered several factors.

We believe that in the time horizon under review, Polish multiples will tend to converge with those existing multiples of neighboring countries with better current prospects (e.g., Hungary).

The average P/E multiple for American steel companies is 12.0.<sup>3</sup> In addition, two Western European steel companies making recent investments in Eastern Europe have P/E ratios averaging 11.8 (similar to American P/E's).

We also have information that comparable companies in Hungary are trading on the Vienna stock exchange for P/E multiples averaging 9.2. This multiple average applies to shares of publicly traded stock.

The applicable P/E multiples for the two comparable Western European companies are 16.8 and 6.8. In addition, the range of applicable P/E multiples for the Hungarian companies range from 8.5 to 9.8.

Poland has a greater level of economic and political risk than either Hungary or countries in the West. As a result, we selected P/E ratios applicable to the operating joint venture at the low end of the range. As a result, we have selected P/E ratios applicable to the operating joint venture of between 7 and 9. These multiples are based on a minority interest and do not include a control premium for the right to alter management

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<sup>3</sup> "Steel (General Industry)", Valuation Investment Survey, October 11, 1991.

salaries, change dividend policy, or make other adjustments to Company operations.

We also assumed that there is a "put" right for the creditors' shares in the new joint venture enabling the creditors to sell their shares to Lucchini or another strategic investor at the future fair market value of those shares. Without such a "put" right, the shares would require "lack of marketability" discounts of 30-50 percent.

Another possible source of liquidity is for the joint venture to issue shares of stock to the public in an initial public offering (IPO). However, this option is probably most realistic after completion of the modernization program in year five.

#### 7.8 Determination of Valuation Results

Utilizing estimates of projected earnings for year 3 and year 5 and multiples ranging from 7 to 9, the following value indication (in billions of zloty) are applicable to the joint venture:

<u>Percentage Ownership</u>	<u>Future Year*</u>	
	<u>Year 3</u>	<u>Year 5</u>
100%	875 to 1,125	1,161 to 1,493
49%	429 to 551	569 to 732
35%	306 to 394	407 to 523
20%	175 to 225	232 to 293

\* from date of investment

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Projected Income Statements  
(in billion Zloty)

	ACTUAL (1)	PROJECTED (1)				
	1991	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Revenue	zł 1,232.1	zł 1,401.5	zł 1,513.2	zł 2,034.2	zł 2,304.7	zł 2,581.1
Cost of Sales (2)	1,170.9	1,378.8	1,455.0	1,604.8	1,826.2	1,913.8
Gross Margin	61.2	22.7	58.2	429.4	478.5	667.3
Operating Income	61.2	22.7	58.2	429.4	478.5	667.3
Depreciation - existing assets	75.9	17.7	17.7	17.7	17.7	17.7
Depreciation - new assets	0.0	0.0	55.1	110.2	110.2	235.6
EBIT	(14.7)	5.0	(14.6)	301.5	350.6	414.0
Interest - short-term	132.3	0.0	0.0	0.0	0.0	0.0
Interest - penalty	233.8	0.0	0.0	0.0	0.0	0.0
Interest - long-term	0.0	32.8	76.3	93.1	140.1	137.5
Pretax Income	(380.8)	(27.8)	(90.9)	208.4	210.5	276.5
Income taxes (3)	81.2	0.0	0.0	83.4	0.0	110.6
Net Income	(zł 462.0)	(zł 27.8)	(zł 90.9)	zł 125.0	zł 210.5	zł 165.9

Notes:

- (1) Financial information provided by independent consultant.
- (2) Sales, general and administrative expenses are assumed to be included in cost of sales.
- (3) Tax holiday assumed for early years. Taxes are applied to years 1994 and 1996 in order to reflect expected taxes in the long-term for income capitalization purposes. A tax rate of 40% is assumed.

Normalized Projected Income Statements (1)

	ACTUAL	PROJECTED				
	1991	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Revenue	100%	100%	100%	100%	100%	100%
Cost of Sales	95%	98%	95%	79%	79%	74%
Gross Margin	5%	2%	4%	21%	21%	26%
Operating Income	5%	2%	4%	21%	21%	26%
Depreciation (Existing Assets)	6%	1%	1%	1%	1%	1%
Depreciation (New Assets)	0%	0%	4%	5%	5%	9%
EBIT	-1%	0%	-1%	15%	15%	16%
Interest (short-term)	11%	0%	0%	0%	0%	0%
Interest (penalty)	19%	0%	0%	0%	0%	0%
Interest (new long-term)	0%	2%	5%	5%	6%	5%
Pretax Income	-31%	-2%	-6%	10%	9%	11%
Taxes	7%	0%	0%	4%	0%	4%
Net Income	-37%	-2%	-6%	6%	9%	6%

Notes:

(1) From Exhibit 9-1.

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Determination of Market Multiple  
(In billion Zloty)

				<u>Average</u>
(A)	U.S. STEEL INDUSTRY P/E MUTIPLE (1)			12.0
(B)	COMPARABLE WESTERN EUROPEAN COMPANIES (2)			
		<u>Example 1</u>	<u>Example 2</u>	
	P/E Multiple	16.8	6.8	11.8
(C)	COMPARABLE EASTERN EUROPEAN COMPANIES (3)			
		<u>Example 1</u>	<u>Example 2</u>	
	P/E Multiple	8.5	9.8	<u>9.2</u>
	Selected P/E Multiple Range (4)			<span style="border: 1px solid black; padding: 2px;">7.0 to 9.0</span>

Notes:

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- (1) From "Value Line" Steel Industry report, October 11, 1991. p.599.
- (2) Multiples are from Western European steel companies which have recently acquired Eastern European steel companies. From company annual reports.
- (3) Multiples are from Eastern European industrial companies which are listed on the Hungarian stock exchange. From "American Metal Market" July 12, 1991, p.4.
- (4) Selected multiple range reflects conservative estimate due to a lack of true comparables in the Polish market and uncertainty of future political and economic conditions.

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Application of Market Multiple  
(in billion Zloty)

<u>YEAR 3</u>		<u>Earnings (1)</u>	<u>Selected Multiple (2)</u>	<u>Indicated Value</u>
Scenario 1:	Expected	zł 125.0	7.0	zł 875
Scenario 2:	Expected	zł 125.0	8.0	zł 1,000
Scenario 3:	Expected	zł 125.0	9.0	zł 1,125

Range = 

zł 875	To	zł 1,125
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<u>YEAR 5</u>		<u>Earnings (1)</u>	<u>Selected Multiple (2)</u>	<u>Indicated Value</u>
Scenario 1:	Expected	zł 165.9	7.0	zł 1,161
Scenario 2:	Expected	zł 165.9	8.0	zł 1,327
Scenario 3:	Expected	zł 165.9	9.0	zł 1,493

Range = 

zł 1,161	To	zł 1,493
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Notes:

- |     |                 |
|-----|-----------------|
| (1) | From Exhibit 7A |
| (2) | From Exhibit 7C |

## **VALUATION MODEL ASSUMPTIONS**

### **1. Revenue Projections**

#### **A. Tonnage Production:**

Production for year 1 is projected to be significantly below the 1990-1991 production. This reduction reflects the expectation of poor economic conditions in Poland over the next year.

Production for year 2 is projected to increase from the year 1 level to reflect some economic recovery in Poland and its export markets. However, total production is still projected to be significantly less than total capacity due to relatively weak demand and due to the incomplete status of the equipment modernization program.

Production for year 3 is projected to be significantly above year 2 levels due primarily to the completion of Stage 1 of the modernization program and the expectation of continued economic recovery. Production in year 4 is projected to increase modestly due to increased demand.

Production in year 5 is projected to increase significantly over year 4 levels due primarily to the completion of Stage 2 of the modernization program. Other factors contributing to the year 5 production levels include increased labor efficiencies.

#### **B. General:**

The breakdown of sales between the domestic and export market is fixed at 75 percent and 25 percent, respectively. This mix reflects the anticipated increase in domestic

demand following an economic recovery. While higher than Huta Warszawa's historical export level, the 25 percent export component reflects the enhanced ability to access Lucchini's markets.

## 2. Cost of Sales

Cost of sales is shown as a percentage of revenues in the forecast.

### A. Years 1-2:

Cost of sales is at a relatively high level to reflect general production inefficiencies and a higher cost of raw materials due to the collapse of the Soviet market and the elimination of subsidized raw materials.

### B. Years 3-4:

The cost of sales beginning in year 3 reflect a significant decrease primarily attributed to the production efficiencies resulting from the completion of Stage 1 of the modernization program.

### C. Year 5:

A slight decrease in the cost of sales is due to production efficiencies resulting from the completion of Stage 2 of the modernization program.

### 3. Depreciation

#### A. Existing Assets:

Depreciation of existing assets is assumed constant at approximately 1 percent of sales. This low level of annual depreciation reflects the general old age (20-30 years) of existing equipment.

#### B. New Assets:

Depreciation of new assets is based on the projected level of capital expenditures related to Stages 1 and 2 of the modernization program. The higher percentage of depreciation in year 3 reflects new equipment purchased and placed in service. Similarly, the increase in depreciation expense in year 5 reflects new equipment purchased and placed in service that year.

### 4. Interest

#### A. Short-term interest and penalties:

Short-term interest and penalty expense is assumed to be zero in year 1 under the assumption that existing short-term debt is excluded from the JV.

#### B. Long-term interest:

Long-term interest is projected to increase steadily in years 1-5 to reflect borrowing for new equipment purchases.

## 5. Taxes

A tax holiday is assumed for years 1-5. However, a 40 percent tax deduction is reflected in year 3 and year 5 in order to calculate net income to be used in the price/earnings multiple valuation approach. This valuation approach capitalizes the net income in the chosen year (years 3 and 5) by applying a certain market derived price to earnings multiple (See Section 7). The model reflects the long-term earnings potential of the particular company. Thus, it is appropriate to use income after taxes because we assume that the company will be subject to income taxes in the long-term.

## Appendix A

### Glossary of Terms

- Raw steel** - Molten (unshaped and unrolled) steel.
- Ingot** - A large steel shape, formed when molten steel is poured (teemed) into an ingot mold to solidify. The ingot is later reheated and rolled into a semi-finished steel shape such as a billet, bloom, or slab.
- Semi-finished steel** - Steel shapes such as billets, blooms, or slabs that are later rolled into finished products.
- Billet** - A square or rectangular semi-finished piece of steel that is later rolled into a finished product, such as a bar.
- Bloom** - A square or rectangular semi-finished piece of steel (larger than a billet) that is later rolled into a finished product, such as an I-beam or other shape.
- Slab** - A semi-finished steel product (wider than a bloom) that is later rolled into a finished product, such as a sheet.
- Bar** - A shaped steel product available in many configurations, including rounds, squares, ovals, hexagons, and rectangles.
- Sheet** - A flat-rolled finished steel product. Sheet is wider (12 inches or more in width) and produced to less exact thicknesses than strip, a similar flat-rolled product.
- Strip** - A flat-rolled steel product. Strip is narrower (12 inches or less in width) than sheet and produced to more closely controlled thicknesses.
- Plate** - A finished steel product, flat rolled like sheet, but heavier and thicker. Plate is used extensively in the construction and heavy machinery industries.
- Alloys** - Metallic substances added to steel to enhance properties such as machinability or heat resistance.
- Carbon Steel** - Steel whose properties depend chiefly on its carbon content and microstructure (as opposed, for example, to alloy steels, which depend on alloying elements for their enhanced properties). Carbon steel accounts for the largest percentage of steel produced worldwide.
- Specialty steels** - Steels such as stainless, heat resisting, and tool steels, produced in small volumes to meet specialized needs.
- Tool steel** - Steel that can be hardened and tempered for use in making tools and dies.

**Glossary of Terms (continued)**

**Electrical steel** - Steel in which silicon and other additives minimize energy loss in electrical power applications.

**Flat rolled** - Steel processed on rolls with smooth faces (as compared to the grooved or cut faces used to roll structural or shaped products). Common flat rolled products include sheet, strip, plate, black plate, and tin plate.

**Cold rolling** - Rolling steel without first reheating it. Cold rolling reduces thickness, produces a smooth surface, and makes it easier to machine.

**Hot rolling** - Rolling steel after it has been reheated.

**Annealing** - Heating and then cooling steel to improve its formability and make its surface more durable.

**Galvanized steel** - Steel coated with a thin layer of zinc to increase its corrosion resistance.

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