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# PROVISIONAL INTELLIGENCE REPORT

## SURVEY OF THE ENGINEERING INDUSTRIES OF POLAND



CIA/RR PR-78  
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PROVISIONAL INTELLIGENCE REPORT

SURVEY OF THE ENGINEERING INDUSTRIES OF POLAND

CIA/RR PR-78

(ORR Project 38.253)

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FOREWORD

The purpose of this report is to present a survey of Poland's engineering industries which will indicate the present status and capabilities of each major industry and show its place within the framework of Poland's intensive industrialization program.

The position of Poland within the Soviet Bloc is of primary intelligence significance. The correct evaluation of Poland's engineering industries is of vital importance for the appraisal of the over-all economic and war-waging capabilities of the USSR and its Satellites.

This report is based on a study of a considerable variety of material regarding Polish machine building industries, and of the measures taken by the government to meet the goals outlined by the Six Year Plan, which is designed to convert Poland into a powerful industrial base for the Soviet Bloc.

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SURVEY OF THE ENGINEERING INDUSTRIES OF POLAND\*

Summary and Conclusions

The primary economic objective of the Communist regime in Poland is to develop and expand the country's engineering industries. This program has been generally successful. The current Six Year Economic Plan (1950-55) and its high production targets have been designed, in fact, as an instrument for shifting Poland's economy from its traditional agricultural basis to a basis characterized by a high degree of industrialization. The plan has been intended to prepare the groundwork for the establishment of a Polish economy patterned after the Soviet model.

The reported overfulfillment by 3.9 percent of the 1953 plan for industrial production indicates that the industrialization tempo in Poland is continuing its upward trend. The continuing expansion of Poland's engineering industries in spite of a shortage of basic raw materials (with the exception of coal, lead, zinc, and arsenic), an inadequate supply of skilled workers, labor turnover, and absenteeism, has been significant.

Although the industrial targets fixed for 1955, the final year of the Six Year Plan, are very high, it may be assumed that most engineering industries in Poland will fulfill or nearly fulfill these production goals. This assumption is based upon the constant expansion of these industries during the past 4 years, the determination of the Polish government to use all the means of mass persuasion to bolster labor productivity, the prospects of improved worker morale resulting from the "new course," and the growing possibility of obtaining raw materials and semifinished and finished products from abroad. The pace of Poland's expansion of engineering industries might slow down should present policy be modified by increasing production of consumer goods for the purpose of eliminating underlying currents of dissatisfaction caused by the shortage of such goods.

\* The estimates and conclusions contained in this report represent the best judgment of the responsible analyst as of 1 August 1954.

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The postwar progress achieved in the field of engineering industry could not have been achieved without the annexation of the highly industrialized German areas, which contain important plants producing such items as heavy machinery, rolling stock, and vessels of all types. In spite of these major acquisitions, however, Poland is still unable to satisfy its requirements for many specialized types of industrial machinery and equipment, including highway construction equipment, hydraulic presses, excavators, crushing and grinding machinery, cranes, and pumps. Poland's dependence on foreign imports of various types of heavy machinery will remain long after the expiration of the current Six Year Plan.

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I. Introduction.

A. Early Industrialization.

1. Before 1940.

After its political resurgence in 1919, Poland was faced with the task of integrating into one system the economies of three separate territories which had been under Russian, German, and Austrian rule for some 125 years. One of the government's major tasks was to restore and expand industrial output and to improve the communications system of the newly reunited nation. 1/\*

Early in its existence, as a result of a lack of capital, the Polish government felt compelled to resort to nationwide

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\* Footnote references in arabic numerals are to sources listed in Appendix E.

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industrial planning and when necessary sought to bring private enterprises under state control. State planning was therefore developed in prewar Poland to a greater extent than in any other European country except the USSR.

Before the outbreak of World War II the Polish government devoted considerable attention to the development of the armaments industry. This industry, operating since the early days of the resurgent Polish Republic with large subsidies and government assistance, considerably increased its output of weapons, ammunition, and aircraft following Hitler's rise to power in 1933.

In 1937 the Polish government decided to create the new Central Industrial District (Centralny Okreg Przemyslowy), an area of some 60,000 square kilometers embracing the greater part of the triangle limited by Warsaw, Krakow, and Lwow. This area, with a population of about 5 million and containing considerable natural resources and good agricultural land, was well suited for becoming the foundation of Poland's projected industrial expansion. The government's long-range plans were, however, abruptly stopped with the outbreak of World War II. 2/

The Polish industrial production index in Table 1\* reflects the depression of the early 1930's that sharply curtailed production. In the latter years of the decade, improved economic conditions, increased industrial capacity, and increased labor productivity permitted previous production levels to be surpassed.

2. Effect of World War II.

By the end of World War II, industrial production in Poland had declined to an extremely low level. War destruction did incalculable damage to the transportation system, power plants, mines, and other industrial installations.

Following the defeat of Germany, Poland was once again restored to the community of European nations. It was, however, a different Poland from that which had existed before the outbreak of World War II. In addition to the territory east of the so-called Curzon line, the USSR annexed Lwow and its surrounding areas (about 70,000 square miles), while Poland, reduced to the role of a Soviet

\* Table 1 follows on p. 4.

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Table 1

Index of Industrial Production in Poland <sup>3/</sup>  
Before 1940

Year	Index
	1928=100
1922-27	45
1928	100
1932	64
1933	70
1934	79
1935	85
1936	94
1937	111
1938	119
1939	126

Satellite, was granted about 42,000 square miles of former German territory. This land included the prized industrialized areas of Silesia, Pomerania, and part of East Prussia.

Poland's present territory is approximately one-fifth smaller than in 1939. Its population, reduced by mass exterminations, forced deportations, and boundary changes, decreased from 34,360,000 in 1939 to 25,000,000 by the end of 1950. <sup>4/</sup>

Although considerably smaller in total area, Poland profited from the acquisition of former German industrial areas. For example, Polish hard coal production capacity was increased by nearly 80 percent, brown coal by 400 percent, coke by 160 percent, zinc and lead by 150 percent, pig iron by 400,000 tons, and steel by 700,000 tons. In addition, Poland inherited engineering industry centers in Gdansk, Elblag, Szezecin, Wroclaw, Zielona Gora, and Jelenia Gora. <sup>5/</sup> Conversely, the vast stretches of land ceded to the USSR, with the exception of the Lwow area and of the Drohobycz area with its crude oil wells, contained no mineral resources or industrial concentrations. The acquisition of this wealth of raw materials and highly developed industries was the primary reason for the relatively quick pace of Poland's economic and industrial recovery following World War II.

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3. Postwar Economic Planning.

Shortly after the end of World War II, Poland embarked on an ambitious program of industrial planning. After the 1945 Preliminary Plan, intended to meet the emergency conditions which prevailed in devastated Poland, the Warsaw government initiated a Three Year Plan which was to cover the years 1947-49. 6/

The goals set by the Three Year Plan were, for the most part, achieved. According to official Polish announcements, the plan was fulfilled by 100.6 percent. By the end of 1949, it was claimed that the output of Polish industrial production was almost 75 percent greater than before World War II. 7/

The Three Year Economic Plan was followed by the current Six Year Plan (1950-55), designed to transform Poland into a highly industrialized Communist state following the pattern established by the USSR.

B. Industrial Base.

1. Raw Materials.

Poland's reserves of raw materials, although considerable, are generally inadequate to meet the demands of the country's far-reaching industrialization program. The major natural resource is Poland's extensive coal deposits. This asset is outweighed, however, by the absence, shortage, or poor quality of most other raw materials. With the exception of lead, zinc, and arsenic, Poland must rely on the importation of almost all its requirements for nonferrous metals and ferroalloys, although there are negligible deposits of copper, nickel, tin, and manganese. 8/

Iron ore extraction is lagging behind the pressing needs of industry. Moreover, Polish ore is of poor grade, containing an average of only 30 percent iron. The metallurgical industries have had to import iron ore, which comes mostly from Sweden. The 1955 production target of 3 million metric tons of iron ore will probably not be attained. The Polish iron and steel industry will remain dependent on imported ore for an indefinite period of time.

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2. Electric Power.

Poland's electric power generating capacity is presently inadequate to meet the expanding needs of industry. The plants and equipment are for the most part out-dated and the distribution network is poorly developed. <sup>9/</sup> Polish power stations are nearly all thermal. Hydroelectric facilities account for only 6 percent of the total power generating facilities in Poland, although there has been a notable increase in emphasis upon hydroelectric developments in Poland in recent years.

The 1955 target of 18 billion kilowatt-hours (kwh), later raised to 19.3 billion kwh, appears unrealistic, even on the assumption that the 11 new thermal and 7 new hydroelectric plants envisioned by the Six Year Plan are completed.

Power stations attached to individual industrial plants comprise an important segment of Poland's total generating capacity. The current trend, however, is toward the establishment of large central stations and the elimination of the smaller, less efficient power plants.

3. Manpower.

Although Poland remains a predominantly agricultural country, there has been in recent years a shift of workers from agriculture to industry, in insufficient numbers, however, to satisfy Polish industrial requirements.

The shortage of industrial manpower, particularly skilled workers and technicians, is one of the major weaknesses hampering Poland's drive to increase its industrial capabilities. The lack of industrial manpower is further aggravated by extensive absenteeism, heavy turnover, the frequent desertion of rural workers from the factories, and other forms of dissatisfaction. <sup>10/</sup>

To remedy the manpower shortages the Polish government has resorted to compulsory labor, increased employment of women, and intensive training programs.

Labor is compulsory and regimented. The State Office of Employment has the right to assign workers to any industry or plant in which a need exists. Youths 14 years old come under the provisions of the compulsory system.

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The employment of women in mines and industry, much emphasized by Communist authorities, has met with only partial success. Besides the unwillingness of many women, particularly of peasant stock, to leave their homes, there is also considerable reluctance on the part of the management of mines, foundries, and engineering and chemical industries to employ female labor.

The Six Year Plan calls for an intensive program of technical training to alleviate Poland's deficiencies of engineers and skilled technicians. It is anticipated that over 1 million vocational school graduates will have completed training courses by the end of 1955. Industry and transportation services are to receive 580,000 graduates, construction 44,000, and agriculture 79,000. An additional 224,000 persons are scheduled to attend special technical courses within the 6-year period of the economic plan.

The gravity of the manpower shortage has long been acknowledged by the Polish government. Franciszek Bliniowski, Vice Chairman of the State Planning Commission, addressing the Plenary Session of the Polish Trade Unions on 29 July 1952, described the shortage of manpower in the building, iron, steel, and chemical industries as "grave." He further stated that only increased employment of women and a check to absenteeism and labor turnover could alleviate the manpower shortage felt in all branches of the Polish engineering industry. 11/

II. Engineering Industries.

A. Organization.

The organizational structure of Polish industry and the formulation of production plans are determined by the State Economic Planning Commission and the Council of State, both of which are responsive to the Polish United Workers Party (the Communist Party). The task of exercising administrative control of the Polish economy, including industrial planning and production, is the responsibility of the Economic Committee of the Council of Ministers.

Postwar Polish industry was originally organized into six echelons including: (1) the Ministry; (2) 21 Central Administrations; (3) Board of Managers for each branch of industry; (4) Association; (5) Enterprise, consisting of several plants; and (6) the individual plant. In May 1950 a simplified system was put into effect consisting of: (1) the Ministry, (2) Central Administrations, and (3) Enterprise. 12/

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In addition to the Central Administrations there exists another form of administrative control over particular segments of Polish industry in the form of Associations (Zjednoczenia). The tasks of the Central Administrations are to plan production of respective branches of industry, plan and supervise capital investments, and generally to exercise control and supervision of subordinate plants. The Central Administrations are handling whole branches of industry on a national scale. The Associations are organized instead on a territorial basis and may be viewed as having an independent status, each controlling a given number of plants within its territory. Since 1950 there has been a tendency to concentrate the control of industrial plants under the direct authority of the Central Administrations without the use of Associations.

The Ministry of Machine Building, formerly the Ministry of Heavy Machinery, exercises control over all aspects of Poland's engineering industries. This Ministry is directly subordinated to Vice-Premier Piotr Jaroszewicz, who is reported to be in charge of the industries producing weapons and ammunition and of industrial plants of special interest to the military authorities. <sup>13/</sup> The actual control over Poland's war industry, including production of war material and investment allocations for military plants, is presumably exercised by a special military bureau of the State Economic Planning Commission, which in turn would be directly responsible to the Ministry of Defense. <sup>14/</sup>

The Ministry of Machine Industry, as shown in the chart,\* consists of 14 departments in charge of industrial activity, including planning, investments, accounting, organization of cadres, labor recruitment, and wages. An integral part of the ministry are 21 Central Administrations, each controlling production of a particular branch of industry, for example, the Central Administration of Heavy Machinery Construction. Three separate offices of the Ministry deal with supplies for workers, transportation, and organizational-administrative matters. <sup>15/</sup>

B. Production.

1. Industrial Machinery and Construction Equipment.

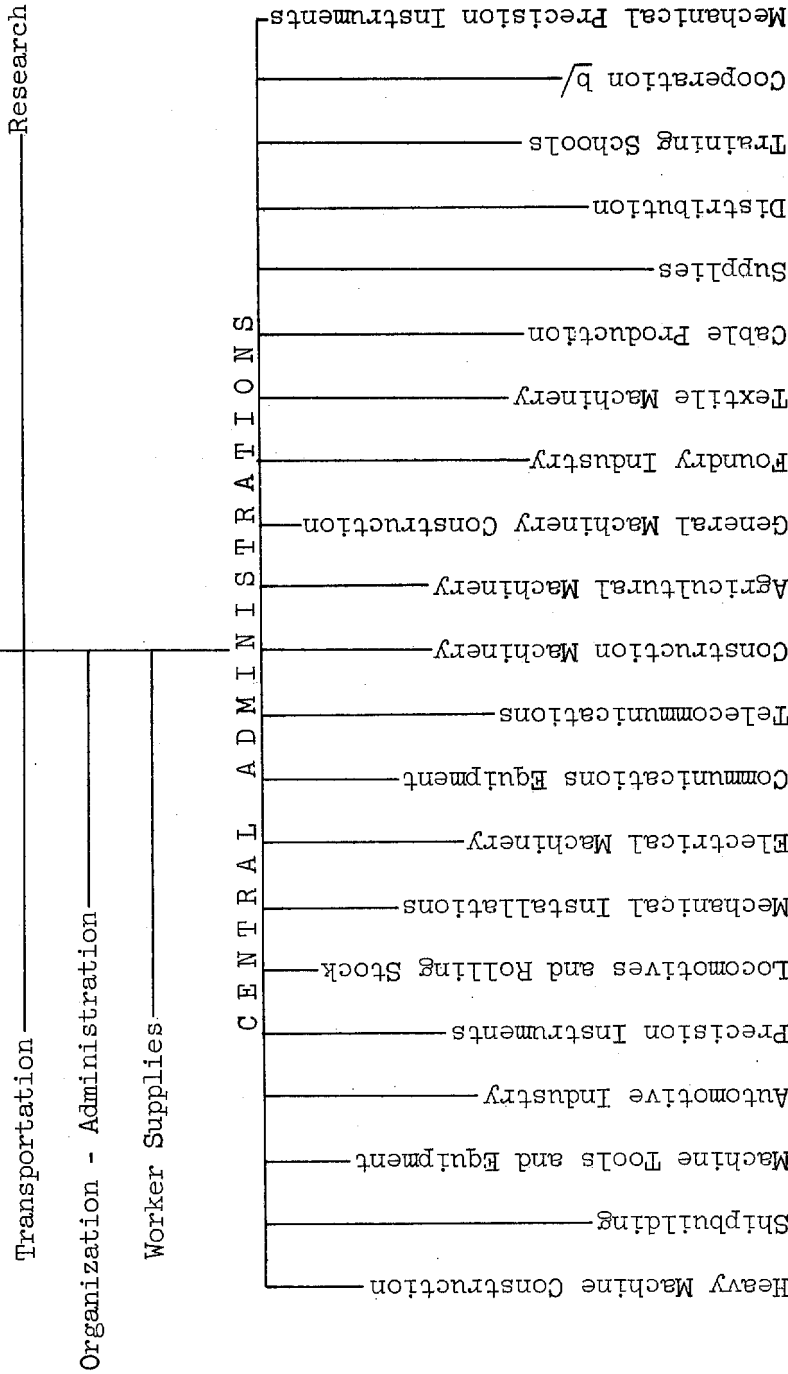
As a result of the acquisition of major former German plants, Poland's ability to produce heavy machinery and construction

\* Chart follows p. 8.

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ORGANIZATION OF THE POLISH MINISTRY OF MACHINE INDUSTRY

Ministry of Machine Industry  
(Administrative Departments) a/



a. Includes Departments of Planning, Accounting, Technical Control and Methods, Precision Techniques, Production, Chief Engineer, Investments, Machinery and Installations, Economic Cooperation, Cadres, Employment and Wages, Finances, Labor Recruitment, and Budget.  
 b. Believed to be responsible for coordinating duties between other ministries in Poland and liaison with foreign countries.

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equipment is much greater than in the prewar period. Polish plants in this industry, however, are still unable to meet the demands of the expanding Polish economy. The shortage of skilled manpower, lack of high-grade technical personnel, and inadequate plant facilities are major stumbling blocks in this industry. Poland must depend on the importation of substantial quantities of heavy machinery, particularly highway construction machines, hydraulic presses, excavators, crushing and grinding machinery, cranes, and pumps. 16/ Italy, Switzerland, France, and West Germany are Poland's principal suppliers of this type of machinery. 17/ In spite of recent advances, Poland will depend for many years on the importation of heavy machinery and equipment. 18/

The Six Year Plan calls for the production of 1,150 concrete mixers, 140 heavy cranes, 75 excavators, and 2,150 construction hoists in 1955. Although there is insufficient information upon which to base a firm estimate of 1953 production, it appears that some genuine progress has been made toward achievement of the goals set for 1955.

In January 1954 it was announced that as the result of a special Soviet license, the Warsaw Workshops of Building Installations started preparatory work for the assembly of a new type of crane, the Unwersalnyi Bazennyi Kran (UBK-1). Production of these cranes was to begin in 1954. 19/

In addition, the Central Workshops of Equipment of Municipal Building (CWS) in Warsaw completed by the end of 1953 production of the first group of 12-ton self-propelling cranes, designated "Pazdziernik 36." This type of crane, never produced before in Poland, can lift and transfer materials on the building site as well as transport them over longer distances. The CWS Workshops are expected to produce 40 cranes of this type in 1954. 20/

The Warsaw Industrial Equipment Plant, which produced tower cranes and flat-bed trailers for the first time in Poland in 1951, is manufacturing new construction machinery. This plant has started production of excavators patterned on the designs of the Soviet E-505 machine. The shovel capacity of this machine is 0.5 cubic meters. 21/

Appendix A shows the principal Polish plants currently engaged in the production of heavy machinery and construction equipment.

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2. Mining Machinery.

The production of mining machinery and equipment is below the needs of Poland's intensively exploited coal mining industry. The need for additional output in this field is pointed up by the continuing breakdown of old, worn-out mining machines, a constant cause of trouble in Polish mines. Special teams have been organized in the mines to recondition the old machinery and equipment, indicating the seriousness with which the authorities view this problem. The Six Year Plan calls for the production of mining machinery in 1955 of a total value of 290 million zloty at 1937 prices.

Increased production of modern, efficient mining machinery has a high priority in the plans of the Polish government, since Poland earns a major share of its foreign exchange by exporting coal. 22/ An increased availability of mining machinery and equipment is a basic requirement for the attainment of the 1955 production goal of 100 million tons of hard coal.

Mechanization, electrification, and improved ventilation of old mines are goals stressed in the Six Year Plan and the so-called "Miners' Charter." The latter is a series of regulations for the benefit of the coal industry and its workers. 23/

Production of mining machinery and equipment amounted to 13,561 tons in 1946, 22,088 tons in 1947, and 24,000 tons in 1948. 24/ There are no data available for output in subsequent years. The 1948 plan called for the manufacture of 8,000 cars, 600 pumps, 210 cutting machines, 2,400 rock drillers, and 2,200 pneumatic pick hammers in that year. 25/ These output figures were probably not reached because of the shortage of materials, machine tools, and skilled labor which plagued the mining machine industry in the postwar years and which still presents serious drawbacks to continued expansion in output.

The Central Administration of the Mining Machinery Building Industry reported fulfillment of the 1953 production plan. 26/ The official communique stated that mining machinery plants increased their output approximately 20 percent in 1953 over the previous year. According to the Polish press the mining machinery and equipment industry in Poland is presently producing some 500 basic types of mining equipment and installations. 27/

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The USSR has supplied Poland with technicians and plans for Soviet-designed mining machines, including the Donbas-type combine. 28/ The first Donbas-type combine entirely produced in Poland (KW-17) was announced in July 1951. 29/ This combine was manufactured at the Mining Machinery Works in Piotrowice. The announcement stressed at that time that the Piotrowice plant was scheduled to enter into batch production of these machines. This plant has now completed production of the prototype of a coal cutting, crushing, and loading machine known as Lupacz (L5). 30/ According to the Polish press the first machine of this type was initially developed in 1946, but no steps were taken toward placing it in serial production because of negligence and lengthy bureaucratic procedures in the Ministry of Mining and the Machine Building Construction Bureau. This machine was reported to be undergoing tests in the Siemianowice colliery in the fall of 1953. 31/

Appendix A gives Poland's major mining machinery plants.

### 3. Agricultural Machinery.

The Polish government is well aware that increases in agricultural production, apart from overcoming peasant resistance, are largely dependent on increased availability of agricultural machinery.

Plants producing agricultural machines and implements in Poland are affiliated with, and controlled by, the Union of Agricultural Machinery Industry with headquarters in Bydgoszcz and Lodz. The major task of this organization is to speed up the production of agricultural machinery and increase the availability of spare parts.

To judge from frequent complaints in the Polish press, agricultural machinery, both new and old, is of generally poor quality and was produced at excessive cost. 32/

Polish agricultural machines in general, and tractors in particular, are subject to considerable deterioration because of poorly trained operators, inadequate repair shops, and shortage of parts for tractors of Western origin. Efforts have been made to check this deterioration, but its rate, in spite of some improvement in the last two years, is still high. It is the hope of the Polish authorities that State Machine Centers can assist Poland's peasantry, especially the collective farms, in repairing machinery and preventing its deterioration. 33/

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The Six Year Plan calls for a 1955 production target of 750 harvester combines, 14,300 tractor plows, 5,000 tractor sowing machines, 5,600 sheaf binders, and 6,000 motorized threshing machines. The total value of 1955 agricultural machinery output is anticipated to amount to 130 million zloty (in 1937 prices), almost triple the value of the machinery produced in 1950. 34/

Production of this quantity and variety could not be reached with existing postwar facilities. In order to fulfill the ambitious program of the Six Year Plan two large new factories were built, one in Brzeg on the Oder River and another in Staroleka near Poznan. In addition, existing plants were rehabilitated and expanded. 35/ The Brzeg factory reportedly began production in 1953, specializing in sowing machines and artificial fertilizer spreaders. The capacity of this plant will be 3 times the entire 1952 production of sowing machines in Poland. 36/ The Staroleka factory will specialize in the production of modern harvesting combines of Soviet design. This plant is officially expected to begin full production in 1955 and should then account for approximately 30 percent of total Polish production of agricultural machinery. 37/

Polish press reports indicate that the agricultural machine factory in Plock has been engaged in the serial production of reaping and binding machines patterned on Soviet designs. Production of new types of agricultural machines such as mechanical mowers, grain-dyers, beet harvesting combines, and milking machines is now taking place.

The production of tractors in Poland is presently concentrated in one large plant, URSUS Plant No. 1 in Czechowice near Warsaw. This plant began production in 1947. 38/ The first tractors produced were copies of the "Lang Bulldog 45" (LB-45), later designated the URSUS-45. 39/ Production of a second model, the URSUS-30, started in 1948. Both versions are driven by a horizontal, single-cylinder engine. 40/

The main weakness of the URSUS tractors is the poor quality of castings and mechanical parts. These tractors are much more suited for agricultural than construction purposes. The Polish press has cited the URSUS plant on a number of occasions for "technological errors" in production and a lack of discipline among its labor force. 41/

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The proposed expansion of this plant would have to be on a major scale in order to meet the 1955 target goal of 11,000 tractors annually.

The estimated production of tractors in Poland for 1950-55 is given in Table 2.

Table 2

Estimated Production of Tractors in Poland <sup>42/</sup>  
1950-55

<u>Year</u>	<u>Units</u>		
	<u>URSUS-30</u>	<u>URSUS-45</u>	<u>Total</u>
1950	2,800	1,200	4,000
1951	3,000	1,150	4,150
1952	4,000	1,800	5,800
1953	4,700	2,000	6,700
1954	6,000	2,700	8,700
1955	7,700	3,300	11,000

4. Textile Machinery.

The textile machinery output in Poland is probably sufficient to meet the essential needs of the textile industry, although there are notable exceptions, such as the shortage of spinning machines and of spare parts. In 1952, serial production was reportedly begun on a number of new machines, including rayon-spinning machines, some types of cotton-carding machines, modern automatic looms, and other types of textile machinery.

It is estimated that the 1952 production of textile machinery of the type indicated above amounted to 5,000 units, of which looms accounted for a little over one-half. It required about 3,000 workers to produce this quantity, which weighs about 15,000 metric tons. <sup>43/</sup>

Factories producing textile machines and equipment are, for the most part, located in Bielsko, Zdunska Wola, and Lodz. The Textile Machinery Association, which had controlled 16 factories in

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1950, comprises now only 10 factories following the amalgamation of some small enterprises and the exclusion of those with less than 50 workers. 44/

The two principal textile machinery producing plants are the Fabryka Maszyn Wlokienniczych (formerly Josephy) in Bielsko and the Widzewska Fabryka Maszyn Wlokienniczych in Lodz. Among the types of machines produced by the Bielsko plant are carding machines, self-acting mules, and ring spinning machines. The present labor force of this plant, which has notably increased its output during the last few years, amounts to about 2,500 workers. The well-equipped Lodz plant was scheduled to produce cotton-spinning machines with 25,000 spindles in 1953, with 50,000 spindles in 1954, and with 100,000 spindles in 1955. 45/ The plant was reported to employ 750 workers.

There are insufficient data pertaining to the output of Poland's minor textile machinery manufacturing plants (among them, the Zdunska Wola factory, the textile machinery plant at Kamienna Gora, and the former Mueller and Seidel factory in Lodz) to permit production estimates.

5. Transportation.

a. Locomotives.

Poland's present capacity for the production of steam locomotives, railroad cars, and other rolling stock is more than adequate to meet domestic requirements. As a result, the USSR is directly benefiting from the increased output of Poland's railroad transportation industry. Due to the shortage of transportation equipment in the USSR, the Soviet authorities have placed increasing demands upon the Polish railroad transportation equipment industry. 46/ In addition, Poland has also been reported supplying locomotives to China, Bulgaria, and Albania.

This Polish industry has also advanced technically. During 1952-53, the Panstwowa Fabryka Wagonow-Pafawag (State Railroad Car Factory) in Wroclaw began the construction of electric locomotives. The sixth and seventh electric locomotive produced by this plant were scheduled to begin operation on the Warsaw-Lodz line in May 1954. 47/

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Estimates of production of locomotives and of freight and railroad passenger cars for the period 1945-55 are given in Table 3.

Table 3

Estimated Production of Locomotives, Freight Cars,  
and Railroad Passenger Cars in Poland  
1945-55 48/

Year	Units		
	Locomotives	Freight Cars (2-Axle Equivalent Units)	Railroad Passenger Cars
1945	75		
1946	178	5,221	5
1947	254	11,458	108
1948	265	15,000	232
1949	267	14,200	200
1950	237	16,200 <u>a/</u>	300 <u>a/</u>
1951	261	20,000	400 <u>a/</u>
1952	290	16,400 <u>a/</u>	400 <u>a/</u>
1953	320 to 360	12,800 to 14,400 <u>a/</u>	400 <u>a/</u>
1954	450 <u>a/</u>	16,400 <u>a/</u>	400 <u>a/</u>
1955	465 <u>a/</u>	18,800 <u>a/</u>	630 <u>a/</u>

a. Planned.

The 1945-55 estimated production figures given in Table 3 are in general agreement with planned targets. The production of passenger cars will most likely continue at the rate of 400 units annually until the last year of the Six-Year Plan.\*

The acquisition, as a result of boundary changes, of the highly developed former German plants has been largely responsible

\* CIA estimate.

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for the substantial increase in freight car production in Poland. <sup>49/</sup> These plants have included the Zaklady Zaodrzanskie Budowy Mostow i Wagonow (Trans-Oder Bridge and Car Works) in Jelenia Gora and the Panstwowa Fabryka Wagonow-Pafawag. Appendix A gives the names, location, and supporting data for Poland's major railroad equipment manufacturing plants.

b. Motor Vehicles.

The capacity of Poland's automotive industry has been greatly expanded during the last 3 years as a result of the construction of 2 truck factories and 1 passenger car factory. The increase in capacity is reflected in the 1951-53 production figures given in Table 4, which presents the estimated production of the Polish motor vehicle industry for 1948-53.

Table 4

Estimated Production of Motor Vehicles  
in Poland <sup>50/</sup>  
1948-53

<u>Year</u>	<u>Units</u>		
	<u>Trucks</u>	<u>Passenger Cars</u>	<u>Motorcycles</u>
1948	20	0	
1949	240	0	6,000
1950	900	0	N.A.
1951	2,500	10	N.A.
1952	6,900	1,500	N.A.
1953	11,000	2,500	N.A.
1955 (Plan)	25,000	12,000	32,000

The Polish automotive industry is largely dependent on the USSR, however, for parts, components, and technological assistance. <sup>51/</sup> Unless additional parts are made available and more skilled labor procured, it is doubtful whether Poland will be capable of producing the plan goals of 25,000 trucks, 12,000 passenger cars, and 32,000 motorcycles anticipated for 1955.\*

\* CIA estimate.

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Before World War II, Poland had practically no motor vehicle industry. 52/ In May 1946, plans were initiated to build two factories for the production of trucks, one in Starachowice and the other in Lublin; one factory in Zeran to assemble passenger cars; and a factory in Warsaw to manufacture motorcycles. 53/

The new Starachowice Truck Plant has been producing the 2-1/2-ton Star-20 trucks. This truck has served as a prototype for the construction of the Star-50 truck, primarily designed as a bus, with a useful load capacity of 3 tons. Other versions of Star-20 trucks reportedly under construction at Starachowice include fire engines with a separate pump motor and tank trucks with 2,500 liters capacity. 54/

The Lublin plant, still under construction, has been assembling the Lublin-51-type truck. This is the 2-1/2-ton GAZ-51 truck built from parts supplied by the Molotov Truck Factory at Gor'kiy in the USSR. The 6-cylinder engine of this truck develops 70 horsepower. Its maximum speed does not exceed 70 kilometers per hour. 55/

The Zeran Passenger Automobile Plant, originally scheduled to produce FIAT vehicles, has been assembling the Soviet Pobeda cars appearing under the markings of M-20 Warszawa. This factory should eventually be capable of manufacturing an all-Polish product, since it is now producing its own engines and other complicated units of the car. 56/

Appendix A lists Poland's main plants producing trucks and passenger cars.

6. Machine Tools.

In 1949 the Polish machine tool industry could produce only one-fourth of the country's domestic requirements. As a result of Poland's postwar industrialization, the machine tool industry\* was capable of meeting the 1953 production target of 20,300 tons 57/ estimated to be equal to 6,200 units.\*\*

\* According to official Polish announcements, the machine tool industry failed to fulfill the 1953 plan. These announcements evidently refer to metalworking machine tools generally. Machine tools in the definition of CIA are one part of the larger class of metalworking machines which also includes hammers, presses, shears, and the like.

\*\* CIA estimate.

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Nevertheless, it appears doubtful whether the high 1955 production goal of 12,000 units can be met. The large differential between the 1953 plan and 1955 goal appears excessive for the 2-year period involved. In addition, the Polish machine tool industry is still dependent on imports of component parts which, together with a lack of skilled labor, could prevent the major spurt in production necessary to meet the 1955 plan.

The present level in technology in the Polish machine tool industry is considerably below corresponding Western industrial standards. Many of the machine tools produced in Poland have features copied from Soviet models. The next few years will show whether the Polish machine tool industry can develop an independent domestic technology.

The estimated annual production of machine tools of all types for the period 1948-55 is indicated in Table 5.

Table 5

Estimated Production of Machine Tools of All Types in Poland  
1948-55

<u>Year</u>	<u>Units</u> <u>Machine Tools</u>
1948	3,293
1949	4,695
1950	5,400
1951	5,940
1952	6,530
1953	6,200
1954	9,020
1955	12,000 <u>a/</u>

a. Planned.

In spite of the growing domestic need for machine tools and the necessity of importing machine tools (mostly of heavy duty and precision types) from abroad, Poland has been delivering machine tools to Communist China, Rumania, and probably Bulgaria. 58/ The Polish

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press has exploited these exports as an example of the economic integration of the Satellites. Polish propaganda has claimed that this industry has been rehabilitated to the extent of exporting machine tools abroad. These exports are not indicative, however, of excess Polish capacity in all types of machine tool production.

Appendix A lists the principal producers of machine tools in Poland.

7. Antifriction Bearings.

Poland is extremely short of antifriction bearings. By far the largest share of Poland's antifriction bearings requirements must be imported. In the hope of remedying this critical shortage, the Machine Industry Department of the State Economic Planning Commission (PKPG), in conjunction with the interested industrial ministries, formed in August 1953 a commission for the purpose of spurring the rebuilding of roller bearings. In collaboration with the Design Office for Roller Bearings (Biuro Konstrukcyjne Lozysk Tocznych) 59/ of the Ministry of Machine Industry, the Commission is to conduct research and recommend uniform technical methods for the rebuilding of roller bearings. The existing Central Office of Antifriction Bearings (Centralne Biuro Lozysk Tocznych-CEBILLOZ), which was set up on 30 April 1950 to reduce the impact of this shortage by control of maintenance and use of bearings, achieved limited results in its efforts to supply the growing demand for antifriction bearings. 60/

Nevertheless, the shortage of bearings has continued to exist in Poland as well as in the entire Soviet Bloc and is of significant proportions. 61/ The insistence of the Polish government on including embargo-type bearings in its trade negotiations with Western countries, the use of illegal channels to procure antifriction bearings, the willingness to pay high prices, and reported bearings-smuggling by Polish diplomatic couriers returning from Western Europe indicate how acutely this shortage is being felt by Polish industry. 62/

The total value of Polish imports of antifriction bearings from the West, through legal and illegal channels, was about \$5,300,000 in 1950 (estimated 2,366,000 units), and about \$4,300,000 in 1951 (estimated 2,076,000 units). 63/

There was no production of antifriction bearings in Poland from 1919 to 1950. The first efforts to develop such production were

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reported in March 1948. Production did not actually begin until 1950, when the Fabryka Wyrobów Metalowych (Metal Products Plant) was set up in Krasnik, near Lublin. 64/ The USSR supplied equipment, plans, and technical assistance to build this plant. Since reports concerning production of antifriction bearings at Stalowa Wola, near Nisko, have not been confirmed, Polish production may be considered as limited almost exclusively to the Krasnik plant.

The Krasnik antifriction bearings plant produced an estimated 500,000 units in 1951, the first year of its full-scale production. 65/ Information pertaining to the 1952 and 1953 production of this plant is too scarce to make a reliable and sound estimate of its output for the last 2 years.

8. Electrical Engineering.

There are about 60 factories in Poland coming within the category of the electrotechnical industry. The Polish government has devoted increasing attention to the development of this industry, which had suffered severe war damage. Almost all of these plants have undergone construction, rehabilitation, or conversion since the end of World War II. 66/

The progress of Poland's industrialization depends in considerable measure upon an adequate supply of motors, generators, turbines, transformers, and other electrical equipment. The dependence on supplies of semifinished products from abroad and the shortage of skilled workers which this industry requires are the two major deficiencies blocking the quick development of the electrotechnical industry in Poland. 67/

These plants will not be able to supply the necessary electrical equipment required for the power-generation program. The minor electrotechnical items, such as radios, telephones, and signal equipment, will be produced in sufficient supply for civilian consumption by the end of the Six Year Plan.

The estimated annual capacity of heavy electrical machinery as of 1 January 1953 is shown in Table 6.

\* Table 6 follows on p. 21.

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Table 6

Estimated Annual Capacity of Heavy Electrical Machinery in Poland  
by Major Electrical Plant, as of 1 January 1953 68/

<u>Plant</u>	<u>Motors (kw)</u>	<u>Generators (kw)</u>	<u>Transformers (kva)</u>	<u>Turbines (kw)</u>
Zaklady Elektro Mechaniczne Rohn-Zielinski, Zychlin	100,000	Small quantity	100,000	Negligible
Fabryka Maszyn Elektrycznych M-10, Wroclaw	10,000	Small quantity	None	Negligible
Total	<u>110,000</u>		<u>100,000</u>	

Poland's industrial planners have been striving to increase production of electrical equipment and machinery, while less attention is given to the output of such products as cables, wires, and storage batteries.

The current production capacity and output of the Polish electronics industry, which was almost entirely wiped out during World War II, is negligible. The former Philips-Wola tube and lamp factory in Warsaw was rebuilt during 1950 and 1951 with machinery and technical assistance of the Philips Company of the Netherlands. This plant is expected to become the major producer of tubes. The present output is much below its capacity. 69/

The Communist authorities have selected the capital city of Warsaw as a center for telecommunications equipment factories producing amplifiers and loudspeakers. 70/ The available data on the production of Polish radio receivers are generally inadequate to obtain a reliable estimate of their present output.

The Polish electrical industry has shown significant progress resulting from the government's intensive interest in its

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development. Much will have to be done, however, to come close to fulfilling the targets set by the plan for this industry in 1955. According to the Six Year Plan, the value of production of the electro-technical industry is to be more than tripled, amounting to at least 900 million zloty in 1937 prices. 71/

The 1955 targets of the Six Year Plan call for an annual production of (a) 170,000 units of electric motors up to 50 kw, (b) 5,000 units of electric motors of more than 50 kw, (c) 2.4 million kva power transformer equipment, and (d) distribution equipment and safety apparatus valued at 181 million zloty at 1937 prices. 72/ The plan calls also for an output of 22,000 tons of high-tension underground cables, 33 million standard electric lamps, 85,000 standard telephone handsets, and 300,000 radio receiving sets.

Appendix A lists Poland's major plants engaged in producing electrical machinery and equipment.

9. Shipbuilding.

Before the start of World War II, Poland had only one shipbuilding and repair establishment at Gdynia, a tiny fishing village transformed by the Polish government into one of the best-equipped harbors in Europe. At present, as a result of the postwar territorial changes, Poland has 16 shipbuilding and repair yards, 73/ employing a labor force estimated at 32,000 men.\* These yards, however, had suffered considerable damage by bombing and dismantling, and only some of them have been restored to their full productive capacity. Among those restored are 2 large yards in Gdansk, 1 in Gdynia, and 2 in Szczecin on the Oder River, in addition to minor shipbuilding plants at Wroclaw, Maloszyn, Swinoujscie, Leba, Ustka, and Wladyslawow. 74/

The fact that Polish ships are carrying an increasing bulk of cargo from the Satellite countries to Communist China may prove to be an incentive in furthering greater shipbuilding activities in Poland. Expansion of the existing shipbuilding and ship repair yards and an increased output of vessels may be expected. 75/

\* CIA estimate.

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The Six Year Plan calls for the construction of not less than 149,920 deadweight tons (DWT) in 1955. It also calls for the extension and modernization of existing plants and the adoption of new techniques, particularly in the prefabrication of parts and sectional assembly of hulls. 76/

The shipbuilding industry in Poland produced about 49,000 DWT in 1953, including the first vessel built at the Stocznia Szczecinska yard in Szczecin, a collier of 3,800 DWT. The 1953 production target called for 117,000 DWT, but it is estimated that only 42 percent of the ambitious ship-construction target of last year was completed. 77/

The present available facilities of the Polish shipyards are adequate to meet domestic requirements for all types of craft. They are used, however, to fill construction orders coming from the USSR. Since the USSR is concentrating on the building of naval craft, the Satellite shipyards, and especially those of Poland, are required to provide building and repair facilities, space, and labor force for the needs of the Soviet merchant marine. 78/

In 1953, Polish shipyards reportedly completed for the USSR 2 Donbas-type vessels, 3 Levant Class, 5 Soldek ore and coal carriers, 1 Kolno Class vessel, 1 Bug Class, 6 Melitopol Class, 6 super trawlers, and 20 regular trawlers (157 gross register tons each). The total tonnage of vessels delivered to the USSR amounted to 36,893 gross register tons. 79/

The factors limiting production of ships in Polish yards are principally shortage of skilled labor and lack of facilities to produce marine diesel engines. 80/ Although the Polish government has been training large "cadres" of youth for the purpose of channeling them to shipbuilding activities, the lack of technicians and skilled workers is still felt in Gdansk, Gdynia, Szczecin, and other shipbuilding centers. Marine engines are obtained in Italy, the Free Territory of Trieste, and Switzerland, 81/ and from other Western European countries. As far as steam engines and other necessary ship components are concerned, Poland does not depend on imports of these articles from abroad, since they are mostly produced in domestic plants.

Appendix A indicates locations, names, and types of vessels produced in Poland's principal shipyards.

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10. Armaments.

a. Weapons.

The Communist regime in Poland planned to establish in the immediate postwar period a complete and integrated armaments industry. The USSR, however, ordered the abandonment of these plants for two main reasons: (1) to channel Poland's maximum efforts toward the rebuilding of damaged industrial plants and the realization of the Three Year Plan, and (2) to prevent the resurgence of an armaments industry in a country which has nurtured for centuries strong anti-Russian feelings. Consequently, the Central Administration of Armaments Industry was disbanded in June 1947. The dependence of the Polish Army on the USSR for all types of heavy weapons became an accomplished fact. 82/ This was later formally sanctioned in the 1949 Polish-Soviet Agreement, which defined the scope of the Polish armaments production. According to its terms, Poland was to manufacture pistols, rifles, machineguns, light antiaircraft, antitank weapons, and ammunition -- all Soviet types. 83/

At present, at least five plants, in addition to several small factories, produce weapons for the Polish armed forces. Although several reports mentioned tank production in Poland, it is well established that no armored vehicles are produced in Polish plants.\* They are limited in this field to the repair and overhaul of Soviet tanks and tank equipment. Several tank repair centers have been established to repair and keep in operation Soviet tanks supplied to the Polish Army. These centers call upon certain industrial plants for the production of a limited number of component parts. 84/

Estimates of the weapons production in Poland for the fiscal year 1954 are given in Table 7.\*\*

Poland's production of mortars and artillery is not known, but it is estimated to be very modest, almost negligible from the viewpoint of Soviet Bloc armament requirements.

In the plans of the USSR, Poland does not appear to figure as an important factor as far as the production of complete weapons is concerned. The primary role assigned to this Satellite is

\* CIA estimate.

\*\* Table 7 follows on p. 25.



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Table 7

Estimated Production of Weapons in Poland 85/  
Fiscal Year 1954

	<u>Units</u>
Pistols	5,000
Rifles and Carbines	90,000
Submachineguns	50,000
Light Machineguns	5,000

as a producer of semifinished and finished components used in tanks and artillery. The extent, if any, of future changes in the type of weapons to be produced in Poland will be determined by the USSR. One may assume, however, that the USSR will be disinclined to allow Poland to produce complete weapons of the heavier types. 86/

In the event of war, Poland's armaments plants will not be in a position to produce modern types of heavy weapons. In view of the unquestionable expansion of the country's metallurgical and engineering industries, Poland could, however, supply certain classes of light weapons and a variety of components. Many of the heavy steel plants in Poland have been mentioned as contributing minor amounts of rough castings and forgings for artillery pieces. 87/

b. Ammunition.

The ammunition industry in Poland has been given increased attention in the past few years. Existing plants have been expanded and a few new facilities have been added. Poland has apparently now been assigned a greater place among the Soviet Bloc ammunition industries than seemed to be the case in the immediate postwar period. At present, Polish potential is second only to Czechoslovakia, although the actual production of Poland may be less than that of Hungary.

The present organization of the ammunition industry appears designed to supply Poland's requirements for peacetime military use and to permit a surplus for moderate reserves, with some components reportedly planned for export to the USSR. Although the industry would not be capable at present of self-sufficiency in

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wartime, its continuing expansion indicates that such capability may be included in the ultimate plan for over-all production. 88/

The considerable degree of uncertainty concerning current activities in Poland's ammunition-producing plants is an inevitable result of the time-lag in receiving information pertaining to the status and output of these plants.

The 1953 minimum production is estimated at 2,400 tons. This estimate is based on the ammunition needs for training purposes of the Polish Army, plus a small amount of stockpiling. 89/ Poland probably is producing more than these estimated minimum needs, although its production may not cover all classes of ammunition.

Between 30 and 40 ammunition plants, several of which are of recent construction, 90/ are engaged in some type of ammunition production. The largest group of these plants is located in the highly industrialized Silesian region. There are, however, enough factories in other localities to maintain limited production in case the major groups are eliminated by military action.

The output of Poland's ammunition industry may now be adequate for its needs as far as small arms ammunition, grenades, and mines are concerned. It may be assumed, however, that for several years Poland will still depend upon imports for larger caliber artillery ammunition in amounts exceeding those normally required for training purposes.

Appendix A indicates the major Polish plants engaged in the production of ammunition.

11. Aircraft. 91/

Although the Polish aircraft industry has produced very few powered aircraft since the war, it is the only MIG-15 producer in the Satellites other than Czechoslovakia.

At the beginning of World War II the major aircraft plants were at Warsaw/Okecie, Mielec, and Rzeszow. The total floor area for the industry was about 2 million square feet. Within a few days of the start of World War II the two largest plants at Warsaw/Okecie were badly damaged by bombing. The Germans took over the remaining facilities and used them for repair work and components manufacture, although

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they never integrated the Polish plants very closely into their own efforts.

By the end of the war the Polish aircraft industry had practically ceased to exist. Most plants were either destroyed or damaged. The rest were dismantled and their personnel dispersed.

For the first 6 years after the war the aircraft industry, which had been nationalized, had a low priority, so that Polish aircraft production was insignificant, although some of the wartime damage was repaired. Small series of a few light aircraft types were produced by the Experimental Aeronautical Institute, or Lotnicze Warsztaty Doswiadczakne (LWD) at Lodz and by the Mielec plant, which may also have assembled about 150 Po-2 biplanes from Russian parts. Engines for the Po-2's were produced at the engine plant in Psie Pole, near Wroclaw.

In 1951 Poland reportedly received drawings from the USSR and began tooling to produce the MIG 15 at Mielec and its engine at Rzeszow. Production probably started about October 1953. In June 1954 the rate of output was estimated at 5 MIG-15's per month and 11 jet engines per month. Total 1954 MIG-15 production will probably be of the order of 60 aircraft.

Airframe and engine production facilities in Poland are summarized in Table 8.\*

Estimated airframe and engine production (excluding prototypes) in Poland in the period 1946-53 is summarized in Table 9.\*\*

Under mobilization conditions the output of the Mielec, Psie Pole, and Rzeszow plants could be expanded considerably, as they are operating well below capacity. If M-day were 1 January 1955, the capacity of the plants in 1957 would probably be about 600 MIG-15's, 2,500 VK-1 jet engines, and 1,800 M-11 reciprocating engines.

Although Poland in the past had been dependent on the USSR for imports of all combat aircraft for its air force, by the end of 1954 the country should be manufacturing sufficient MIG-15's to satisfy its own requirements for this aircraft.

\* Table 8 follows on p. 28.

\*\* Table 9 follows on p. 28.

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Table 8

Airframe and Aircraft Engine Plants in Poland

<u>Location</u>	<u>Plant Name</u>	<u>Floor Area (Square Feet)</u>	<u>Remarks</u>
Lodz	LWD	Very Small	Experimental institute. Too small to engage in mass production of aircraft.
Lublin/Swidnik		Unknown	Plant under construction which reportedly will produce aircraft.
Mielec	WSK	563,000	Formerly called PZL. Produced Szpak and Zak trainer types and assembled CSS-13 (Po-2). Production of MIG-15's started October 1953.
Psie Pole	Zavod Matalowy	154,000	Has produced a limited number of M-11 radial engines.
Rzeszow	PZL	663,000	Has engaged mainly in engine repair. Production of jet engines for MIG-15 started in October 1953.

Table 9

Estimated Production of Airframes and Aircraft Engines  
in Poland  
1946-53

<u>Airframes</u>	<u>Where Produced</u>	<u>Number Produced</u>
<u>Type</u>		
CSS-13 (Po-2)	Mielec (Assembly Only)	150
MIG-15	Mielec	1
Szpak-4	Mielec	10
Zak-1	Mielec	11

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Table 9

Estimated Production of Airframes and Aircraft Engines  
in Poland  
1946-53  
(Continued)

<u>Airframes</u>	<u>Where Produced</u>	<u>Number Produced</u>
<u>Type</u> (Continued)		
Zak-2	Lodz	11
Zak-3	Lodz	11
Zuch-2	Lodz	11
Total		<u>205</u>

<u>Aircraft Engines</u>	<u>Where Produced</u>	<u>Number Produced</u>
<u>Type</u>		
M-11	Psie Pole	361
VK-1	Rzeszow	8
Total		<u>369</u>

III. Capabilities, Vulnerabilities, and Intentions.

A. Capabilities.

The present capabilities of Poland's engineering industries are considerably higher than those which existed in 1950, at the time the current Six Year Plan was initiated. Polish technology is now more advanced and the output of Polish industries is considerably greater and more diversified than at the beginning of the plan.

Poland's industrial capabilities were greatly augmented in the postwar period by the annexation of the highly industrialized areas of Germany. These territorial gains included the shipbuilding industries

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at Gdansk and Szczecin, the heavy machinery plants of Wroclaw and Elblag, the Pafawag State Railroad Car Plant in Wroclaw, electrical machinery plants, several large power plants, and textile plants. By 1952, production from the annexed areas amounted to 24 percent of Poland's total industrial output.

The rehabilitation of industrial plants which had suffered war damage as well as dismantlement by the USSR has been virtually completed. The construction of new plants and expansion of existing facilities has notably increased the capabilities of Poland's engineering industries. The 1953 plan was overfulfilled by the Ministry of Machine Industry by 3 percent. If the present industrial tempo continues, without program modifications such as increased consumer production, it is probable that the production goals envisioned by the Six Year Plan will, for the most part, be completed. The capabilities of Poland's engineering industries will rank among the highest of the Satellites, exceeded only by East Germany and Czechoslovakia.

Poland's capabilities in the engineering industries are especially pronounced in the fields of transportation equipment, machine tool production, and construction and repair of ships. In these areas Poland constitutes a substantial asset to the USSR in peacetime and can serve to great advantage to the USSR in time of war.

The engineering industries of Poland are capable of further expansion as newly trained workers and technicians become available, as well as increased quantities of iron and steel products and raw materials.

B. Vulnerabilities.

There are three vulnerable aspects of Poland's engineering industries: (1) shortage of skilled workers; (2) the deteriorating morale of the workers, particularly felt in the principal machine building centers; and (3) the necessity of importing a large portion of the raw materials and fabricated products needed by the engineering industries, products which are obtainable mostly in non-Soviet Bloc countries.

In addition, the highly concentrated nature of Poland's engineering industries makes them potentially vulnerable to wartime attack. The Polish government has recognized this condition in establishing new industrial centers removed from the congested upper

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Silesian, Lodz, and Warsaw areas. Projected industrial centers include the areas of Krakow, Czestochowa, Opole, and particularly Kujawy, Staropole, Bialystok, Lublin, and Notec.

C. Intentions.

It is the intention of the Polish Communist regime to achieve a forceful and rapid industrialization of Poland, placing special emphasis on the development of its engineering plants and facilities. This industrialization directly benefits the economy of the Soviet Bloc and the military potential of the USSR: The long-range economic program is designed to transform the economy of Poland along the pattern established by the USSR and to integrate these economies and industries into a coordinated self-sufficient entity.

This program is being pursued with considerable vigor because of the important geographical and strategic position that Poland occupies between the USSR and the West. The USSR is aware that, in any possible conflict with the Western powers, the Polish industries could be a significant forward supply base. The utilization and expansion of its engineering industries will be forcefully pressed.

The production of consumer goods will be conditioned and determined only by the effect of shortages on the morale and productivity of the workers. The effect of the "new course" in Poland on industrial investments and output has been more limited than in other Eastern European Satellites. Alone among the Satellites, Poland reported industrial production for 1953 at 3.9 percent above the plan. There are indications that the satisfactory rate of growth for industrial production was accounted for largely by the manufacturing industry, leaving some inadequacy in basic material production. The consumer goods industries exceeded their 1953 plan by 5.7 percent, while producer goods were 2.5 percent above the plan. The former increase was due to the considerable development of consumer goods production in the fourth quarter of 1953, coinciding with the period immediately following the announcement of the "new course."

In case the Polish government implements the new economic course to provide for more consumer goods, some reductions in the investment program in the heavy industrial sector of the economy will be necessary. It has been announced that, although growth of the national income is expected to permit the absolute volume of investment to remain at the 1953 level, appropriations for heavy industry are scheduled to fall

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from 46.7 percent of total capital expenditures to 40.4 percent in 1954 and 1955.

The proposed Five Year Plan (1956-60), which is to succeed the current Six Year Plan (1950-55), emphatically promises a "rapid increase in the welfare of the working classes." The broad outline of the plan, announced in September 1952, points out that measures will be taken to mechanize work and that Polish industry would reach a production level 10 times greater than before the war.

Specific intentions of the Polish government include (1) training of cadres of skilled workers, (2) exploitation of domestic natural resources, (3) improvement in the morale of industrial workers, (4) transfer of the peasant population to industrial centers and increased use of female labor, and (5) improvement and expansion of maintenance techniques and repair programs in industry.

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APPENDIX A

MAJOR ENGINEERING INDUSTRY PLANTS IN POLAND

<u>Name of Plant</u>	<u>Location</u>	<u>Products</u>	<u>Remarks</u>
<u>Industrial Machinery and Equipment:</u>			
H.P.B. (Hutnicze Przedsiębiorstwo Budowlane) <u>92/</u>	Katowice	Steelworks plant and equipment.	Employs approximately 6,000 workers.
Fabryka Ciekich Maszyn i Turbin <u>93/</u>	Elblag	Steam turbines, steam boilers, furnaces, and cranes.	Labor force of 3,000. Plant owned formerly by F. Schichau.
Gliwickie Zakłady Budowy Maszyn <u>94/</u>	Gliwice	Hoisting equipment, cranes, marine boilers, and steam generators.	Approximately 1,000 workers.
Rybnik - Ryma Fabryka Maszyn <u>95/</u>	Rybnik	Conveyors, pithead frames, and elevator cages.	Plant built around 1933. Allegedly enlarged after the war. Employs about 800 workers.
Głowne Warsztaty Mechaniczne <u>96/</u>	Miwka (near Myslowice)	Conveyors, overhead cranes, and mining equipment.	Plant covers an area of about 1,300 x 800 feet. Employs 800 workers.
Zakłady Budowy Maszyn Papierniczych i Aparatury Celulozowej <u>97/</u>	Jelenia Gora	Machines for paper industry, and cellulose processing apparatus.	About 1,200 workers.
M.O.J. <u>98/</u>	Katowice	Conveyors, cutters, drills, and air ducts.	Employs 800 workers.
<u>Coal Mining Machinery and Equipment:</u>			
Bytomskie Zakłady <u>99/</u> Budowy Maszyn	Bytom	Coal mining machinery and equipment, and cranes.	This plant was reported to consist of 4 works located in various parts of the town. Employs 1,000 workers.
Rybnik - Ryma Fabryka Maszyn <u>100/</u>	Rybnik	Coal mining machinery, including conveyors.	Plant built around 1933. Allegedly enlarged after the war. Employs about 800 workers.

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<u>Name of Plant</u>	<u>Location</u>	<u>Products</u>	<u>Remarks</u>
<u>Coal Mining Machinery and Equipment:</u> (Continued)			
Głowne Warsztaty Mechaniczne <u>101/</u>	Miwka (near Myslowice)	Mining equipment, conveyors, and overhead cranes.	Plant covers an area of about 1,300 x 800 feet.
Piotrowicka Fabryka Maszyn <u>102/</u>	Piotrowice Slaskie	Coal mining machines and cutters. Coal combines.	Employs 800 workers.
Fabryka Maszyn Gornicznych Ruta. Zabrze <u>103/</u>	Zabrze	Conveyors and other mining equipment.	
Zjednoczenie Przemyslu Maszyn (Metal Industry Association) <u>104/</u>	Mysa	Coal mine compressors, and pumps.	
<u>Agricultural Machinery</u>			
Plock Industrial Works (Plockie Zaklady Przemyslowe) <u>105/</u>	Plock	Agricultural machinery.	Produces serially mowers attached to tractors. Production of self-propelling harvesting combines reported to have started in 1954. Work on prototype of the Nema type harvester, now produced in East Germany, allegedly completed by 15 December 1953.
Agricultural Machinery Factory (Fabryka Maszyn Rolniczych) <u>106/</u>	Slupsk	Agricultural machinery.	Specializes in tractor-driven disc-harrows.
Pionier Agricultural Machine and Equipment Works (Zaklady Maszyn in Marzedzi Rolniczych "Pionier") <u>107/</u>	Strzelce	Tractor-driven 2-furrow potato-planting machines; motor-driven chaff-cutting machines, and the like.	Mass production on the basis of Soviet models. Plant severely criticized in the Polish press for not procuring sufficient skilled labor and not fulfilling production goals.

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Name of Plant	Location	Products	Remarks
<u>Agricultural Machinery</u> (Continued)			
Unja Agricultural Machinery and Equipment Factory (Fabryka Maszyn i Narzedzi Rolniczych "Unja") 108/	Kunow (near Wierzbnik)	Ploughs, half-harrows, 1-row weeding machines, 3-row weeding machines, and the like.	
Agricultural Machinery Plant (Fabryka Maszyn Rolniczych) 109/	Staroleka	Modern harvesting combines, sheaf-binders, other types of agricultural machinery.	70 percent of modern machinery for this factory has reportedly already arrived from the USSR. Factory to be completed in 1955.
URSUS Tractor Plant (Fabryka Traktorow URSUS) 110/	Czechowice (near Warsaw)	Tractors URSUS-45 and URSUS-30.	Major tractor-producing establishment in Poland.
<u>Locomotives and Rolling Stock:</u>			
H. Cegielski (now called J. Stalin Works) 111/	Poznan	Locomotives, passenger and freight cars, parts for freight cars.	Plant area comprises about 2-1/2 million square feet. In May 1946, the plant was largely restored. According to reports, production for the USSR dates since November 1949. Total of 90 locomotives produced in 1950 for the USSR. No figures are available after 1950. Produces 3 types of locomotives: TY-42, TY-43, and TY-46.
Pierwsza Fabryka Lokomotyw (Fablok) (first railroad locomotive plant) - now called Dzierzynski Railroad Locomotive Plant. 112/	Chrzanow (about 20 miles west of Krakow)	Locomotives and parts.	The PT-47 types of express locomotives, first built in 1948, is described as the largest and most powerful steam locomotive presently produced in Europe. Employs approximately 6,000 workers. 1949 production: 332 units of all types. No later data available.

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Name of Plant	Location	Products	Remarks
<u>Locomotives and Rolling Stock:</u> (Continued)			
Wytwornia Parowozow <u>113/</u>	Warsaw	Before and during the war, built complete steam locomotives, but at present, only steam boilers.	
Panstwowa Fabryka Wagonow (Pafawag) Wroclaw (formerly Linke-Hoffmann Werke) <u>114/</u>		Railroad cars.	About 80 percent of all production is estimated earmarked for the USSR. 1951 production probably well over 5,000 freight cars. Employs approximately 4,000 workers.
Polish Railroad Car Plant (formerly Zeleniewski) <u>115/</u>	Sanok	Railroad cars.	This plant resumed production in 1946 with a reported monthly output of 100 coal cars. No recent information is available. The plant employed 3,000 workers in 1949, but presumably has now a larger labor force.
Zaodrzańskie Zakłady Budowy Mostow i Wagonow (Trans-Oder Railroad Bridge Works, now known as the Fabryka imienia Marchlewskiego) <u>116/</u>	Zielona	Freight cars.	Date of production unknown but considered high. Reportedly shipped 3,300 4-axle freight cars to the USSR since the end of World War II, through March 1950. No other information is available.
Stocznia Polnocna (formerly the Wagon Fabrik Danzig) <u>117/</u>	Gdansk	Railroad cars.	In addition to production of railroad cars, serves as shipbuilding and repair yards.

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Name of Plant	Location	Products	Remarks
Motor Vehicles: Fabryka Samochodow Starachowice <u>118/</u>	Starachowice	Trucks.	A prototype of a new truck, the Star-50, primarily designed as a bus, was tried out in 1951. Truck Star-20 has been in production since December 1948. Top speed between 80 and 90 km.
Fabryka Samochodow Ciezarowych <u>119/</u>	Lublin	Trucks.	The plant is still under construction, but work on assembly line was completed. Production began on 7 November 1951. According to Polish press reports, on 7 November 1952 the factory had assembled over 1,800 trucks from parts delivered from the Molotov truck factory in Gorkiy, USSR. Plant is being expanded and will eventually employ some 10,000 workers.
Fabryka Samochodow Osobowych (FSO) <u>120/</u>	Zeran (near Warsaw)	Passenger automobile cars.	Plant still under construction. At the present time, work limited to the assembly of automobiles from parts delivered from the Molotov factory. Monthly production is said to have increased from 25 in November 1951 to 185 in October 1952. In 1953 the production of engines was initiated.

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<u>Name of Plant</u>	<u>Location</u>	<u>Products</u>	<u>Remarks</u>
<u>Electrical Equipment:</u>			
Zakłady Elektro Mechaniczne Rohn-Zielinski (formerly a Brown-Boveri subsidiary) 121/	Zychlin (near Warsaw)	Electrical machinery of all types, including generators, transformers, turbogenerators, street car engines, and oil transformers.	The 3-phase motors produced by this plant are in sizes up to 3,500 kw, DC machines of 6,000 volts. Mention was made of production of transformers in sizes of 24,000 kva and 220 kilovolts.
Fabryka Maszyn Elektrycznych M-10 122/	Wroclaw	Heavy electrical machinery.	Once this plant is fully activated, its production will include heavy electric motors, electric traction engines, turbines, and large transformers.
Elektrobudowa 123/	Lodz	Electrical machinery of various types.	
Polskie Zakłady Elektro-Techniczne "Fra" 124/	Wlochy (near Warsaw)	Electrical equipment for power stations, transport, and industry.	
Pierwsza Państwowa Fabryka Aparatów Elektrycznych (formerly Szpotanski) 125/	Warsaw	Electrical equipment.	
<u>Machine Tools:</u>			
Zakłady imienia J. Stalina (formerly H. Cegielski) 126/	Poznan	Universal milling machines, radial drills, patterned after the German Raboma models, made in 3 sizes, 40 mm, 50 mm, 80 mm. Capstan lathes, screw cutting machines.	Machine tool plant. Only slightly damaged during the war.
Former Zielchiewski Factory 127/	Dabrowa Gornicza	Combined boring and milling machines, similar to the American Miles design. Lathes, vertical lathes.	

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Name of Plant	Location	Products	Remarks
Machine Tools: (Continued)			
Former Association of Polish Mechanicians from America <u>128/</u>	Pruszkow (near Warsaw)	Produces a series of American Cincinnati Dial type milling ma- chines.	
Former Association of Polish Mechanicians from America <u>129/</u>	Foreba (near Zawiercie)	Manufactures 5 types of lathes, patterned after the German Magde- burger "Werkzeug Maschinen- Fabrik" model. A special heavy roll-turning lathe, type 3 WAP also built there.	
Kuznia Raciborska (Raciborz Forge) <u>130/</u>	Raciborz	Specializing in the production of machine tools for manufacturing and remachining worn axle-unit wheels and wheel types of rolling stock. Patterned on the German Hagenscheidt design. Monthly output about 50 machines.	
Former Krusze Plant <u>131/</u>	Pafianice	Produces cutter and drill grinders of German type. (Munte, Elbe Werke Stock.) Also universal tool grinders.	
Zaklady imienia Strzelczyka (former John Factory) <u>132/</u>	Lodz	High-speed lathes, type TSS-150.	
Shipbuilding:			
Stocznia Gdanska <u>133/</u>	Gdansk	Vessels up to 9,000 tons.	Comprises both the former F. Schichau yard and the ex- Danziger Werke. Has 7 build- ing slips. Principal yard for the construction of sea- going vessels.

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Name of Plant	Location	Products	Remarks
Shipbuilding: (Continued)			
Stocznia Szczecińska 134/	Szczecin	Builds and repairs iron and coal freighters, torpedo boats, and patrol vessels.	On 16 December 1953 launched the first Kolno type ore and coal carrier, designed by Polish engineers, and entirely built of domestic materials.
Gryf (formerly Greiffen) 135/	Szczecin	Builds and repairs vessels and fishing craft.	Specializes in repairing salvaged harbor and river craft.
Stocznia Paryskiej Komuny (also known as yard No. 13) 136/	Gdynia	Builds, repairs, and overhauls ships.	Has 3 floating drydocks, the largest with a lifting capacity of 8,000 tons. Also 3 docks with lifting capacity of 1,700 tons each. Construction of a new building way for larger vessels reported. Allegedly received orders to build trawlers and cargo boats for the USSR.
Schichau 137/	Elblag	Marine turbines, ships components, and machine tools.	This yard was dismantled and destroyed by the Russians. Probably will not be rebuilt for ship construction purposes. A factory for the production of ship components is being set up on the site of the wrecked Schichau yard.

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Name of Plant	Location	Products	Remarks
<u>Weapons and Ammunition:</u>			
Zaklady imienia J. Stalina (formerly H. Cegielski) <u>138/</u>	Poznan	Carbines, submachine guns, light machine guns; barrels for guns, and castings for tank engines.	One of the principal wartime armaments plants. Suffered damage from bombing and largely dismantled by the Russians. Following reconstruction has been producing submachine guns and other weapons for the USSR.
Panstwowe Fabryka Karabinow <u>139/</u>	Warsaw	Carbines, small arms components.	Labor force estimated at approximately 2,000 during the war, but has been reduced since then. No exact data available on present labor force.
Panstwowe Wytownia Karabinow <u>140/</u>	Radom	Pistols, carbines, rifles, and submachine guns.	Plant severely damaged by war, but already partly operating by July 1947.
Stalowa Wola Zaklady Poludniowe <u>141/</u>	Sandomierz	Mortars, tank plates, artillery components, and barrels for guns.	Considered main producer of artillery components.
Rydoskie Zaklady Meterjalow Wybuchowych <u>142/</u>	Bydgoszcz- Legnowo	Powder and explosives, filling mines.	Largest powder and explosive plant in Poland. Almost completely stripped by the Russians, was rehabilitated by the Polish authorities. Reported to load complete rounds of artillery ammunition, 50 mm and 160 mm, motor shells, and rockets.
Zaklady Amunicyjne (underground) <u>143/</u>	Bagicz (10 km SE of Kolberg)	Loading or refurbishing ammunition and bombs.	Receives some components from Katowice. 1952 information ammunition plant expanded.
Ruta Baildon <u>144/</u>	Katowice Dabrowa Gornicza	Artillery, equipment and ammunition. Primarily a steel plant.	Reported as of 1951 producing metal components for ammunition in calibers from 76 mm to 152 mm, which are sent to the Bagicz Ammunition Plant for loading.

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<u>Name of Plant</u>	<u>Location</u>	<u>Products</u>	<u>Remarks</u>
<u>Weapons and Ammunition</u> (Continued)			
Panstwowe Zakłady Amunicyjne 145/	Skarzynsko- Kamienna	Small arms and possibly artillery ammunition.	One of the largest ammunition plants, which employed during the war up to 9,000 workers.
Zakłady Amunicyjne (imienia Marszałka- Rokossowskiego) 146/	Kielce	Artillery and small arms ammu- nition, and mine cases.	Type of current production un- known. Plant reported to employ 5,000 workers.
Panstwowe Zakłady Materjalow Wybuchowych 147/	Pionki	Gunpowder and ammunition.	Plant rebuilt in 1949 and presumably manufactures Russian-caliber ammunition. Enlarged in 1951.

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APPENDIX B

GEOGRAPHIC COORDINATES OF POLISH CITIES  
MENTIONED IN THE REPORT

<u>Cities</u>	<u>Coordinates</u>	
Bagicz	54°13'N	15°41'E
Bielsko	49°49'N	19°03'E
Brzeg	50°51'N	17°28'E
Bydgoszcz-Legnovo	53°06'N	18°07'E
Bytom	50°21'N	18°58'E
Chrzanow	50°08'N	19°24'E
Czechowice	49°53'N	19°01'E
Dabrowa Gornicza	50°20'N	19°12'E
Elblag	54°10'N	19°23'E
Gdansk	54°21'N	18°40'E
Gdynia	54°30'N	18°33'E
Gliwice	50°17'N	18°40'E
Jelenia Gora	50°54'N	15°44'E
Kamienna Gora	50°47'N	16°02'E
Katowice	50°16'N	19°01'E
Kielce	50°50'N	20°40'E
Krakow	50°05'N	19°55'E
Krasnik	50°55'N	22°14'E
Lodz	51°45'N	19°28'E
Lublin	51°15'N	22°34'E
Mielec	50°17'N	21°25'E
Niwka	50°15'N	19°10'E
Nysa	50°30'N	17°20'E
Pabianice	51°40'N	19°22'E
Pionki	51°29'N	19°41'E
Piotrowice	50°13'N	18°59'E
Plock	52°33'N	19°42'E
Poreba	50°29'N	19°21'E
Poznan	52°25'N	16°58'E
Pruszkow	52°10'N	20°50'E
Psie Pole	51°09'N	17°06'E
Raciborz	50°05'N	18°12'E

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<u>Cities</u>	<u>Coordinates</u>	
Radom	51°25'N	21°09'E
Rybnik	50°07'N	18°32'E
Sandomierz	50°41'N	21°45'E
Sanok	49°34'N	22°12'E
Siemianowice	50°18'N	19°02'E
Starachowice	51°04'N	21°04'E
Staroleka	52°22'N	16°57'E
Skarzysko-Kamienna	51°07'N	20°54'E
Szczecin	53°25'N	14°35'E
Warsaw	52°15'N	21°00'E
Wlochy	52°12'N	20°55'E
Wroclaw	51°06'N	17°02'E
Zabrze	50°19'N	18°47'E
Zeran	52°17'N	20°59'E
Zdunska Wola	51°36'N	18°56'E
Zielona Gora	51°56'N	15°30'E
Zychlin	52°15'N	19°37'E

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APPENDIX C

METHODOLOGY

The evaluation of the present status of Poland's engineering industries and the estimate of their production were arrived at by establishing the growth of each subsector and the postwar expansion of the main engineering plants and by a close examination of the production plans and programs of the Polish government. All available sources were compared for the purpose of reaching a fairly close estimate of the production capacities of the engineering industries in Poland.

ORR analysts were consulted on various sectors and phases of the Polish engineering industry for which they are responsible. Publications, documents, and the files of appropriate ORR branches were examined, and the methodology used by the analysts in arriving at estimates of Polish production figures was discussed.

Polish official figures were used in most cases as a basis for the evaluation of the conditions, technology, and output of the engineering industries. This approach was necessitated by the fact that the covert sources were scarce and sketchy and the lack of prisoner-of-war reports eliminated a source of firsthand information. Most of Poland's engineering plants, severely damaged or wiped out during World War II, were rehabilitated and expanded in the postwar period.

Estimates pertaining to the capabilities and vulnerabilities of Poland's engineering industries as well as to their future development derive from a study of all the factors that may affect their industries and especially of the attitude of the USSR with regard to its major European Satellite. The study of these factors was not limited to Poland alone but included political, economic, and industrial problems of the entire Soviet Bloc.

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APPENDIX D

GAPS IN INTELLIGENCE

Gaps and discrepancies exist in regard to the organizational structure of the engineering industries in Poland from the ministerial level down to the individual, single plant. Specific information on the extent of duplication, overlapping, and bureaucratic delays among agencies in charge of planning, managing, and supervising machine building plants in Poland would be of great value. There is also a definite gap concerning the identification of the channels through which the USSR exercises control and supervision over Poland's engineering industries and especially over the plants producing armaments and products for military use.

Gaps concerning current production figures and activities of important engineering industries and of major Polish plants such as H. Cegielski in Poznan, the URSUS tractor factory in Czechowice near Warsaw, and others have been noticeable during the preparation of this report. More data on the present status of important Polish engineering enterprises, their output, and their capabilities are needed to make a full and reliable estimate of Poland's present and future industrial capabilities.

There have been only very infrequent and sketchy reports about the broader industrial plans of the Polish government, particularly with regard to conversion of plants to military end uses, expansion of plants, removal to strategically safer areas, construction of underground depots, and stockpiling. Collection of intelligence data on these aspects of Poland's industrial programs should be given increasing attention. The Polish press, especially local provincial organs, often contains information indicating the setting up of new plants, expansion of old ones, and removal of factories from one area to another.

Gaps in intelligence include lack of detailed information regarding internal conditions in the Polish plants and the extent of disaffection among Polish workers; the forms of their opposition to the Communist regime; and instances of open or passive resistance, sabotage, and other acts of opposition resulting in slowing down the production tempo of the engineering industries.

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APPENDIX E

SOURCES AND EVALUATION OF SOURCES

1. Evaluation of Sources.

For the purpose of preparing this survey of Poland's engineering industries, a wide variety of sources has been used.

Books and publications (in Polish, Russian, English, German, and French) dealing with the evolution and background of Poland's engineering industries, their present status, production capabilities, official plans and programs, manpower, and worker morale constitute the most extensive source of available information. Two of these publications may be singled out as recent general studies of Poland's economy: Die Wirtschaft Polens von 1945 bis 1952 (Poland's Economy 1945-52), published by the Deutsches Institut fuer Wirtschaftsforschung (German Institute for Economic Research), and Les Investissements Industriels en Pologne (Industrial Investments in Poland), published under the auspices of the Council of Ministers in Paris on 28 October 1953.

Polish defectors familiar with conditions prevailing in the country's centers of engineering activity, with single plants and installations, and/or with the production process of the machine building industry are the second major source of useful data. Reports from this source are not of uniform value, their range of authenticity and veracity being quite extensive. They provide, however, firsthand information on the engineering plants of Poland -- on management-labor relations, the productivity of single establishments, and shortages of skilled labor and raw materials.

Debriefings of American Embassy officials stationed in Warsaw were in several cases a source of information on matters relating to the engineering industries, especially with regard to armaments and the aircraft industry. Obviously, the limitations imposed on observation and contacts by traveling American Embassy attaches prevented them from obtaining more specific data on production and output.

Analysts of the Industrial Division, ORR cooperated in preparing the report, offering data and suggestions on various aspects of the engineering industries in Poland, including their output and capabilities.

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25X1X7 State Department despatches and periodic economic surveys were also used. [REDACTED]

25X1X7 [REDACTED] These documents in most cases are only summarized presentations of events and data as reflected in the Polish press, official publications, and statements. They are usually in the "raw" form without broader interpretation or analysis of industrial facts or data.

Publications of the Office of Intelligence Research, Department of State, dealing with Eastern Europe and Poland are of value with regard to general aspects and currents of Poland's economic and industrial activities. They contain, however, little information on individual engineering industries or on Poland's key plants.

2. Sources.

Evaluations, following the classification entry and designated "Eval.," have the following significance:

<u>Source of Information</u>	<u>Information</u>
Doc.- Documentary	1 - Confirmed by other sources
A - Completely reliable	2 - Probably true
B - Usually reliable	3 - Possibly true
C - Fairly reliable	4 - Doubtful
D - Not usually reliable	5 - Probably false
E - Not reliable	6 - Cannot be judged
F - Cannot be judged	

"Documentary" refers to original documents of foreign governments and organizations; copies or translations of such documents by a staff officer; or information extracted from such documents by a staff officer, all of which will carry the field evaluation "Documentary" instead of a numerical grade.

Evaluations not otherwise designated are those appearing on the cited document; those designated "RR" are by the author of this report. No "RR" evaluation is given when the author agrees with the evaluation on the cited document.



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The sources listed in this report and which serve as the basis for the assertions and estimates of the Polish engineering industries belong generally to the categories designated as B-2 and B-3.

1. J. Taylor, The Economic Development of Poland, 1919-1950, Cornell University Press, 1952, p. 35. U.
2. Concise Statistical Yearbook of Poland, 1939-41, p. 67, Table 24. U.
3. Ibid.
4. The Statesman's Yearbook, 1952, Chapter on Poland, p. 1,334. U.
5. State, Preliminary Draft to NIS Section 64, Poland, 1953. S.
6. Rehabilitation of Polish Economy, New York, Polish Research and Information Service, 1948, p. 3. U.
7. J. Taylor, op. cit., p. 202.
- 25X1X7 8. [REDACTED]
9. Air, AFOIN, Ai 92-53, Apr 1953. C. Eval. C-3.
10. State, Intelligence Report No. 6137.2, Eastern Europe in 1952. S. Eval. RR 2.
11. Labour Affairs, London, No. 214, 6 Sep 1952. U. Eval. RR B-2.
- 25X1A2g 12. [REDACTED]
13. [REDACTED]
14. CIA ORR Project 23-51 (WP), Economic Organization of Poland, 9 Feb 1953, p. 31. S, US OFFICIALS ONLY.
15. Monitor Polski (Polish Monitor) No. A-28, 7 Apr 1952.  
Monitor Polski (Polish Monitor) No. A-50, 13 Jun 1952.
16. State, Warsaw Despatch No. 127, 16 Oct 1953. C. Eval. RR B-2.
- 25X1A2g 17. [REDACTED]
18. [REDACTED]
19. Zycie Warszawy, 3 Jan 1954. U.
20. Ibid.
21. Trybuna Ludu, Warsaw, 3 Jan 1953. U.
22. CIA NIS, Poland, Section G-2, Fuels and Power, Chapter VI, Sep 1952. S, US OFFICIALS ONLY.
- 25X1A2g 23. [REDACTED]
24. State, Preliminary Draft to NIS, Section 64, Poland, op. cit., p. 64-B-19.

S-E-C-R-E-T

S-E-C-R-E-T

25X1X7

25. [REDACTED]
- FOIAb3b 26. Zycie Warszawy, 17 Dec 1953. U. Eval. RR B-3.
27. [REDACTED]
28. [REDACTED]
29. CIA/RR 21, The Coal Mining Equipment Industry of the USSR, May 1953, p. 113. S. Eval. RR B-2.
- 25X1X7 30. Trybuna Ludu, 18 Sep 1953. U. Eval. RR B-3.
31. [REDACTED]
- 25X1A2g 32. Trybuna Ludu, 26 Feb 1952. U. Eval. RR B-2.
33. [REDACTED]
34. CIA FDD, Law on the Polish Six-Year Plan (1950-55), 11 Mar 1953. C.
- 25X1A2g 35. [REDACTED]
- 25X1X7 36. Les Investissements Industriels en Pologne (Industrial Investments in Poland), Ministry of Finance and Economic Affairs, Paris, No. 1797, p. 22. U. Eval. RR B-3.
- 25X1A2g 37. Ibid.
38. [REDACTED]
39. CIA ORR Project 32.221, The Tractor Industry in the Soviet Bloc, May 1954. S. Eval. RR B-2. (Unpublished).
- 25X1X7 40. [REDACTED]
41. Les Investissements Industriels en Pologne, op. cit., p. 23. Eval. RR B-3.
42. CIA ORR Project 32.221, op. cit.
43. CIA ORR Project 34.234, Textile Machine Industry in the Soviet Bloc, 29 Apr 1954. S, US OFFICIALS ONLY.
- 25X1A2g 44. [REDACTED]
45. CIA ORR Project 34.234, op. cit.
46. CIA/RR 27, Production of Locomotives and Rolling Stock in the USSR and in the European Satellites, 14 Dec 1953. S, US OFFICIALS ONLY.

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25X1A2g

47. [REDACTED]

48. CIA/RR 27, op. cit.

25X1A2g

49. [REDACTED]

50. CIA ORR Project 11.2, East-West Comparative Study, 10 Mar 1954. S.

25X1A2g

51. [REDACTED]

Izvestiya, No. 106, p. 1, 6 May 1953. U.

52. Strategic Intelligence Digest, Poland, May 1948, p. 113. S.  
Eval. RR B-2.

FOIAb3b1

53. [REDACTED]

25X1A2g

54. [REDACTED]

55. [REDACTED]

25X1A6a

56. Zycie Warszawy, 11 Nov 1953. U.

25X1A2g

57. [REDACTED]

58. [REDACTED]

25X1X7

25X1A2g

59. [REDACTED]

60. [REDACTED]

61. CIA Report, Soviet Bloc Antifriction Bearings Position in COCOM, 8 Dec 1953. C.

25X1A2g

62. [REDACTED]

63. [REDACTED]

64. CIA/RR 26, The Antifriction Bearings Industry in the Soviet Bloc, 30 Oct 1953. S.

25X1X7

65. Ibid.

66. [REDACTED]

67. [REDACTED]

25X1A2g

S-E-C-R-E-T

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68. CIA/RR 9, The Heavy Electrical Machinery Industry in the Soviet Bloc, 12 Sep 1952, p. 14. S. Eval. RR B-2.
- 25X1A2g 69. CIA/RR 7, The Electron Tube Industry in the Soviet Bloc, 29 Aug 1952, p. 33. S. Eval. RR-2.
70. [REDACTED]
71. CIA FDD, Law on the Polish Six-Year Plan, op. cit.
- 25X1X7 72. Ibid.
73. [REDACTED]
- 25X1A2g 74. [REDACTED]
75. National Committee for Free Europe, Poland in the Year 1951, Part II, p. 216. U.
- 25X1X7 [REDACTED]
76. CIA FDD, Law on the Polish Six-Year Plan, op. cit.
77. CIA ORR Project 35.241 (draft), The Shipbuilding Industry in Poland, 1 Jun 1954. S, US OFFICIALS ONLY.
- 25X1A6a [REDACTED]
- 25X1A2g 78. [REDACTED]
79. CIA ORR Project 35.241 (draft), op. cit.
80. [REDACTED]
81. [REDACTED]
- 25X1A2g 82. [REDACTED]
83. CIA ORR Project 31.211, Production of Small Arms, Mortars, and Artillery in the European Satellites, May 1954. S, US OFFICIALS ONLY.
- 25X1A2g 84. [REDACTED]
- 25X1A2g 85. CIA ORR Project 31.211, op. cit., p. 21.
86. [REDACTED]
- 25X1A6a 87. [REDACTED]
- 25X1A2g 88. [REDACTED]
89. Ibid.
90. CIA 00, Dec 1953. C, US OFFICIALS ONLY. Eval. RR B-3.
- 25X1X7 91. [REDACTED]
- CIA ORR Project 33.224, Analysis of the Aircraft Industry of the European Satellites. Unpublished.
- 25X1X7 92. [REDACTED]
93. Ibid.
- 25X1A2g 94. [REDACTED]
95. State, Preliminary Draft to Section 64, NIS Poland, Figure 64-B-8, op. cit. S.

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25X1X7

96. [REDACTED]  
97. Ibid., pp. 3-12.  
98. Ibid., p. 3-11.  
99. State, Preliminary Draft to Section 64, NIS Poland, Figure 64-B-8, op. cit.

25X1X7

100. [REDACTED]  
101. State, Preliminary Draft to Section 64, NIS Poland, Figure 64-B-8, op. cit.

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25X1A2g

102. [REDACTED]  
Pravda, 29 Jul 1951. U.  
103. [REDACTED]  
104. State, Preliminary Draft to Section 64, NIS Poland, Figure 64-B-5, op. cit.

FOIA b3 b7

25X1X7

105. [REDACTED]  
106. [REDACTED]

107. Ibid.  
108. State, Preliminary Draft to Section 64, NIS Poland, Figure 64-B-8, op. cit.  
109. Echo Poznanskie, 5 Sep 1953.  
110. CIA ORR Project 32.221, op. cit.  
111. CIA/RR 27, op. cit.

112. 25X1A2g

113. [REDACTED]  
114. [REDACTED]

115. CIA/RR 27, op. cit.

116. Ibid.

25X1A2g

117. Strategic Intelligence Digest, Poland, Chapter 4, p. 139, op. cit.

118. [REDACTED]

25X1A2g

119. Ibid.

120. [REDACTED]

121. CIA/RR 9, 12 Sep 1952, op. cit.

122. Ibid.

123. Ibid.

25X1A2g

124. CIA/RR 7, 29 Aug 1952, op. cit.

125. State, Preliminary Draft to Section 64, NIS Poland, Figure 64-B-6, op. cit.

25X1A2g

126. [REDACTED]  
127. [REDACTED]

S-E-C-R-E-T

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~~S-E-C-R-E-T~~

- 128. State, Preliminary Draft to NIS, Poland, Figure 64-B-3, op. cit.
- 25X1X7 129. [REDACTED]
- 130. [REDACTED]
- 25X1A2g 131. State, Preliminary Draft to NIS, Poland 64, op. cit.
- 132. Ibid.
- 133. [REDACTED]
- 134. [REDACTED]
- FOIAb3b1 135. [REDACTED]
- 136. [REDACTED]
- 25X1A2g 137. [REDACTED]
- 138. CIA IR Consolidation No. 8015507. S.
- 25X1A2g 139. [REDACTED]
- [REDACTED] CIA IR Consolidation No. 9104322. S, US OFFICIALS ONLY.  
Eval. RR B-3.
- 25X1A2g 140. [REDACTED]
- 141. CIA IR Consolidation No. 8016808. S, US OFFICIALS ONLY.
- 142. CIA IR Consolidation No. 8051983. S, US OFFICIALS ONLY.
- 143. CIA IR Consolidation No. 9093698. S, US OFFICIALS ONLY.
- 144. CIA IR Consolidation No. 9070554. S, US OFFICIALS ONLY.
- 145. CIA IR Consolidation No. 9070554. S, US OFFICIALS ONLY.
- 146. CIA IR Consolidation No. 8015584. S, US OFFICIALS ONLY.
- 147. CIA IR Consolidation No. 8016795. S, US OFFICIALS ONLY.

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