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CIA/RR Project 6-51: Contribution to NIE-33

THE EUROPEAN SATELLITE POWER COMPLEX

PART I
INDIVIDUAL SATELLITE COUNTRIES:
ECONOMIC STRENGTHS AND WEAKNESSES

EAST GERMANY

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CIA/RR
Project 6-51

THE EUROPEAN SATELLITE POWER COMPLEX
(Contribution to NIE-33)

PART I
INDIVIDUAL SATELLITE COUNTRIES: ECONOMIC STRENGTHS AND WEAKNESSES

EAST GERMANY

Summary and Conclusions.

Economic planning in East Germany* is carried on much as it is in the USSR. Plans are centrally formulated and approved in their final form by officials of the Soviet Union. Supervision of plan fulfillment and increasingly centralized administrative control are executed by Party (SED)** organizations and functionaries. Private enterprise is diminishing, nationalized and Soviet-expropriated plants together accounting for approximately two-thirds of industrial output. Measures preliminary to the collectivization of agriculture have been taken. Controls are sufficiently comprehensive to prevent major deviations from pursuit of the goals of the current Five Year Plan (1951-55), which, however, seem to be too high to be achieved in their entirety.

The plan to increase employment from 7.9 million in 1951 to 8.4 million in 1955 may well fall short of fulfillment, particularly if the annual rate of defections to the West continues at one-quarter of a million and if shortages of materials, which prevent full employment, are not alleviated. Furthermore, lack of technical and skilled personnel are restricting increases in worker productivity.

Living standards in East Germany are estimated to be at about two-thirds of the 1936 level but are expected to rise slightly in 1951. Foodstuffs remain rationed, and the prices of nonrationed goods are exorbitant. Efforts are being made to alleviate housing shortages.

East German foreign trade is characterized by imports of raw materials and exports of finished goods, although some commodities, such as uranium ores and concentrates, provide exceptions to this pattern. Trade with the Bloc comprises about three-fourths of total trade. In 1950 the USSR took about 44 percent of East German exports and supplied about 33 percent of

* East Germany, the Soviet-sponsored government of which is called the Deutsche Demokratische Republik--the German Democratic Republic (GDR)--, includes the Soviet Zone of Germany and the Soviet Sector of Berlin.
** Sozialistische Einheitspartei Deutschlands (Socialist Unity Party).

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imports. The composition of exports to the USSR is not expected to change extensively by 1952 but probably will be altered when heavy industrial plants reach the production levels scheduled for 1954-55. Trade with the Satellites is increasing, both absolutely and relatively, as East Germany provides much of the industrial equipment and materials required in Satellite development programs. A decline in the export surplus in Soviet trade and a rise in the import surplus in Satellite trade between 1949 and 1950 suggest that direct Bloc exploitation of the East German economy passed its peak in 1948.

Official trade with West Germany was 16 percent of total trade in 1950 and was valued at $75 million, while clandestine interzonal trade is estimated to be as high as from $250 million to $300 million a year. This trade enables East Germany to obtain industrial requirements essential to the fulfillment of production quotas.

Uncompensated deliveries of materials and equipment to the USSR have averaged more than $2 billion a year, or about an estimated 50 to 65 percent of industrial production and 30 percent of East Germany's national product. Electrical, railroad, mining, metallurgical, metalworking, and marine equipment, as well as ships, are the chief items delivered under the reparations program. These deliveries have aggravated East Germany's economic difficulties by contributing to shortages of materials and of foreign exchange needed to obtain Western industrial equipment, but planned increases in industrial capacity indicate that East Germany probably will continue to make reparations shipments at the rate of from $1.7 billion to $2 billion a year through 1952.

East Germany has regained self-sufficiency in grain production, it again exports sugar, and meat production is expected to reach prewar levels by 1953. East Germany also receives considerable quantities of grain and meat from other Bloc countries. These imports and a low level of domestic consumption have allowed the building of stockpiles estimated at 1 million metric tons of grain and 45,000 metric tons of canned meats. East Germany produces no cotton, which has been imported in increasing amounts from the USSR, and little wool, which also is obtained from foreign sources. Although the loss of plants and technicians to the USSR temporarily retarded the postwar development of the synthetic fiber industry, its rehabilitation is being accelerated to offset the shortage of natural fibers.

Industrialization is further advanced in East Germany than in any of the other Satellites, but industry is heavily dependent on the rest of the Bloc and West Germany for raw materials. The iron and steel industry, which provides approximately half of domestic requirements, depends on imports for all necessary raw materials except silicon and fluxing agents. Output of nonferrous metals is far short of requirements. Copper production meets only two-thirds of domestic needs. No primary zinc is produced, and nearly one-third of the lead required must be imported. East Germany is the world's largest producer of brown coal, of which reserves are extensive, but has experienced great difficulty in expanding production to the levels

required by the growing demands of the economy. The deficiency in output and reserves of bituminous coal also constitutes a fundamental weakness of the economy.

There are no known deposits of crude oil in East Germany. East Germany is dependent on its well-developed synthetic liquid fuels industry (the largest in the world) and on several small refineries which refine crude imported from Austria. In addition to meeting nearly all domestic requirements for petroleum products, the synthetic fuels industry in 1950 supplied 50,000 metric tons to the Soviet occupation forces and 300,000 tons to the rest of the Bloc. Large-scale stockpiling has taken place, and special attention is now given to the manufacture of such products as aviation gasoline, iso-octane, and jet fuel.

The large output of electric power in East Germany, which reached 18.5 billion kilowatt-hours in 1950, contributes significantly to the economic potential of the Soviet Bloc, particularly by supporting the chemical and synthetic fuel industries, which export to the USSR. Power output, however, is not sufficient to meet all requirements and is a limiting factor in the expansion of the economy. The expansion of production planned for 1952 is not likely to be achieved.

The chemical industry produces for the Bloc many strategic items requiring sulphuric acid or sulphur dioxide in their manufacture, such as explosives, rayon, and rubber goods. The current critical world shortage of sulphur has retarded production of sulphuric acid. The chemical industry will be able to continue its important contribution to the USSR's war potential only if it can import sufficient quantities of pyrites from the West or if Albanian, Bulgarian, and Rumanian pyrites are diverted from other Bloc consumers to East Germany. Output of an important group of products, including rayon, cellulose, soap, dyestuffs, and heavy chemicals, is vulnerable to Western withholding of caustic soda.

East Germany's synthetic rubber industry, the only large-scale Satellite producer, is an important element in the area's contribution to the Soviet economic-military potential. Most of the chemical products essential to this product are available domestically, although some carbon black is obtained from Poland and through clandestine trade with the West. Diversion to the USSR and the rest of the Bloc of more than half of the annual synthetic rubber output has resulted in domestic shortages of rubber goods, but the industry can be expanded considerably.

Although the Soviet Union dismantled 72 percent of the East German engineering industry after the war, by 1950 this industry had been rebuilt to the point where it contributed 25 percent of the total value of industrial production. The USSR receives about 45 percent of the annual value of engineering production from reparations deliveries and from the output of Soviet-owned plants, which control 30 percent of the industry's capacity.

In addition, ordinary commercial shipments of engineering products go to the Soviet Union. Apparently there is little or no manufacture of complete weapons, but components of Soviet weapons are believed to be produced in substantial quantities and sent to the USSR for assembly. Among these components are parts for small arms, tanks, railroad guns, submarines, and aircraft. In addition, ammunition, explosives, machinery for munitions manufacture, and small ships are produced.

East Germany's output of uranium ores and concentrates, all of which is exported to the USSR, represents 45 percent of the total uranium available to the Soviet Bloc.

The volume of Soviet traffic with East Germany is greater than with any other Satellite, and the East German transportation systems, principally railroads and, to a lesser extent, waterways and highways, make an important contribution to the USSR's economic potential for war. East Germany has no ocean-going fleet, but a great volume of shipments is made through its Baltic ports. The highway system, while important to the domestic economy, makes little direct contribution to the Soviet potential. East Germany has no organized commercial air transport service, and its 51 airfields are controlled by the Soviet Air Force. A few of these fields have runways capable of accommodating heavy bombers and jet fighters.

The emphasis on industrial development that is common to all Satellite economic plans is apparent in the Five Year Plan (1951-55) for East Germany, under which the average annual investment in industry is to be DM 3.6 billion, an increase of 38 percent over industrial investment in 1936. The planned level of investment is more significant in view of the fact that East Germany already is highly industrialized. Agricultural development has a much lower priority that does industry in economic planning, although its production is scheduled to increase. Living standards have risen since the war, but civilian consumption is still below the 1936 level, and the production of consumer goods has a relatively low priority.

Heavy industry in East Germany is directly vulnerable to Western economic warfare because of its reliance on West Germany for component parts, particular types of specialized machine tools, basic steel products, and high-grade alloys. The chemical industries are still highly dependent on Western sources for caustics, sulphur, and pyrites, although it is possible that East Germany would be self-sufficient in sulphur and pyrites if it were relieved of reparations shipments to the USSR. Inability to obtain essential imports of caustic soda, which come largely from Sweden and the Netherlands, would affect industries producing such commodities as rayon and cellulose, soap, dyestuffs, and intermediates.

Planned expansion of industrial production is vulnerable to measures affecting the supply of electric power, coal, and manpower. Without imports of parts and new equipment from Western countries, it will be difficult for

East Germany to increase electric power production or operating capacity. The difficulties encountered in attempting to increase coal output also restrict the growth of power production, which is heavily dependent on coal. No sector of the economy has more than a 2 weeks' supply of coal on hand, and efforts to increase production through the output of new mining machinery and through more efficient use of labor are not promising. There are two vulnerabilities in the manpower situation: (1) discontent and unrest resulting from unemployment, which can be intensified by Western economic warfare measures designed to perpetuate shortages of equipment and materials now existing, and (2) continued and possibly increased defections to the West, particularly of technical and skilled personnel. Defections in late 1950 were occurring at a rate of 250,000 a year.

In 1950 a major effort was made to reduce non-Bloc trade to a minimum. Consequently, the scope for further adjustment to the effects of economic warfare along this line is limited. Some steps could be taken, of course, such as the diversion to East Germany of Polish coal now sent to Western Europe. The most important adjustment possible would be a reduction of uncompensated takings by the USSR. In addition, limited transfers of resources from consumer goods industries to heavy industry could be made. Except for items imported from West Germany, the use of substitutes cannot be developed much further, since the entire industrial development of Germany in the 1930's and during the war was directed toward self-sufficiency.

Although basic emphasis in the Five Year Plan is upon expansion of industries capable of contributing to armaments production, there are few indications of immediate preparations for war. There is no evidence of a mobilization of manpower or transport facilities on a wartime basis or of a dispersal of industries. On the other hand, a few indications do point toward a preparation for war, such as the accumulation of food stockpiles, which are scheduled to be expanded. The petroleum stockpile has virtually filled the available storage space of approximately 1 million metric tons, and a stockpile of rubber also is being accumulated. The production of war materiel is increasing. Although no completed weapons are believed to be produced, components for a variety of weapons and military equipment are made.*

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* For a recapitulation of limitations, deficiencies, and requirements of economic intelligence with respect to East Germany, see Appendix A, p. 180. Footnote references in the text that follows are numbered consecutively in arabic numerals for each major subdivision. The footnotes themselves, together with references to other source material, are given in Appendix B, p. 188. Explanatory footnotes, indicated by asterisks (or, in tables, by lower-case letters), are given on the page in the text where the reference occurs.

I. Trends in the Structure of the Economy.

Summary

Economic planning in East Germany closely follows the pattern established in the USSR. Plans are centrally formulated and are approved in their final form by officials of the Soviet Union. The supervision of plan fulfillment is handled largely by Party organizations and functionaries.

Administrative control has been increasingly centralized and is also in the hands of the Party. Industrial control is exerted chiefly through the administration of nationalized plants. New state-controlled farm cooperatives and Machine Lending Stations have been instrumental in centralizing agricultural administration. Certain service functions retain a large proportion of private ownership, but the activities of private enterprises are limited and are controlled through a governmental monopoly of raw material channels.

The combined production of nationalized and Soviet-owned plants accounts for some two-thirds of manufacturing output. Collectivization of agriculture has not yet been initiated, but control measures already taken seem to be preliminary steps in that direction.

Although the economic plans of East Germany seem to be too ambitious to achieve in their entirety, the controls exerted by the government, the Party, and the Soviet occupying forces are sufficiently comprehensive to prevent major deviations from official economic programs.

"Independent" political parties and trade unions are controlled by the government and serve to supplement official economic controls.

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1. Control of the Economy by the Government (including Direct Control by the USSR).

a. Economic Planning.

The end of the war in 1945 marked a complete change in the economic life of East Germany to a new form of economic organization. The postwar period is characterized by three broad phases. The first period, from 1945 to mid-1948, was one of roughshod Soviet exploitation of the entire area in a major dismantling program coupled with a severe reparations policy. In mid-1948 the second phase began with a Two Year Plan (1949-50) designed to regenerate the economy and to regain the 1936 level of production. During this phase the actual beginnings of sovietization occurred. The best available estimates indicate that a level of 85 percent of 1936 production was actually achieved in 1950, although this volume measure does not take into consideration a marked decline in product quality. 1/

The third phase opened with the announcement in July 1950 of an ambitious Five Year Plan (1951-55). The final goal, complete integration of the economy of East Germany with that of the USSR and the other Satellite countries, became apparent at that time. Implicit in the Plan's objectives are the following aims: economic independence of East Germany from West German supplies of basic materials, to be achieved by the end of 1952 2/; great expansion of those industries equipped to contribute materially to the direct and indirect production of armaments or capable of easy conversion to armament production; transformation of East Germany from a primarily agrarian region to a highly industrialized area; and a constantly decreasing role for private enterprise in both industry and agriculture. Total success of the program appears doubtful in view of chronic material shortages, the lack of skilled workers and engineers, and the inefficiency of the planners. It is likely, however, that certain key objectives will be reached, although only at the expense of the population's living standard. 3/

(1) Preparation of Plans.

Planning in East Germany in the period 1945-51 passed from absolute control by the Soviet Military Administration (SMA) to direction by the Main Administration for Planning in the German Economic Commission (DWK). Some measure of control was finally delegated to the Ministry of Planning, which was created along with the provisional government of the German Democratic Republic (GDR) in November 1949. 4/ Until 1949, Soviet control was constantly exercised on all levels, not only through requirements that all programs be submitted to SMA for approval, but also through participation of SMA personnel in the planning process.

With the "election" of 15 October 1950 and the installation of the present administration, the government proceeded further in the sovietization of the East German economy. Emulating the Soviet Gosplan technique, the Ministry of Planning was raised in status and renamed the State Planning Commission. At the same time the Minister of Planning, Heinrich Rau, was raised to the rank of Deputy Minister President, denoting the increasing importance accorded the planning function. 5/

The State Planning Commission is similar in construction to the old Ministry of Planning. 6/ It is believed, though this report is unconfirmed, that the Commission retained the Ministry of Planning's administrative breakdown of a Secretariat; staff offices for General Administration and for Political Education; and three Main Divisions for Central Planning, composed of Central Statistics, Science, and Technology. 7/ The most striking evidence of a trend toward the Soviet system of operation, however, may be noted in the replacement of the Ministry of Industry with three new ministries, Heavy Industry, Light Industry, and Machine Construction, all of which have been subordinated to the State Planning Commission. Four independent State Secretariats, for the Purchase of Agricultural Produce, for the Fruit Processing Industry, for the Coordination of Finance, and for Vocational Training, have

also been placed under control of the Commission. These powers provide the planning group with virtually complete control of all vital phases of the economy.

In addition to its economic planning function, the Commission exercises control over the distribution of a wide range of raw materials and finished goods through its State Secretariat for Procurement and its Main Department for the Circulation of Goods. 8/

On the basis of currently available information, it is impossible to describe the planning process in detail. Fragmentary reports mention a "Center for Industrial Requirements of the Soviet Zone," located at Rostock. It is reportedly the duty of this "Center" to equip all shipyards, heavy industries, and mines and to draw up fully implemented plans necessary for the execution of this assignment. 9/ The "Center" is directly responsible to the Ministry of Heavy Industry. From these reports, it is logical to assume that other ministries concerned with production have similar centers. This assumption, however, cannot be confirmed.

(2) Plan Control.

While plan control is exercised primarily by the USSR and the GDR, it is important to note the economic control functions of the Socialist Unity Party (SED). The virtual identity of state and Party has permitted the SED to place its functionaries on every level of production. For example, the village cooperative, which is the basic agricultural control instrument, is effectively dominated by SED members. 10/ The method of introduction of the Five Year Plan illustrates the power of the SED. Details of the Plan were drawn up and completed by the Ministry of Planning by 12 April 1950, and the first official copy was personally taken to Moscow by President Wilhelm Pieck for discussion and approval. 11/ It was only after Soviet approval had been obtained that the Plan was publicly presented, not by the government, but by the SED at its national conclave held in Berlin from 20 to 24 July 1950. 12/

Government control is overtly exercised by means of the State Control Commission, whose director was accorded full cabinet rank in the governmental reorganization of November 1950. 13/ Normal channels of government control are reinforced and supplemented by special informers on central as well as local levels. A permanent State Control Commission, appointed by the Laender governments at the recommendation of the central authorities, functions in each Land. These commissions are independent of regular administrative channels and keep a constant check on the execution of central policy in the field. 14/

Overt Soviet interference appears to be decreasing in direct proportion to the increasing effectiveness and trustworthiness of the USSR's German agents. A number of Soviet personnel who were returned to the USSR

in early 1951 have not been replaced. 15/ The Soviet armed forces retain the power of direct interference, however, as was indicated by a recent order from the Soviet Control Commission directing the Lowa plant in Goerlitz to manufacture hospital cars instead of Pullman cars. For every 10 cars, according to this directive, 1 containing modern surgical equipment and facilities must be built. 16/

b. Administrative Control.

The control powers held by the government, the SED, and the Soviet Union are sufficiently comprehensive to prevent major deviations from official economic programs.

(1) Industry.

Except on the highest levels of the planning organization, the instruments of plan preparation are also the instruments of control. In the case of industry, the various ministries concerned with Plan objectives (Light Industry, Heavy Industry, and Machine Construction) are responsible not only for the drafting of preliminary programs, including potential yields, but also for performance. The State Planning Commission, acting as a coordinating unit, does not have a primary interest in production control.

As part of a marked tendency toward the centralization of control in recent months, the intermediate control functions of the Kreise and the Laender have been taken over by local representatives of national ministries who have direct channels of communication to the central government. In addition, a decree issued by the GDR government, dated 22 December 1950, provides for sweeping organizational changes in the government-owned firms (VVB's). This decree provides for the completion of the following program by 1 April 1951 17/: (a) dissolution of all Land-administered associations of government-owned firms (VVB-L's); (b) placement of large, strategic factories under the direct administration of the appropriate technical ministry in Berlin; (c) placement of certain small, closely coordinated firms under the supervision and administration of larger firms; (d) regrouping of the middle-sized firms into new regional VVB's which will differ considerably from the existing ones; (e) organization into local communal enterprises of certain small firms belonging to the liquidated VVB-L's; and (f) transfer of heavy machines from village cooperatives to nationalized factories.

(2) Agriculture.

The control of agriculture, like the control of industry, is exercised by the SED. Overlapping directorates and SED informers insure that the basic agricultural policy of gradual but continuing collectivization is implemented down to the village level. 18/ The primary policy instruments are the Farmers' Mutual Aid Society (VdgB) and the Machine Lending Stations (MAS). The former is a farm cooperative, allegedly designed to represent

the interests of small farmers, while the latter institution's avowed purpose is to rent tractors, reapers, threshers, and other agricultural machinery on a daily basis. Political indoctrination of the peasants is a supplementary function of both organizations.

State farms, established on the large estates expropriated at the end of World War II and retained by the state, have been divided between two administrations, the German Seed Growing Society (DSG) and the State Domains. The DSG's purpose is seed growing and control of seed distribution for political purposes, while the State Domains serve as experimental stations, model farms, and centers for political education. Specific information on their operations is not available, but it is known that the State Domains are plagued by the loss of able administrators who have been replaced by "political reliables."

Farm cooperatives are not new to Germany. Over an extended period the Raiffeisen peasant groups built up cooperative organizations to fill their joint needs for farm machinery, fertilizer, and seeds and to establish a mutual exchange of agricultural information. The Raiffeisen were financially sound societies with prosperous members and hence were marked for liquidation by the government. Their members were naturally reluctant to join forces with the state-sponsored VdgB, and finally, on 20 November 1950, it became necessary to integrate the two groups by governmental decree. 19/ Funds and facilities of the Raiffeisen were taken over without compensation for the share losses involved. By the end of March 1951 the absorption of the Raiffeisen by the VdgB organization was completed in all Laender except Land Brandenburg, where the action had been effected in but 50 percent of the communities. 20/

Responsibility for the VdgB has been turned over by the Soviet Control Commission (SCC) to the SED, and direct contact between the VdgB and the SCC is becoming increasingly rare. Within the VdgB, power is centralized in the Berlin headquarters, consisting of a Zonal Executive and a smaller Central Secretariat with subordinate administrative sections. The Secretariat, the real policy-making body, is headed by Kurt Vieweg, who is also a member of the SED Central Committee and Secretariat. 21/

In practice, the Village Economic Plans are usually prepared by local SED functionaries who also, in conjunction with the VdgB, the MAS, and such other Communist organizations as the Free German Youth (FDJ), control their execution. The Plans not only regulate production but facilitate gradual collectivization by setting high and disproportionate delivery quotas for large farms; by imposing high, selective taxes; and by establishing high rates for farm labor and other discriminatory practices in favor of small "new farmers" on state-granted lands.

While it appears that agricultural control in East Germany is generally effective, one serious shortcoming should be noted. A lack of cooperation between the administrations of the Farmers' Mutual Aid Society

(VdgB) and the Machine Lending Stations (MAS) has militated against the fulfillment of production goals 22/; has created shortages of agricultural machinery, spare parts, seeds, fertilizers, and brood livestock; and has reduced morale among the peasants, who foresee slight if any rewards for their best efforts.

(5) Economic Services (Transportation, Communications, etc.).

Railroads and communications were nationalized in East Germany before the advent of Soviet control and the GDR. Since 1945, however, governmental control has constantly narrowed the scope of independent enterprise in the fields of commerce and distribution. Private business per se is not prohibited, and independent artisans and repair shops of all kinds still exist but only at the sufferance of the government and under strict regulation. The activities of this private sector of the economy are kept in check through such devices as discriminatory taxation, retroactive taxes, and the selective allocation of new materials. 23/ In addition, "popular" pressure is sometimes exerted through the trade unions, which continue to perform their original function of protecting the workers against the private employers.

(4) Finance.

Local and state governments have been effectively weakened by a centralized budgetary control system which has stripped them of all financial independence. 24/ According to a German source, all treasury transactions of the state budget have been turned over to the Deutsche Notenbank, the central bank of the GDR. The Notenbank is in the process of establishing a central bookkeeping account for each district. All cash on hand, except for a petty cash balance of 50 Deutsche Mark (East), shall be turned over weekly to the Notenbank by the 20 municipal districts and 119 rural districts of the GDR. Wage payments owed by the districts will then be paid by the Notenbank directly to the wage earners' accounts at the district savings banks. These salary accounts, numbering about 1,200,000, will be maintained in the district banks to relieve the work load of the Notenbank, which will then be able to administer the treasuries of all communities. Moreover, the municipal banks will not accept cash transactions in excess of 10 Deutsche Mark (East). When paying taxes, fines, fees, etc., which exceed this amount, the individual is required to pay to the district's central bookkeeping account at the Notenbank.

2. Factors Relating to the Effectiveness of Control.

a. Proportion of the Economy under Direct Government Control.

(1) Extent of Nationalization of Industry and Services.

The private sector of the East German economy is diminishing. Although private enterprise is still predominant in parts of the distribution

apparatus, it is highly regulated and retains only auxiliary functions, serving in many instances as subcontractor to state-owned firms. 25/

While it is difficult to obtain up-to-date statistics on the progress of nationalization, the pattern of this program is quite evident. In February 1950 a usually reliable East German source stated that nationalized plants, while representing only about 8 percent of all East German plants, accounted for about 50 percent of industrial output. Since the production of the 120 Sowjetische Aktiengesellschaft (SAG) plants, which formerly belonged to Nazis or "war criminals" but were expropriated and placed under Soviet ownership, was estimated at from 25 to 27 percent of total output, the share of privately owned industry was only from 23 to 25 percent. 26/ A US Army estimate of East German production in the first half of 1950 indicated that nationalized industries accounted for 65 percent of the total. 27/ Contributing to the difficulty of accurate reporting on the SAG plants is the Soviet practice of amalgamating these firms into large combines, now numbering 20, and returning the smaller, uneconomical businesses to the Germans. 28/

The further socialization of industry through a gradual attrition of private factories is an avowed goal of the Five Year Plan (1951-55). By the end of 1951, state-owned factories, including SAG plants ordinarily considered to be outside of the East German economy for planning purposes, are expected to account for 76.7 percent of total production. 29/

(2) Extent of Collectivization of Agriculture.

The government has not yet announced its intention of collectivizing agriculture, although the measures employed to control agriculture can only be regarded as preliminary steps toward that end. Reports circulated early in 1950 that the first model collective farm would go into operation during that year, but this action has not yet been confirmed.

By arbitrary and discriminatory tax legislation, high and disproportionate crop delivery quotas, and the introduction of the Machine Lending Stations and village cooperatives, the government is preparing the way for gradual acceptance of collectivization. Nevertheless, it is believed that the government will continue to use restraint in its overt methods because of the adverse effect which they would have on both East and West Germans.

b. Nongovernmental Organizations as Instruments of Economic Control.

The Socialist Unity Party (SED) is without question the most powerful "German" force in East Germany. Effective identity of state and Party has been established along Soviet lines, even though the fiction of Western-style democracy is maintained in some measure through tolerance of other parties. These parties, some of them eastern branches of West German political groups, possess no independence of action and retain no traces of their former platforms but serve only to echo SED policies.

Trade unions in East Germany have no status comparable to that enjoyed by US labor groups. Free, collective bargaining is unknown, and the "Free German Trade Union Federation" (Freier Deutscher Gewerkschaftsbund, FDGB) is completely dominated by members of the SED, who have gained control of all important positions. The FDGB engages almost wholly in propaganda and enlightenment activities, the regimentation of labor, and the implementation of measures to increase production. 30/ The FDGB, bound by the organizational principle of "democratic centralism," places the interests of the state and Party above those of the working classes. 31/ Successful completion of the various economic plans is the overriding concern in all policy decisions.

II. Capacity of Human Resources for Economic Development.

Summary

The employment goals of East Germany's Five Year Plan (1951-55) well may prove incapable of fulfillment. The number of persons employed is scheduled to increase from 7.9 million in 1951 to 8.4 million in 1955 by the net natural increment to the working age population, the absorption of the remaining unemployed, and the induction into industry of increased numbers of women. If, however, the number of defections to the West continues at the 1950 rate of a quarter of a million a year, these losses would more than offset the natural increment to the working age population of 200,000 a year.

Unemployment is reported to be increasing as a result of material shortages, and unless planned supplies of equipment and materials are obtained, employment plans probably cannot be met. Difficulties also have been encountered in expanding training facilities and in increasing female employment. Mobilization withdrawals from the proportionately small number of working age males would necessitate reductions in Plan goals.

1. Size and Distribution of the Labor Force.

The population of East Germany increased by over 2 million from 1939 to 1946 and did not change appreciably from 1946 to 1951. 1/ In the early postwar years the repatriation of a large number of people of German stock more than counterbalanced the heavy war losses, defections to the Western Zones, and deportations to the USSR. Defections and a high death rate reduced the population in 1948-51, and in 1950 alone this loss totalled about a quarter of a million persons.

These various changes have had an unfavorable effect on the age-sex structure of the population and consequently on the labor force. In addition, German losses during World War II were largely among working age males, who also compose a large proportion of the refugees to the West. The low birth rates which have prevailed since 1940 mean that progressively smaller numbers will enter the labor force after 1955. These difficulties are compounded further by the expected increase of the rate at which older workers must be replaced. In 1949, workers over 40 years of age constituted 46 percent of total workers in nationalized iron and steel works, 51 percent of those in foundries, and 61 percent of those in the coal industry. 2/ The achievement of Plan goals will depend to a large extent on the recruitment of women into industry as older workers retire. This factor will assume greater importance as the number of those attaining working age annually becomes smaller after the absorption of the "Nazi baby" group in about 1954.

Employment in January 1951 was reported to be 7,945,000 persons, excluding the self-employed, independent farmers, and Berlin workers. About 49 percent of the reported labor force was employed in industry; 24 percent in agriculture; 22 percent in commerce, other services, and public employment; and 5 percent in transportation. The Five Year Plan (1951-55) envisages an increase of 990,000 persons in total employment, and an even greater increase in employment in heavy industry. This gain is to come from the net natural increment to the working age population, increased employment of women, and absorption of the unemployed. One-third of the total increase is to be achieved in 1951, 3/ and the planned increase from 1951 to 1953 is nearly 500,000 workers. 4/ In 1953 the distribution of the labor force is to be as follows: industry, 51 percent; agriculture, 23 percent; commerce, other services, and public employment, 21 percent; and transportation, 5 percent.

Total employment, excluding about 1 million self-employed persons and independent farmers and about 600,000 Berlin workers, is estimated as follows:

Estimated Civilian Employment
1949-53

Thousands

Sector	1949	January 1950	January 1951	January 1952	January 1953
Agriculture	1,890 5/	1,890 b/	1,890 b/	1,850 b/	1,850 b/
Industry, Construction, and Handicrafts	3,404 6/	3,640 7/	3,900 8/	4,225 9/	4,313 c/
Transport	395 10/	435 d/	443 11/	448 b/	453 b/
Commerce, Services, Public Employment, etc.	1,904 b/	1,730 b/	1,712 b/	1,752 b/	1,799 b/
Total	7,593 12/	7,695 13/	7,945 14/	8,275 15/	8,415 b/

a/ First half.
b/ Estimated.
c/ Interpolated between 1952 and final Plan goal.
d/ Interpolated between 1949 and 1951.

The Soviet Sector of Berlin was specifically excluded from the 1949 employment totals and apparently is excluded from the Five Year Plan figures. Employment in the Soviet Sector of Berlin has been fluctuating around 600,000 and

probably will continue to do so. 16/ The number of West Berlin residents employed in the Soviet Sector has been greatly reduced.

An actual decline in employment took place in East Germany after 1946, and a peak unemployment of about 725,000, of whom over 300,000 were not seeking work, was reached in 1949. 17/ In December 1950, 51,000 persons were receiving unemployment compensation, and an additional 343,000 were receiving welfare benefits because they were previously employed but were not eligible for compensation. 18/

With an estimated 390,000 persons leaving school in 1951, of whom 265,000 were to become apprentices, there would appear to be a sufficient number of workers to meet the 1951 employment goal. 19/ Material difficulties and limitations on the economy's capacity to absorb the increased employment will make achievement of the goal less certain. In June 1951, unemployment was reported to be increasing as a result of material shortages. 20/

2. Level of Technical Training, Skill, and Efficiency.

In 1946 there were nearly 100,000 engineers and technically trained personnel in East Germany. This number has since been reduced by defections but increased by the addition of newly trained personnel. 21/ It is rumored that attempts have been made to recruit engineers from West Germany. A shortage of skilled workers is to be met by the training of persons having lower qualifications than were formerly required. By 1955, 122,000 engi and technicians and 964,200 apprentices in trade schools are to be trained. 22/ Of these, the following numbers are to be trained for industry, construction, and transportation:

Goals of Training Programs in Selected Sectors
1955

Sector	Apprentices	Engineers and Technicians
Industry	572,000	33,500
Construction	92,300	10,000
Transportation	59,900	10,000

Productivity was said to have regained prewar levels by the end of 1949 in light industry, 23/ but not in heavy industry. By the end of 1950, 1939 levels were to be achieved throughout the economy. 24/ In 1951, productivity is to rise by 14.7 percent and is to be 60 percent above 1950 levels by the end of 1955. Material supply conditions and shortcomings in training programs, however, may restrict productivity gains.

3. Expansibility and Adaptability of the Labor Force.

The additional labor input derivable from the present labor force is limited by conditions of equipment and material supply. The removal of these obstacles would permit increased production per worker through the adoption of overtime and through increases in productivity.

The Five Year Plan is predicated on an increase in the working age population of 400,000 persons by 1953. Such an increase would occur if there were no migration. If, however, flight to Western Germany continues at the 1950 rate of 250,000 refugees a year, the expected increase would be replaced by a decrease. Under these circumstances the expansion of the economy would depend on the resources of a population severely depleted in the working ages and overbalanced with women, and mobilization requirements would even more stringently curtail labor's contribution to the Five Year Plan.

III. Living and Working Conditions.

Summary

The social structure of East Germany has changed significantly since the end of World War II. The former upper class has practically disappeared, and members of the former lower class have risen to leading positions in the professions, government, and industry.

Per capita consumption in 1950 is estimated at about two-thirds of 1936 consumption (expressed in stable purchasing power). Estimates for 1951 indicate that per capita consumption will reach 71 percent of the 1936 level. With the exception of bread and potatoes, most foodstuffs and important consumer goods remain severely rationed. It is unlikely that the prewar qualitative composition of the diet will be regained before 1955. In 1950, leather shoes were available at the rate of about 40 percent of 1936 levels. Additional quantities of rationed goods are available in the Handels-Organisationen (HO stores), where purchases may be made without ration coupons, at several times the rationed price level.

General working conditions are regulated by the Labor Law of April 1950. Control over labor is exercised by the various ministries, and trade unions are responsible for labor discipline and the fulfillment of work quotas.

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1. Changes in Social Structure.

Economic and political developments have altered the social structure to conform with the Communist plan for political domination and economic expansion. The professional and industrial entrepreneurs have been replaced by members of the lower classes considered politically reliable and by those willing to accept the Communist regime.

2. Living Conditions.

On the basis of national accounts, 1/ the total availability for private consumption per capita in 1950 was estimated at about two-thirds of the 1936 level (expressed in stable purchasing power). Soviet appropriation of goods and services without compensation and an increase in population are among the reasons for this decline. Estimates for 1951 indicate that East Germany may reach a per capita consumption of about 71 percent of the 1936 level.

Rationing of potatoes was abolished in September 1950, and bread and grain rationing was removed in January 1951. All other major foodstuffs and all important manufactured consumer goods, including clothing, footwear, and soap, remain severely rationed. Preference in food rationing is given to heavy workers, party members, and government officials. Meat and fat rations on

the average are only about 50 percent of prewar consumption levels, and not before 1955 is the diet expected to reach its prewar qualitative composition. Supplementary quantities of foods and other goods can be bought in the HO stores without ration coupons, but their prices are several times the prices of the rationed goods. In 1950 the average availability of textile materials per capita was estimated at one-third of the 1936 level, that of leather shoes at about two-fifths, and that of soap at about one-fourth. Many consumer goods will remain in short supply because of the continued emphasis on heavy industrial production.

3. Working Conditions.

The Labor Law of April 1950 is the basic law regulating working conditions in East Germany. This law delegates the authority for determining the wage structure to the Ministry of Planning, which coordinates with the Ministries of Finance and Labor in this task. The Ministry of Economics has the responsibility for drawing up wage norms within each economic sector. Production norms, on which wages are based, are determined by the Ministries of Economics and Labor and by the trade unions.

The organization of trade unions (FDGB) is completely dominated by the SED Party and is legally recognized. The main functions of the FDGB are to maintain discipline and to prod workers toward fulfillment of norms. In 1950, about 80 percent of East German labor was organized under the FDGB, which comprised 18 member unions. The Soviet Stakhanovite movement has been adopted with some modifications by the trade unions.

Because of labor scarcity, women are being drawn increasingly into all industries. Three-fourths of the increase in total employment scheduled during the Five Year Plan (1951-55) is to be achieved by the employment of women.

IV. Foreign Trade and Finance.

Summary

East Germany makes a substantial contribution to the economies of the USSR and the Satellites not only through its exports of heavy industrial machinery, precision instruments, and chemicals but also through uncompensated deliveries to the USSR. The value of these uncompensated deliveries exceeds the value of exports to the USSR. East Germany, one of the most industrialized areas in the Soviet Bloc, is heavily dependent upon imports of raw materials, and this weakness has been aggravated by the burden imposed by demands of the Bloc.

A slower rate of increase in East German exports to the Soviet Bloc, contrasted with a sharper rise in imports from the Bloc in 1950, suggests that the rate of Soviet exploitation of East Germany has passed its peak. The net Soviet gain of imports over exports to East Germany dropped from $177 million in 1949 to $57 million in 1950. The other Satellites also were forced to contribute more resources to the East German economy in 1950 than they did in 1949. Credits were extended by Czechoslovakia and Poland, and the East German deficit in Satellite trade rose from $20 million in 1949 to $72 million in 1950.

Official trade with West Germany, although amounting to less than 18 percent of total trade in 1950, is necessary to fulfillment of East German commitments to the Bloc. Far more important, however, is illegal trade between East and West Germany, which has been estimated to be as high as from $250 million to $300 million in 1950 as contrasted with legal imports of $75 million. East Germany also serves as a channel through which other members of the Bloc receive vital supplies from West Germany.

Trade with the rest of the world, although accounting for only 9 percent of total trade in 1950, is nevertheless strategically important. A substantial proportion of imports from these countries represents commodities which East Germany cannot secure from the Bloc.

The continued development of East Germany as a major source of manufactured goods for the Soviet Bloc is to be expected, unless vital imports are cut off from the West. It is probable, however, that further expansion will proceed at a slower pace than prevailed in 1950 and that increased East German exports will require a still greater increase in total imports. Moreover, as the effects of Western export controls become more restrictive, a greater proportion of total imports must be supplied by the Bloc.

Uncompensated East German deliveries will continue to contribute significantly to the Soviet economic and military potential through 1952. The total uncompensated deliveries to the USSR in the form of reparations, requisitions, financing of Soviet-owned companies, and occupation costs from 1945 to 1950 inclusive are estimated to be between 11 billion and 12 billion current US dollars, or over $2 billion a year. These operations far exceed East Germany's total commercial trade.

Soviet uncompensated takings from East Germany up to 1950 are estimated to be from about 25 to 30 percent of the area's national income and from about 60 to 65 percent of net industrial production. Reparation removals affected practically all industries of the East German economy and, together with the effects of war damage, reduced the industrial capacity to about 50 percent of the peak 1943 level. Available estimates seem to indicate that the Soviet Union has been taking between 50 and 65 percent of the total production of finished industrial and consumer goods.

Despite various industrial and financial difficulties, reparation deliveries have been substantially met by the East German economy, partly because Western export controls have not halted extra-Bloc trade. Planned increases in industrial capacity indicate that East Germany is likely to continue uncompensated deliveries to the Soviet Union or on its account at the rate of from $1.7 billion to $2 billion a year through 1952.

The following table shows value in millions of dollars of trade by principal countries and areas, ratio of trade with each country or area to total trade, and percentage change of trade with each country or area.

East German Imports, Exports, and Total Trade
1948-50

Million Dollars

Source or Destination	1948 1/ Value	1949 2/ Value	1949 Percentage of Total Trade	1949 Percentage Change from 1948	1950 a/ Value	1950 Percentage of Total Trade	1950 Percentage Change from 1949
Imports							
USSR	51	91	31.5	+78.4	156	33.3	+ 72.5
Satellites	40	79	27.3	+97.5	200	42.6	+158.2
West Germany	72	74	25.6	+ 2.8	75	16.0	+ 1.4
Other	28	45	15.6	+60.7	38	8.1	- 15.6
Total	191	289	100.0	+51.3	469	100.0	+ 62.3
Exports							
USSR	68	208	54.5	+117.6	213	43.9	+ 2.4
Satellites	34	59	15.4	+ 44.1	128	26.3	+117.0
West Germany	67	68	17.8	+ 1.5	96	19.8	+ 41.2
Other	23	47	12.3	+104.3	49	10.0	+ 2.1
Total	192	382	100.0	+ 98.9	486	100.0	+ 27.0
Total Trade							
USSR	119	299	44.6	+151.3	369	38.7	+ 23.4
Satellites	74	138	20.5	+ 86.5	328	34.4	+137.7
West Germany	139	142	21.2	+ 2.2	171	17.9	+ 20.4
Other	51	92	13.7	+ 80.4	87	9.0	- 6.5
Grand Total	383	671	100.0	+ 75.2	955	100.0	+ 42.2

a/ Estimated. 3/

1. Trade Agreements.

The East German economy is being rapidly integrated into that of the Soviet Orbit through a series of trade agreements with the USSR and the Satellites. The most striking feature of these agreements is the large percentage increase in total trade conducted. On the other hand, no formal trade agreement was signed with any non-Bloc country in 1950, and the low level of trade with the West that did continue was handled on an ad hoc basis. Existing agreements with Western countries were allowed to lapse, while agreements concluded with Bloc countries called for impressive increases in trade.

A trade agreement with the USSR, signed in April 1950, provided for an increase of "more than 35 percent in trade." An agreement with Poland called for a 60-percent increase in trade during 1950, involving exchange of German manufactured goods for Polish raw materials. East Germany's 1950 treaty with Czechoslovakia provided for a trade increase of "more than 50 percent" over 1949 levels, with East Germany to receive foundry coke, rolling-mill products, food, and textiles in return for chemicals, precision instruments, fertilizer, etc. 4/ Both Poland and Czechoslovakia, according to these treaties, were to provide goods on credit--a tacit admission of the strain placed on the East German economy by the proposed expansion of trade. The long-term treaties to be concluded in 1950 with Poland, Czechoslovakia, and Hungary, based on the Five Year Plans of these countries, are another indication of the increasing integration of the Bloc economy. Further progress toward integration was achieved in a series of agreements calling for scientific, technological, and cultural cooperation among the Satellites.

Treaties for 1950 with the lesser Satellites followed the usual pattern of providing for the exchange of German industrial products for foodstuffs and raw materials. The most striking feature of these agreements was the large percentage increase envisaged in East Germany's trade with these countries, which had heretofore been almost negligible. The original trade agreement with Hungary, which was valid from October 1949 through December 1950, provided for an exchange of goods valued at $22.3 million. 5/ A supplementary agreement concluded in March 1950 provided for an increase of 40 percent over the level originally planned, while a second supplement, signed 31 July 1950, called for a 70 percent increase over the original Plan totals. 6/ The 1950 agreement with Bulgaria called for a "fivefold increase" over total trade in 1949, which amounted to only about $3 million. Trade agreements for 1951, which apparently follow the same patterns and trends evident in the 1950 agreements, had already been concluded with Bulgaria, 7/ Rumania, 8/ and Hungary 9/ by the end of 1950. There is evidence of Soviet control of East German trade agreements and contracts.

2. Trade with Non-Soviet Bloc Countries.

Official trade with the West, while diminished, remained important in 1950. Eastern Europe could not supply all the raw and semifinished products required

by East Germany's expanded industrial program, particularly in the field of metals. The bulk of East German imports from non-Bloc sources comes from West Germany. Other Western countries furnish a small but strategically important volume of supplies. Clandestine trade is considerably larger than overt trade and is extremely vital to the Bloc economy. Exports to the West, although at a low level, were important as a source of foreign exchange with which to buy needed imports from the non-Bloc countries. East German trade with non-Bloc nations is as follows 10/:

East German Trade with Non-Soviet Bloc Countries
1948-50

Million Dollars

Source or Destination	1948	1949	1950
Imports			
West Germany	72	74	75
Other			
Argentina	a/	1	a/
Austria	4	3	3
Belgium	7	6	3
Denmark	1	6	7
Finland	a/	1	1
France	a/	a/	a/
Italy	a/	a/	a/
Netherlands	8	13	9
Norway	2	3	3
Sweden	1	6	5
Switzerland	1	3	3
United Kingdom	2	1	2
United States	a/	1	2
Yugoslavia	2	1	a/
Total	28	45	38
Grand Total	100	119	113
Exports			
West Germany	67	68	96
Other			
Austria	a/	2	3
Belgium	7	4	2
Denmark	1	6	7
Finland	a/	1	1
France	a/	a/	a/
Italy	a/	a/	1
Netherlands	7	16	11
Norway	2	4	5
Sweden	1	4	9
Switzerland	3	5	3
United Kingdom	1	1	5
United States	a/	1	2
Yugoslavia	1	3	a/
Total	23	47	49
Grand Total	90	115	145

a/ Less than $500,000.

a. Imports.

Western countries publishing detailed trade statistics reported exports to East Germany valued at $108 million in 1950. In addition, East German reports indicate imports of another $5 million from other non-Bloc countries, chiefly the US, the UK, France, and Italy. Nearly $33 million worth, about 30 percent of the total of detailed imports, represented metals and metal products, of which West Germany delivered $27 million worth. The second largest import category was chemicals and pharmaceuticals, valued at $17 million, of which $14 million worth came from West Germany. Food imports ranked third, accounting for $15 million, and nonelectrical machinery imports, virtually all of which came from West Germany, came fourth and were valued at $11 million. Imports from selected non-Bloc countries are as follows 11/:

East German Imports from Selected Non-Bloc Countries
1950

Thousand Dollars

Commodity	West Germany	Netherlands	Norway a/	Denmark	Sweden	Austria	Switzerland	Belgium	Total
Food and Food Products	6,446	2,353	1,552	3,480	756	23	120		14,730
Other Agricultural Products					1			749	750
Oils, Fats, and Waxes			359	571	117				1,047
Textile Fibers and Materials	3,453	1,329	319	1,894		34		45	7,074
Chemicals, Dyes, etc.	12,986	427		148	560	59	556	1,545	17,329
Pharmaceuticals	788						260		
Coal	1,244								1,244
Iron and Steel Products	23,302					2,435	698	76	26,511
Nonferrous Metals	2,156					169			2,325
Ores and Metals			709						709
Base Metal Manufactures					1,602	19			1,621
Aluminum							136		136
Tin and Manufactures		964							964
Copper							108	319	427
Rubber and Manufactures					176				176
Lumber and Timber Products	1,757				3				1,760
Pulp, Paper, and Products	1,253				944				2,197
Cutlery, Tools, and Ironware	3,969								3,969
Various Stones and Earths	447								447
Other Crude or Semi-finished Products						128			128

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East German Imports from Selected Non-Bloc Countries
1950
(Continued)

Thousand Dollars

Commodity	West Germany	Netherlands	Norway a/	Denmark	Sweden	Austria	Switzerland	Belgium	Total
Fine Mechanics and Optics	999								999
Nonelectrical Machinery	10,934					213			11,147
Electrical Machinery and Appliances	1,434				97	125			1,656
Transportation Equipment	296	272							568
Other b/	3,313	4,149	35	449	567	253	1,403	41	10,210
Total	74,777	9,494	2,974	6,542	4,823	3,458	3,282	2,775	108,824

a/ Eleven months.
b/ Includes imports not accounted for by reporting countries. This category, therefore, may represent strategic commodities which ordinarily would be included in the categories listed above.

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b. Exports.

East Germany's principal exports to the West in 1950 were food and other agricultural products, valued at $20 million; textile fibers and fabrics, valued at $19 million; nonelectrical machinery and equipment, valued at $14 million; petroleum, valued at $11 million; and chemicals and pharmaceuticals, valued at $10 million. The largest share of total exports to the West, which totalled $145 million worth in 1950, was taken by West Germany, which accounted for $90 million worth, followed by the Netherlands, Sweden, and Denmark. In addition to East German exports to the West on its account, exports worth at least $16 million were made on Soviet account in 1950, with the USSR pocketing the profits and the foreign exchange.

Exports to selected non-Bloc countries are as follows 12/:

East German Exports to Selected Non-Soviet Bloc Countries
1950

Thousand Dollars

Commodity	West Germany	Netherlands	Norway a/	Denmark	Sweden	Austria	Switzerland	Belgium	Total
Food and Agricultural Products	16,787		782		1,097	1		1,729	20,3
Textile Fibers and Fabrics	11,571	1,787	1,153	3,134	788	108			18,5
Chemicals and Pharmaceuticals	5,584	389		220	2,637	1,077			9,9
Fertilizers		4,423	1,609				325		6,3
Iron and Steel and Products	198					176			3
Nonferrous Metals	45								
Base Metal Products				175	101				27
Nonmetallic Minerals		222	92		473				78
Mineral Fuels and Electricity				678					6
Coal, Lignite, and Briquettes	4,168					398	89		4,6
Petroleum	11,058								11,0
Electric Power, Gas, and Water	3,529								3,5
Lumber, Timber, and Products	2,413				6		170	310	2,8
Pulp, Paper, and Products	2,247				11			49	2,3
Stone, Glass, Clay, and Products	4,006	680		1,500	792		377		7,3

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East German Exports to Selected Non-Soviet Bloc Countries
1950

(Continued)

Thousand Dollars

Commodity	West Germany	Netherlands	Norway a/	Denmark	Sweden	Austria	Switzerland	Belgium	Total
Other Stones and Earths	960					55			1,0[illegible]
Cutlery, Tools, and Ironware	705								7[illegible]
Scientific and Precision Instruments	1,141	344			934	193	200	20	2,8[illegible]
Machinery and Equipment	8,206	2,176	183	484	1,366	442	571	191	13,6[illegible]
Electrical Machinery and Appliances	1,033		115		200	342	77	13	1,7[illegible]
Transportation Equipment	387	135			337			43	9[illegible]
Processing and Repair	20,530								20,5[illegible]
Other	1,946	726	310	756	427	591	1,259	92	6,1[illegible]
Total	96,532	10,862	4,244	6,947	9,169	3,383	3,068	2,447	136,6[illegible]

a/ Eleven months.

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c. Clandestine Trade.

Estimates of illegal trade between East and West Germany vary, but figures of from $250 million to $300 million are frequently quoted by authoritative sources. This amount is about equal to the total trade of East Germany with the Bloc. Shipments of steel predominate in this trade.

The importance of German interzonal trade to the USSR is indicated by an estimate that from 60 to 70 percent of West German deliveries to East Germany are destined for the Soviet Union. 13/ East Germany also serves as a channel through which other Satellites obtain strategic supplies from West Germany. The East Berlin office of the Polish Trade Ministry reportedly has the job of obtaining metals and machinery unavailable in East Germany from West Germany. 14/

3. Trade with Soviet Bloc Countries.

In the years preceding each of the World Wars, Germany was an important trading partner first of Russia and then of the USSR, serving as a major source of industrial imports. Following World War II, a substantial portion of the East German industrial plant was dismantled and removed to the USSR. The Soviet Union soon discovered, however, that it was more profitable to leave factories intact in East Germany and to man them with the more experienced and skillful German workers, with production financed through the German Democratic Republic (GDR) budget. The USSR therefore set about building up East Germany as one of the Orbit's major industrial areas. Raw materials were furnished by the other Satellites, as well as by the USSR, in order to expand and exploit East German production capacity.

The effectiveness of Soviet policy is clearly demonstrated by the increase of the Orbit's share in total East German foreign trade, which rose from approximately one-half in 1948 to nearly two-thirds in 1949 and to almost three-fourths in 1950. Another indication of Soviet success in integrating East Germany's foreign trade into the Bloc economy is the impressive 138-percent increase in 1950 over 1949 East German trade with the Satellites. Spectacular increases in this trade occurred in the last quarter of 1950, in which period were recorded over 82 percent of the year's Soviet deliveries to East Germany and 75 percent of the year's East German exports to the other Satellites. The magnitude of the increase in imports from the USSR in the last 2 months of 1950 is reflected in the drastic change in the balance with the Soviet Union, which dropped from a favorable balance of nearly $20 million to a deficit of $49 million. The following table shows East German trade balances in late 1950 15/:

East German Trade Balances
1950

Thousand Dollars

Area	31 October 1950	31 December 1950	Change
Soviet Bloc			
USSR	+19,936	- 49,316	-69,252
Satellites	-62,962	- 70,833	- 7,871
Total Bloc	-43,026	-120,149	-77,123
Non-Soviet Bloc	+ 3,185	+ 5,103	+ 1,918
Grand Total a/	-39,841	-115,046	-75,205

a/ Excluding West Germany.

East German trade with the Soviet Bloc is as follows 16/:

East German Trade with Soviet Bloc Countries
1948-50

Million Dollars

Source or Destination	1948	1949	1950 a/
Imports			
USSR	51	91	156
Satellites			
Bulgaria	1	2	4
China	b/	b/	1
Czechoslovakia	10	15	27
Hungary	c/	5	24
Poland	29	56	140
Rumania	c/	1	4
Total Satellites	40	79	200
Total Bloc	91	170	356
Exports			
USSR	68	208	213
Satellites			
Bulgaria	c/	1	2
China	b/	b/	c/
Czechoslovakia	7	15	12
Hungary	1	2	7
Poland	26	41	105
Rumania	c/	c/	2
Total Satellites	34	59	128
Total Bloc	102	267	341

a/ Estimated
b/ China was not considered a Soviet Satellite in 1948. Figures for 1949 are not available, but trade with China probably was negligible.
c/ Less than $500,000.

a. Imports.

East German imports from the Orbit amounted to $118 million during the first 9 months of 1950. Poland supplied $74 million worth, principally coal and coal products; the USSR, $29 million; Czechoslovakia, $7 million; and Hungary, $6 million. The principal item was $71 million worth of coal, apparently acquired to meet the needs of the expanding East German industrial plant. Second came iron and steel, various metals, and metal products, which accounted for $19 million. Food and transportation equipment each accounted for another $8 million.

Imports from the USSR consisted chiefly of raw materials to be processed and returned to the Soviet Union as finished products. Soviet exports of $16 million worth of metals and metal products represented 55 percent of total imports from the USSR received during the 9-month period and 83 percent of total metals and metal products received from the Orbit during the period. The USSR also supplied most of the $6 million worth of transportation equipment received from the Orbit. Soviet commitments for deliveries of crude iron and rolling-mill products had been more than fulfilled by the end of August 1950, 17/ and commitments to deliver industrial diamonds and copper to East Germany had been also met. 18/

Imports from selected Soviet Bloc countries are shown in the following table 19/:

East German Imports from Selected Soviet Bloc Countries
January-September 1950

Thousand Dollars

Commodity	USSR	Poland	Czechoslovakia	Hungary	Bulgaria	Rumania	Total
Food and Agricultural Products							
Meat, Poultry, Butter, etc.		199	557	3,130	70	261	4,217
Fruits and Vegetables			495	1,080	282	54	1,911
Wines				298			298
Tobacco	579			213	184		1,075
Rubber	531						531
Cotton	1,552						1,552
Hides for Tanning	222						222
Lumber and Products				860			860
Minerals and Products							
Pig Iron		450					450
Steel and Products	1,167		1,980				3,147
Wire, Cables, and Bars	1,243						1,243
Nonferrous Metals	4,609						4,609
Various Metals and Products	8,623		622				9,245
Manganese, Chrome, and Ores	630						630
Apatite Ores and Concentrates	1,140						1,140
Mica	208						208
Coal Products		70,888					70,888
Abestos Goods	244						244
Pyrites					304		304
Cement		270					270
Chemicals and Dyes	499		715		60		1,274

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East German Imports from Selected Soviet Bloc Countries
January-September 1950

(Continued)

Thousand Dollars

Commodity	USSR	Poland	Czechoslovakia	Hungary	Bulgaria	Rumania	Total
Machinery, Parts, and Apparatus							
Industrial Diamonds and Dust	699						699
Ball and Roller Bearings	357						357
Machine Tools			667	143			810
Machinery and Equipment	182	347	787	169			1,485
Textiles and Products			303				303
Transportation Equipment							
Automotive Spare Parts	2,609						2,609
Trucks	2,830						2,830
Automobiles and Accessories		483					483
Other	800	1,190	1,316	109	255	23	3,693
Total	28,724	73,827	7,442	6,101	1,155	338	117,587

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b. Exports.

Prior to the year-end spurt, East Germany exported approximately $145 million worth of products to the Bloc countries. The three largest recipients were the USSR, which accounted for $115 million, nearly 79 percent; Poland, $21 million; and Czechoslovakia, $8 million. The leading exports, in order of their importance, were machinery, $43 million; fertilizer, $32 million; chemicals, $17 million; electrical appliances and apparatus, $15 million; transportation equipment, $13 million; and nonmetallic minerals, $5 million.

East Germany is also an important source of uranium ore. A West German broadcast of 11 May 1951, citing the East German rail administration at Cottbus as its authority, stated that an average of 80 boxcars of uranium ore now leave daily for the USSR. 20/

Exports to selected Soviet Bloc countries are shown in the following table 21/:

East German Exports to Selected Soviet Bloc Countries
January-September 1950

Thousand Dollars

Commodity	USSR	Poland	Czechoslovakia	Rumania	Hungary	Bulgaria	Total
Fertilizer	19,830	8,045	4,038				31,913
Metals and Metal Products	3,280	156	381				3,817
Nonmetallic Minerals	5,458				18		5,476
Lumber and Products	3,628	509					4,137
Chemicals	9,982	2,168	3,177	321	623	363	16,634
Photographic Equipment	1,272	338	488		47	147	2,292
Textiles and Clothing		1,582					1,582
Machinery	36,510	5,127		972		21	42,630
Electrical Machinery and Appliances	13,748	918					14,666
Transportation Equipment	12,092	459					12,551
Miscellaneous Industrial Goods	4,372						4,372
Other	2,620	1,341	254		177	10	4,402
Total	112,792	20,643	8,338	1,293	865	541	144,472

4. Uncompensated Deliveries.

a. Introduction.

The evaluation of the many different categories of goods and services acquired by the Soviet Union as reparations is a difficult problem. Soviet uncompensated takings in this report are expressed in the basic valuation of 1938 or 1944 (price-stop) Reichsmark (RM). Conversion into dollar equivalent of 1938 purchasing power is at a rate of Reichsmark 1 to US $0.30. Takings from current production are mostly expressed in terms of 1944 German prices, which are estimated at from 10 to 15 percent above the 1938 prices.

The adjustment of dollars of 1938 purchasing power to current dollars presents an additional problem. As an over-all factor, the US wholesale price index for manufactured goods has been utilized as a multiplier. Admittedly, this index does not necessarily apply to all the prices of European manufactured products. However, in order to provide some idea in terms of dollar values, East German uncompensated deliveries in terms of Deutsche Mark East (DM) or Reichsmark (RM)* are calculated at current US $0.60 to DM or RM because of the reduction in the purchasing power of the US dollar.

At the Yalta Conference in 1945 the USSR suggested that Germany should pay the Allies $20 billion in reparations in goods and services, including surplus industrial equipment, external assets, current production, and services of war prisoners. The Soviet delegation also suggested that $10 billion of this amount should be paid to the Soviet Union and $10 billion to the Western European countries. Subsequent considerations by the US and UK delegates led to the conclusion that $20 billion worth of reparations was too high and that no reparations should be demanded from current German production. These conclusions were discussed at the Potsdam Conference and were incorporated in the agreement signed by the US, the UK, and the USSR. The agreed methods of meeting reparation claims were limited to expropriation of German external assets and removal of industrial equipment from war and war-potential plants.

b. Reparations Payments to the USSR.

The Soviet Union has refused to furnish any information regarding reparation removals from East Germany. Consequently, no exact official information is available on the extent of these removals, but various reports indicate that plant removals have been large and have extended to industries with little or no war potential.

* The pre-1948 German unit of currency.

Dismantling of East German industries began in the middle of 1945 and continued sporadically through 1946. Estimates on the extent of dismantling indicate a loss of industrial capacity equal to about 30 percent of the 1943 level. Dismantling and war damage combined left the East German industrial capacity below 50 percent of the 1943 wartime peak.

By the middle of 1946 the USSR realized that dismantling of East German factories was detrimental to the full utilization of the plant capacity. It was therefore announced in 1946 that plants earmarked for reparations would be transferred to Soviet ownership but would be left in East Germany to be operated with German labor and raw materials under Soviet ownership. Seventy-four of these plants were returned to the German Democratic Republic (GDR) in March 1947.

Subsequent information indicates that the Soviet-owned companies control about one-third of East Germany's total brown coal production, two-thirds of the potash production, one-half of the metallurgical capacity, one-half of the cement capacity, and between 90 and 100 percent of other building material capacity. 22/ By the end of 1949, reports estimate that the Soviet-owned (SAG) plants had an absolute monopoly in the basic chemical industries and also exercised control over 3,000 state-owned enterprises and approximately 24,000 privately owned enterprises through their control of coal and power production. The total number of German employees working for SAG plants is estimated at about 300,000, not including 70,000 employed in uranium mining. 23/ The GDR has no influence on the SAG plants but is obliged to deliver raw materials and machines to them on a priority basis and at prices fixed below production costs. 24/ Prices for reparations deliveries are based on the value of the 1944 RM. It is estimated that the value of SAG production in 1950 was about DM 3.6 billion at those prices. SAG production is delivered to the USSR or exported on Soviet account. 25/

In addition to the SAG enterprises, the USSR has assumed a Trustee Administration control over 309 industries with 34,000 employees in Berlin, which in 1947 produced RM 439 million worth of manufactured goods, of which 38.5 percent went to Soviet account. 26/

The following table shows reparations deliveries by East Germany to the USSR from 1945 to the end of 1948. 27/ The value of labor performed by German prisoners of war and the value of the former German areas annexed by Poland and the USSR east of the Oder-Neisse line are not included.

East German Reparations Deliveries to the USSR
1945-48

	Million Dollars
Confiscated War Materials and War Booty	500
Industrial Machinery and Installations Removed to the USSR	2,000
Payments from Current Production (including Food, Machine Products, Optical Instruments, Wood Products, Textiles, Leather, and Other Items).	3,500
Industrial Plants Transferred to Soviet Ownership (SAG Firms)	800
Transport, Business Interests, and Other Property (non-SAG Firms)	500
Capital Holdings a/	1,600
Gold, Jewelry, Antiques, and Art Works	200
Total	9,100
Deliveries Scheduled by the End of 1948	500
Total Reparations by the End of 1948	9,600 b/
External Assets	500

a/ Controlled through the central Soviet-owned bank, the Guarantee and Credit Bank.
b/ This estimate corresponds approximately to State Department IM-144, 29 November 1948.

Planned SAG production for reparations from October 1947 to June 1948 is as follows 28/:

Planned SAG Production on Reparations Account
1 October 1947 to 30 June 1948

Commodity	Unit	Deliveries
Heavy Industry		
Steel	Metric Tons	600,000 a/
Nonferrous Metals	Metric Tons	400,000
Half-finished Products of Copper, Zinc, and Alloys	Metric Tons	220,000
Lead and Parts for Storage Batteries	Metric Tons	110,000
Light Industry		
Heavy Workship Machines	Metric Tons	240,000
Ship Construction	Metric Tons	180,000
Shipyards	Metric Tons	160,000
Mines	Metric Tons	60,000
Rubber Manufactures	Metric Tons	120,000
Light Machines and Tools	Metric Tons	260,000
Agricultural Machines	Metric Tons	80,000
Automobile Industry		
Passenger Cars	Units	12,000
Trucks	Units	8,000
Trailers	Units	10,000
Tractors	Units	16,000
Chemicals		
Basic Chemicals	Million DMs	110
Ammonia	Million DMs	17
Inorganic Chemicals	Million DMs	80
Explosives	Million DMs	540
Dyes	Million DMs	80
Tar Products	Million DMs	40
Precision Instruments	Million DMs	75
Electric Equipment	Million DMs	60
Construction Materials		
Cement	Thousand Metric Tons	20
Timber	Cubic Meters	120,000

a/ Unfulfilled deliveries of steel amounted to 140,000 metric tons.

In 1949, production on reparations account was planned at DM 1.02 billion but reached DM 1.07 billion. 29/ Approximately 75 percent of this value of production was accounted for by machinery. SAG plants produced about 43 percent of reparations output, with nationalized and private East German plants producing the remainder.

c. Monetary Value of Uncompensated Deliveries.

The financing of Soviet takings from East Germany's current production has been accomplished through the following means:

(1) Currency expropriated from financial institutions at the end of hostilities, estimated at about RM 3 billion;

(2) Issuance of Allied Military Marks, estimated at between RM 8 billion and RM 12 billion;

(3) Levies on East German government budgets; and

(4) Profits made by Soviet trading and industrial corporations, transactions in the black market, and other commercial activities. No estimate of the magnitude of such profits is possible.

By the middle of 1950 the Soviet Union claimed that East Germany had paid only about $3.7 billion of the $10 billion reparations bill. Of the remainder, approximately $6.3 billion, the USSR forgave 50 percent, and ordered that the remaining 50 percent be paid, in 1938 dollars, over a period of 15 years. In current dollar value this sum represents an annual burden of from $500 to $600 million. To this total must be added about $900 million annually accruing to the USSR from SAG operations and profits, plus the Soviet military occupation costs and maintenance of 300,000 Soviet armed forces (probably representing from $120 million to $180 million). The total due in uncompensated deliveries is thus between $1.5 billion and $1.7 billion a year.

The levies on the German Laender budgets have constituted the largest sources of funds since 1946 and have enabled the Soviet authorities to stop the issuance of military marks. In 1946-47 the Soviet levies on the budgets represented about 70 percent of total public revenues. In 1948-49 the occupation charges were planned at over 50 percent of total public revenues and were to be spent for: (1) payment of troops; (2) maintenance of occupation forces; (3) acquisition of nonreparation industrial property; and (4) payments for current production, including SAG output for reparations.

Estimates based on available information indicate that, from the middle of 1945 to the end of 1948, total Soviet levies on the East German public budgets amounted to DM 16.8 billion a year.

Soviet monetary takings from East Germany indicate that the USSR was at all times supplied with ample local funds for exploitation of the East Germany economy through financial means. 30/

d. Reparations Plan for 1950.

In 1950, East Germany's actual reparation deliveries amounted to over DM 1 billion in 1944 values, or about $600 million. 31/ These reparations do not include some of the greatest East German uncompensated contributions to the Soviet Union, such as services, pay to the occupation troops, freight charges, subsidies for SAG plants, and the supply of DM taken from the national and Laender budgets. 32/

Production in the SAG plants in 1950 was scheduled to amount to DM 3.6 billion in 1944 prices. This production includes DM 468 million worth of manufactured goods on reparations account, leaving about DM 3.2 billion worth of goods which are shipped to the Soviet Union, sold to other countries on Soviet account, or sold to East German industries at double their cost to the SAG plants. Of the total DM 3.6 billion SAG production in 1950, the following are the main categories at 1944 prices:

Production of SAG Plants
1950

Commodity	DM Million (1944 Prices) Production
Mining Products	250
Chemical Products (including DM 598 million in Synthetic Fuels)	1,491
Precision Tools and Optics	102
Machinery	764
Electrical Products	401

East Germany's production plan also called for DM 382 million worth of export goods to be delivered to the Soviet Control Commission by German-owned industries at 1944 prices.

In addition, the SAG plant and equipment expansion program called for an expenditure of DM 317 million, probably in current values, which was to be met by the East German economy. 33/

The Reparations Department Plan calls for the following deliveries in 1950 34/:

East German Planned Reparations Deliveries
1950

Commodity	Total Value	Thousand DM (1944 Value) Produced by SAG Plants
Railroad Equipment	113,384	76,399
Power and Electrotechnical Equipment	126,499	77,983
General Metallurgical Equipment	15,941	12,644
Rolling Mill Equipment	35,068	35,068
Mining Equipment	34,800	29,000
Wire-drawing Equipment	6,000	0
Cable-working Machinery	1,894	1,504
Cranes and Movable Lifting Equipment	36,319	0
Pumps and Compressor Equipment	10,050	4,259
Metalworking Equipment	13,486	11,554
Cement Plant Equipment	17,120	17,120
Construction and Road-building Equipment	7,435	5,245
Installations for Chemical and Rubber Plants	30,210	21,587
Installations for Food Industry	73,280	25,300
Foundry Equipment	3,155	
Installations and Equipment for Refrigeration Plants	22,550	5,000
Various Industrial Installations	8,610	2,300
Other Installations	20,470	18,845
Marine Equipment	40,000	16,720
Ship Repairs and Salvaging	48,000	11,000
Ship Installation	2,000	1,250
Communications Equipment	10,000	8,000
Laboratory and Testing Equipment	10,000	7,500
Prefabricated Houses		
With Sanitary and Heating Equipment	22,400	0
Without Sanitary and Heating Equipment	45,000	0
Building Materials	5,000	0
Printing Plants	80,000	0
Industrial Installations and Goods for Polish Reparations Account	102,500	43,800
Total	941,121	432,078

Plans for East German production on Polish reparations account in 1950 are as follows 35/:

East German Planned Reparations Deliveries to Poland
1950

Commodity	Total Value	Thousand DMs (1944 Value) Produced by SAG Plants
Transportation Equipment	1,000	1,000
Pumps and Compressors	500	0
Electric Trolleys	2,000	1,000
Boilers and Armatures	2,000	1,000
Milling Equipment	2,000	0
Polygraphic Equipment	4,000	0
Bakery Equipment	1,500	0
Workbenches for Textile Industry	800	0
Radio Equipment	2,700	1,350
Special Railroad Equipment	1,000	1,000
Laboratory Equipment	5,000	5,000
Selenium Rectifier	1,500	0
Dairy and Oil Mill Equipment	2,500	2,500
Compressors	1,000	0
Loading Equipment	1,000	1,000
Various Workbenches	2,000	2,000
Cutting Tools	2,000	2,000
Machinist Tools	1,500	1,500
Measuring Instruments	3,000	1,500
Typewriters and Calculating Machines	7,500	0
Radio Receiving and Sending Sets	1,000	1,000
Photo Apparatus	4,000	0
Medical Supplies and Equipment	2,000	0
Various Chemicals	1,000	1,000
Fluid Fuel	7,500	7,500
Typographic Equipment	10,000	0
Other	32,500	13,450
Total	102,500	43,800

5. Trends--Including Indications of Mobilization for War.

The comparative emphasis on various commodities in East Germany's foreign trade in 1951-52 will follow the pattern already established. Import appropriations for the various branches of East German industry during the fiscal year 1951-52 will total $887 million, with the principal items as follows: food, $304 million; metals, $222 million; textiles, $101 million; mining, $93 million; and chemicals, $75 million. Export appropriations are set at $729 million, of which machinery and electrical engineering will account for $318 million; chemicals, $120 million; precision instruments, $88 million; and mining, $77 million. 36/ Therefore, the indicated goal of total trade for the 1951 fiscal year is approximately $1.6 billion, an increase of more than 60 percent over the 1950 total trade. It seems unlikely, however, that overt trade, at least, will amount to much more than $1.2 billion in 1951 or about $1.5 billion in 1952.

The forced redirection of East German trade to the Soviet Bloc and the large expansions planned for 1951-52 are expected to produce strains in both East Germany and its trading partners. For example, the USSR probably will be unable to provide East Germany with aluminum in 1951-52, as it has in the past, because of heavy demands from China. It is likewise unlikely that the USSR will be able to deliver bauxite before 1952, and the 60,000 metric tons promised by Hungary will not meet East German needs. 37/ The USSR also will have difficulty in filling East German steel requirements.

The increasing integration of East Germany's foreign trade into the Bloc economy will continue. East Germany's role as purchaser for the Orbit in the West will become increasingly important, particularly in West Germany. One indication of this trend is the plan for East Germany to assume responsibility for all machinery purchases in the West for the entire Satellite area. One of the principal reasons for this maneuver is to prevent the West from knowing the ultimate destination of the imports. 38/

Despite the Bloc's goal of maximum independence from the West, it seems unlikely that trade with non-Bloc countries can be cut appreciably below present levels, especially in view of East German obligations to the Bloc and the apparent program of East German purchasing in the West for other Bloc members. On the contrary, it seems probable that the achievement of planned expansion of East German foreign trade will become increasingly dependent upon success in securing strategic materials from the West. Trade with West Germany will remain vital to East Germany's industrial plans, and there is evidence that the volume and value of East Germany's overt and covert imports from the West will increase in 1951 unless effective measures are taken to tighten Western export controls, especially in West Germany.

V. Agriculture.

Summary

The territories now comprising East Germany were characterized before the war by a system of diversified farming in which livestock, grain, and industrial crops, particularly sugar beets, were the chief commodities produced. Grain output was sufficient to fill human consumption needs, meet still larger livestock requirements, and provide a small surplus. Sugar was exported in important quantities, but meat products were imported. Shortages of cotton, which was not produced domestically, and of wool, of which domestic output provided only 5 percent of requirements, led to the growth of an important synthetic fiber industry.

The postwar recovery of this system of diversified farming has enabled East Germany to regain its position of self-sufficiency in grain and to resume sugar exports, although prewar production totals have not been reached. Meat output is expected to reach prewar levels by 1953. The textile industry has imported increasing amounts of cotton from the USSR and is using more waste than formerly in manufacturing woolens. Although the loss of plants and technicians to the USSR temporarily retarded the postwar development of the synthetic fiber industry, its rehabilitation is being accelerated to offset the shortages of natural fibers. A few cooperatives have been formed, but no attempts have been made to collectivize agriculture.

A food base is being built up in East Germany. One million metric tons of grain reportedly were stockpiled in 1950 from Soviet Bloc imports. Large additional shipments in excess of domestic requirements are planned for the next few years. A 1950 stockpile of 45,000 metric tons of canned meat, which could have been obtained from the 1950-51 indigenous production, is also reported, and considerable amounts of meat, processed, refrigerated, and on the hoof, are being imported. Further increases in meat production are planned during the next few years, and considerable additional quantities could be stockpiled if domestic consumption were kept at a low level. East German sugar production makes an important contribution to Bloc food supplies. The capacity of East German textile plants and the technical skill of their operators could be a considerable asset to the economy of the Bloc if raw materials were forthcoming from the USSR and the Satellites.

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1. Grain.

a. Production.

Prewar grain production in East Germany averaged about 6.8 million metric tons a year.* Output declined seriously during the war and by 1948 had risen to only 70 percent of the prewar average, or about 4.8 million tons. An 18-percent increase over 1948 levels was achieved in 1949, when production totalled approximately 5.6 million tons, but the 1950 output of 5.7 million tons was only slightly above the previous year's production. Production is estimated as follows:

Latest Annual Estimates of Grain Production
1948-50

	Thousand Metric Tons	
Year	Estimate	Probable Range of Variation of Estimate
1948	4,758	4,282 to 4,996
1949	5,616	5,054 to 5,897
1950	5,667	5,100 to 5,950

b. Probable Production.

There is no evidence that East Germany plans an immediate change in grain acreage, and, therefore, the 1950 grain acreage has been carried over into 1951 and 1952. Applying the prewar average yield to the 1950 acreage, the production estimates for 1951 and 1952, as shown in the following table, are nearly 5.8 million metric tons, or 2.3 percent greater than the 1950 estimated production:

Estimated Grain Production
1951-52

	Thousand Metric Tons	
Year	Estimate	Probable Range of Variation of Estimate
1951	5,798	5,218 to 6,088
1952	5,798	5,218 to 6,088

* Grain unless otherwise specified includes wheat, rye, barley, oats, corn (maize), and such minor grains as meslin and buckwheat.

c. Domestic Requirements.

Before the war grain production in East Germany filled domestic requirements and provided a surplus equal to about 10 percent of total output. Forty percent of the total output of rye, oats, barley, and mealin was fed to livestock, together with corn (maize) imported for the purpose. Other domestic requirements, in addition to human consumption, include seed and industrial demand.

Domestic availability of grain, computed from East German production and foreign trade, is estimated as follows:

Estimated Domestic Availability of Grain
1948-53

Thousand Metric Tons

Year	Estimate	Probable Range of Variation of Estimate
1948-49	4,725	4,249 to 4,963
1949-50	5,607	5,045 to 5,888
1950-51	5,667	5,100 to 5,950
1951-52	5,977	5,379 to 6,276
1952-53	5,977	5,379 to 6,276

Before World War II, East German grain consumption averaged about 143 kilograms per capita per year. Per capita availability, computed from data on population, production, imports and exports, and fluctuating livestock and industrial requirements, is estimated at 139 kilograms in 1948-49, 149 kilograms in 1949-50, 139 kilograms in 1950-51, 147 kilograms in 1951-52, and 146 kilograms in 1952-53. Livestock requirements rose in 1949, were 26 percent above 1949-50 levels in 1950-51, and are expected to rise 3.9 percent over the previous year's levels in 1951-52 and 2.5 percent over 1951-52 levels in 1952-53.

d. Stockpiles.

Although the statistical grain balance for the consumption year 1 August 1949 through 31 July 1950 indicates that the availability of grain for human consumption was equivalent to 149 kilograms per capita, or 6 kilograms* more than the prewar average, the USSR reportedly exported

* In 1949-50 a per capita supply of 6 kilograms was equivalent to 112,800 metric tons. This quantity of grain, if not consumed before 1 August 1950, may be considered as a carry-over at the end of the consumption year and does not necessarily indicate stockpiling.

to East Germany 125,000 metric tons of grain, chiefly wheat, which was immediately shipped to processing plants. Thus it is likely that a significant quantity of flour was available for stockpiling. The statistical grain balance for the consumption year ending 31 July 1951, however, indicates a grain residuum available for human consumption equivalent to only 139 kilograms per capita. If the prewar per capita consumption of 143 kilograms was maintained during 1950-51, the difference of 74,000 metric tons could have been covered by the possible carry-over from the 1949 production and stockpiles would be reduced by this amount.

As of 28 March 1951, it was reported that the USSR planned to ship 750,000 metric tons of grain to East Germany from 15 February to 15 July 1951. Such a quantity of grain in excess of civilian requirements indicates actual stockpiling or utilizations not previously considered. Plans call for similar shipments of 945,000 metric tons of grain in 1952. If the 1952 plan is fulfilled, the bulk of this 945,000 metric tons of grain will be available for stockpiling or utilizations other than previously considered.

e. Surplus or Deficit.

Surpluses of 33,000 metric tons in 1948-49 and 9,000 metric tons in 1949-50 were exported. In 1950-51, East Germany was nearly self-sufficient in grain, and it probably will remain so through 1952.

f. Trends--Including Indications of Mobilization for War.

Expansion of the food and agriculture program is expected to continue through 1952. The high production goals set for 1955 plus the increasing imports of grain from the USSR indicate Soviet intentions to promote agricultural self-sufficiency and to establish in East Germany a food base in excess of civilian requirements. The Five Year Plan calls for a build-up by 1955 of the meat potential of the animal industry to a point higher than the prewar level.

Soviet plans are likely to be formulated on the basis of maximum norms rather than on the basis of actual averages, a method which increases the possibility of underfulfillment. Despite this, it is probable that the grain program seeks not only to increase East German production to the point of self-sufficiency but also to import enough grain to accumulate large stockpiles which have an obvious military application and possibly indicate direct mobilization for war.

2. Meat.

a. Production.

During the period 1935-38, East Germany produced an average of 680,000 metric tons of meat a year and imported 80,000 tons, bringing the total availability to 760,000 metric tons, which was equivalent to 47.5 kilograms of meat per capita per year.* Livestock numbers were so depleted in the war that by 1948-49 the quantity of meat produced indigenously had dropped from 680,000 to 413,000 metric tons. As shown in the following table, production estimates for subsequent years, based upon increases in livestock and on the availability of livestock feed, indicate that output was about 450,000 tons in 1949-50 and approximately 566,000 tons in 1950-51.

Latest Annual Estimates of Meat Production
1948-51

	Thousand Metric Tons	
Year	Estimate	Probable Range of Variation of Estimate
1948-49	413	372 to 425
1949-50	450	405 to 464
1950-51	566	509 to 583

b. Probable Production.

In projecting the 1951-52 production of meat, the planned numbers of livestock have been adjusted to the availability of feed. As shown in the following table, the 1951-52 meat production is estimated at 637,000 metric tons, while the 1952-53 estimated production is 663,000 metric tons, slightly below average prewar production.

Estimated Meat Production
1951-53

	Thousand Metric Tons	
Year	Estimate	Probable Range of Variation of Estimate
1951-52	637	573 to 656
1952-53	663	597 to 683

* Meat is defined as the carcass weight of the slaughtered animals as trimmed for market, together with offals, liver, kidneys, sweetbreads, etc. It includes beef and veal, pork (excluding fat cuts and lard), mutton and goat meat, horse meat, poultry, and rabbit.

c. Domestic Requirements.

The quantity of meat available for human consumption is the quantity consumed by the farmers themselves, together with the quantity allocated to the nonfarm population, plus imports less exports. The following table of domestic requirements indicates indigenous availability of meat estimated and projected for 1949 through 1953:

Estimated Domestic Availability of Meat
1948-53

Thousand Metric Tons

Year	Estimate	Probable Range of Variation of Estimate
1948-49	388	347 to 400
1949-50	450	405 to 464
1950-51	566 a/	509 to 583
1951-52	637	573 to 656
1952-53	663	597 to 683

a/ If, as has been reported, 63,000 metric tons were stockpiled in the form of 45,000 metric tons of canned meat, these data would read as follows: estimate--503,000 metric tons; range--449,000 to 520,000 metric tons.

Per capita availability of meat was about 20.6 kilograms in 1948-49, or 57 percent below the prewar average of 47.5 kilograms. Per capita availability in the years following 1948-49, computed without consideration of the inadequate import and export data on hand, is estimated at 24 kilograms in 1949-50, 30.6 kilograms in 1950-51, 35 kilograms in 1951-52, and 37 kilograms in 1952-53.

d. Stockpiles.

The USSR is developing a food base in East Germany at a rapid rate. It is reported that 45,000 metric tons of canned meat, equivalent to 63,000 metric tons of carcass meat, were stockpiled in 1950. If the carcass meat required for this stockpile originated in East Germany, the availability of meat to the civilian population would have been 503,000 metric tons, equivalent to 27.2 kilograms per capita. If the government restricts meat availability to 27 kilograms per capita, or to 503,000 metric tons, the estimated 1951-52 production of 637,000 tons would provide 134,000 tons for stockpiling.

Similarly, the 1952-53 estimated production of 663,000 tons of meat would provide an additional quantity for stockpiling of 160,000 tons.

e. Surplus or Deficit.

The 1951-52 meat availability of 35 kilograms per capita indicates a 1951-52 surplus of 231,000 metric tons. It is probable that the per capita availability of meat will be kept at a level appreciably below the prewar level of 47.5 kilograms per capita to enable the USSR to draw upon East Germany for a considerable part of the meat required for stockpiling in the area.

f. Trends--Including Indications of Mobilization for War.

Meat production has increased from 1948 through 1951, and this trend probably will continue through 1952. If the assumptions which underlie the 1952-53 production estimate of 663,000 metric tons are valid, the availability of indigenous meat will be 97.5 percent of the prewar production. It is improbable that the USSR would permit the importation of sufficient meat to raise the per capita allowance to the prewar level of 47.5 kilograms a year. It is probable, however, that this increased production could be utilized in the Soviet program of mobilization for war.

3. Sugar.

a. Production.

The sugar beet is one of the major agricultural crops in East Germany, and the country is self-sufficient in raw sugar production. Sugar beet production averaged 822,000 metric tons, produced from 219,500 hectares, in 1938-39. Postwar production has not regained this level, partly because of poor weather and deficiencies of seed and fertilizers, but chiefly because of the breakup of large enterprises into smaller plots. Production is estimated as follows:

Latest Annual Estimates of Sugar Production (Raw Value)
1948-51

Metric Tons

Year	Estimate	Probable Range of Variation of Estimate
1948-49	680,000	612,000 to 714,000
1949-50	555,000	500,000 to 581,000
1950-51	800,000	720,000 to 840,000

b. Probable Production.

Although prewar yields are not expected to be attained in 1951 and 1952, expanded acreage will enable East Germany to regain prewar production levels. Further expansion probably will be in proportion to increased consumer needs and probable continued export demands by the USSR.

Estimated Sugar Production (Raw Value)
1951-53

Metric Tons

Year	Estimate	Probable Range of Variation of Estimate
1951-52	822,000	740,000 to 860,000
1952-53	840,000	760,000 to 880,000

c. Domestic Requirements.

Rationing of sugar has been in force since the end of the war. The amount available on a per capita basis ranged from 15.8 kilograms in 1948 to 19.8 kilograms in 1950. In addition to human consumption requirements, from 60,000 to 75,000 metric tons are needed for the various food-processing and confectionery industries. Total domestic consumption is estimated as follows:

Estimated Domestic Requirements of Sugar (Raw Value)
1948-53

Metric Tons

Year	Estimate	Probable Range of Variation of Estimate
1948-49	361,800	325,000 to 379,000
1949-50	390,700	351,000 to 409,000
1950-51	427,000	385,000 to 446,000
1951-52	431,000	388,000 to 450,000
1952-53	435,000	392,000 to 455,000

These results significantly attest to Soviet control over the sugar stocks of major Satellite producers. Rationing programs in the main producing countries provide a surplus which can be used in the Soviet stockpiling or export program.

d. Stockpiles.

Estimates of East German sugar stocks are based on the assumption that rationing will continue to regulate consumer supplies. Further accumulations beyond 1952 are expected and should increase at a minimum rate of 1 month's supply a year. Stockpiles are estimated as follows:

Estimated Stockpiles of Sugar (Raw Value)
1950-52

Metric Tons

Year	Estimate	Probable Range of Variation of Estimate
1950-51	75,000	65,000 to 90,000
1951-52	105,000	93,000 to 120,000

e. Surplus or Deficit.

The net sugar surplus provided by rationing in East Germany permits a considerable volume of raw sugar to be exported to the USSR. Surpluses are estimated as follows:

Estimated Surplus of Sugar (Domestic Production--Raw Value)
1950-53

Metric Tons

Year	Estimate	Probable Range of Variation of Estimate
1950-51	348,000	324,000 to 382,000
1952-53	375,000	357,000 to 410,000

f. Trends--Including Indications of Mobilization for War.

In the postwar period, sugar production has been promoted by the economic planners of the GDR, and production in 1951-52 may exceed prewar levels. It is probable, however, that only a small portion of this increase will be allocated for consumer consumption and that the balance will be exported to the USSR.

4. Synthetic Fibers.

a. Production.

Synthetic fiber production makes the largest contribution of raw materials to the East German textile industry. Because of cotton and wool deficiencies, requirements for textile materials can be met only through imports or by expanding synthetic production. The latter solution was adopted in 1947, and since that year imports of natural fibers have been negligible.

In the prewar period the territories now comprising East Germany produced approximately 60 percent of the total German output of synthetic fibers, or an estimated 135,000 metric tons in the peak year 1943. Estimated production for 1948-50 indicates a considerable drop from the prewar level, much of which was due to equipment losses through reparations and shortages of materials, particularly chemicals and cellulose, necessary for continuous production. Production is estimated as follows:

Estimated Production of Synthetic Fibers
1948-50

Metric Tons

Year	Estimate	Probable Range of Variation of Estimate
1948	47,368	42,300 to 49,500
1949	71,700	64,000 to 75,000
1950	82,200	73,800 to 86,000

b. Probable Production.

Although planned goals anticipate a higher rate of production, it is estimated that output of synthetic fibers will increase only about 10 percent a year in 1951 and 1952. Information on the present rate of new plant construction and operational levels indicates that Plan aims are too optimistic. Production is estimated as follows:

Estimated Production of Synthetic Fibers
1951-52

Metric Tons

Year	Estimate	Probable Range of Variation of Estimate
1951	90,500	81,000 to 96,000
1952	99,000	88,000 to 103,000

c. Domestic Requirements.

Estimated per capita consumption of synthetic fibers in East Germany was 3.6 kilograms in 1938, a figure equivalent to the combined total for wool and cotton. During the war years the synthetic fiber share of total textile supplies probably increased because of the shortage of natural fibers. The 1938 level of per capita consumption was regained in 1950. A higher level probably will be attained in 1951-52 because of expected increases in production. Consumption is estimated as follows:

Estimated Requirements of Synthetic Fibers
1948-52

Metric Tons

Year	Estimate	Probable Range of Variation of Estimate
1948	37,844	33,000 to 39,000
1949	57,360	51,300 to 60,000
1950	65,760	59,000 to 68,000
1951	72,400	65,000 to 76,000
1952	78,000	68,000 to 82,000

d. Stockpiles and Surplus or Deficit.

There probably are no stockpiles of synthetic fibers in East Germany, since it is believed that all production is consumed domestically or is exported to the USSR. Surpluses are estimated at 16,440 metric tons in 1950 and 21,000 tons in 1952.

e. Trends--Including Indications of Mobilization for War.

The postwar increase in production of synthetic fibers began in 1949. Prior to this time, reparations of equipment and materials and confiscation of plants by the USSR had considerably reduced the capacity of the industry. These Soviet acquisitions of technical personnel, plant facilities, and equipment were the industry's most outstanding contribution to the economic potential of the USSR. If the rapid rehabilitation of the industry enables it to reach the high Plan goals, the East German contribution to the Soviet war potential will be measurably increased, since synthetic fibers can be used in the manufacture of heavy denier tire cord, tow lines, and parachutes and can help to relieve the Bloc of dependence upon Western fiber sources.

5. Cotton.

a. Production.

East Germany grows no cotton and is completely dependent upon external sources for supplies of ginned cotton. Almost all current imports come from the USSR, and since 1947 there has been only minor evidence of cotton shipments from other sources. Prewar imports of cotton are estimated at approximately 100,000 metric tons a year. The highest volume of imports since 1947 was 22,400 metric tons, received from the USSR in 1950.

b. Domestic Requirements.

The low domestic availability for 1948 and 1949, as indicated in the table below, resulted from a negligible amount of imports. For the prewar years (1934-36) average annual per capita consumption of this area was estimated to be 2.6 kilograms, equivalent to the average for other Eastern European countries. This was supplemented by the utilization of synthetic fibers. Per capita consumption dropped drastically after the war but may be raised to 2 kilograms by 1952, so that East Germany can make an effort to compete with West Germany in attaining a relatively high standard of living. Domestic requirements for 1948-52 are estimated as follows:

Estimated Domestic Requirements for Ginned Cotton
1948-52

Metric Tons

Year	Estimate	Probable Range of Variation of Estimate
1948	14,000	12,600 to 15,400
1949	14,000	12,600 to 15,400
1950	22,400	20,200 to 24,600
1951	30,000	27,000 to 33,000
1952	34,500	31,000 to 38,000

Textile production is not limited by the capacity of textile processing equipment. Present facilities are adequate for processing projected consumer needs, and higher output could be achieved by reactivating unused capacity.

c. Stockpiles and Surplus or Deficit.

There probably are no stockpiles of ginned cotton in East Germany, and the extent of cotton deficits will depend upon the utilization and production of synthetic yarns and fabrics. Because of large synthetic production, living standards are less vulnerable to reductions of cotton supplies in East Germany than in Poland, Czechoslovakia, and Hungary.

d. Trends—Including Indications of Mobilization for War.

Throughout the postwar years a considerable percentage of total textile production has been sent to the USSR under reparation agreements. East Germany's present dependence on cotton imports from the USSR compels it to continue this trade. There have been no indications of an expansion of cotton textile facilities, because of the existence of large amounts of idle capacity, which could be activated in response to the mobilization plans of the USSR.

6. Wool.

a. Production.

Domestic wool production presently supplies 27 percent of the raw wool processed by the East German textile industry. This high percentage, however, is indicative of a decline in consumption and imports rather than of a marked increase in wool production. In the 1936-38 period, for example, wool production averaged 30 percent above the 1950 level but supplied only 5 percent of total requirements.

Losses of sheep during the last part of World War II and during the early postwar period reduced raw wool production by 55 percent as compared with the 1936-38 period. Even if a normal rate of increase is applied in production estimates for 1948-50, the output of clipped wool is still considerably less than prewar output. These estimates are as follows:

Latest Annual Estimates of Wool Production (Clean Basis)
1948-50

Metric Tons

Year	Estimate	Probable Range of Variation of Estimate
1948	976	825 to 1,125
1949	1,212	1,000 to 1,400
1950	1,468	1,200 to 1,700

b. Probable Production.

Production of wool is expected to reach a postwar peak of 1,645 metric tons (probable range, 1,400 to 1,900 tons) in both 1951 and 1952 but will still be lower than annual output in 1936-38.

c. Domestic Requirements.

Only through the utilization of the large production of synthetic fibers and large quantities of cotton and wool waste has a minimum quantity of textile fabrics been made available to the East German population. The present rate of domestic wool consumption in East Germany is considerably lower than the prewar rate. Even if consumption reaches the 6,600 metric tons estimated for 1952, the per capita availability would be equivalent to only one-third of the estimated prewar level. This availability, however, would be comparable to the standards of other Satellite countries. The estimated requirements of wool (1948-52) are as follows:

Estimated Domestic Requirements of Wool
1948-52

Metric Tons

Year	Estimate	Probable Range of Variation of Estimate
1948	2,976	2,500 to 3,400
1949	4,100	3,500 to 4,700
1950	5,200	4,500 to 5,900
1951	6,000	5,500 to 6,600
1952	6,600	6,100 to 7,200

d. Stockpiles and Surplus or Deficit.

It is unlikely that any stocks of wool have accumulated in East Germany, and the present deficit can be covered only by imports. Because of this dependency, only a minimum amount of wool is estimated to be available for domestic consumption.

e. Trends--Including Indications of Mobilization for War.

Operations of the wool textile industry have been restricted by the size of available supply. There has been no evidence of efforts to regain the prewar textile production peak, although surplus equipment is available. Emphasis has been placed on synthetic production, which can be used for

blending with small quantities of wool and cotton and thus enable East Germany to maintain a per capita supply of textile fabrics comparable to the per capita supply in the other Satellites.

7. Collectivization.

The GDR has not yet taken firm steps to implement its plans for the ultimate collectivization of agriculture. The land reform of 1945 was greeted with considerable enthusiasm, but, 6 years later, many East Germans consider the results disappointing. Small farms, which still provide the bulk of the national food supply, have not been collectivized. Machine renting stations have been established, and fertilizer and seed are distributed by the state. High compulsory deliveries to the state for independent farmers discriminate against the large landowners.

VI. Industrial Capacity and Levels of Production.

A. Ferrous Metals.

Summary

Production of iron and steel in East Germany meets approximately 50 percent of domestic requirements. It is estimated that domestic output will supply a larger share of requirements in the next 5 years, but the extent of improvement will depend upon the assistance given by the Soviet Bloc. Help from these sources through 1950 has been inadequate.

East Germany is dependent upon imports for almost all of the raw materials upon which to build an iron and steel industry, with the exception of silicon and fluxing agents. A shortage in scrap probably will be severely felt because facilities of the industry require a high percentage of scrap in the production of raw steel. Plans have been formulated and are underway to expand greatly production facilities, particularly of pig iron, to alleviate the scrap deficiency.

This expansion program is intended to relieve East Germany of dependence upon iron and steel deliveries from West Germany and at the same time to integrate East Germany industry more closely with the industries of the other Bloc countries. For example, the planned production of pig iron will be based on iron ore deliveries from the USSR; coke imports from the USSR, Poland, and Czechoslovakia; and manganese imports from Hungary.

In view of the limited assistance given by Bloc sources in the past, however, it is difficult to see how the industry can expand to the extent now planned.

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1. Production.

Production estimates for the iron and steel industry in East Germany indicate that considerable increases were achieved from 1948 to 1950, in which period output of iron ore rose 50 percent; of pig iron, 65 percent; of raw steel, 217 percent; and of rolled steel, 292 percent. Production of these commodities in 1949 and 1950 equaled or closely approached target goals. Scrap production in 1950, however, was only 48 percent of the 1948 output. Production is estimated as follows:

Estimated Production of Ferrous Metals
1948-50

Thousand Metric Tons

Commodity	1948 Plan	1948 Estimate	1949 Plan	1949 Estimate	1950 Plan	1950 Estimate
Pig Iron	N.A.	182	200	249	360	300.0
Raw Steel	333-400	276	650	585	875	875.0
Rolled Products	174	153	356	343	650	600.0
Iron Ore	250	267	355	380	400	400.0
Metallurgical Coke a/						
Scrap	1,600	1,760	910	1,000	1,300	850.0
Ferroalloys						
Manganese	N.A.	N.A.	N.A.	N.A.	N.A.	2.5 b/
Chrome	N.A.	N.A.	N.A.	N.A.	N.A.	3.5 b/
Silicon	N.A.	N.A.	N.A.	N.A.	N.A.	19.0 c/

a/ Insignificant amounts.
b/ Processed from imported ores.
c/ Processed from domestic ores.

2. Estimated Possible Production and Capacity.

Estimates of increases in both production and capacity are based on extensive plans to erect new plants and to expand existing facilities in all branches of the industry. While no target figures are available, it is estimated that capacity and production will not have increased by great amounts by 1952. The expected yearly increases in output are pig iron, 100,000 metric tons; raw steel, approximately 300,000 tons; rolled products, 150,000 tons; iron ore and scrap, 50,000 tons. It is estimated that production of ferromanganese will increase appreciably because construction of a blast furnace to process domestic ore is under way. Output of ferrochrome will increase only slightly, although plans have been formulated to double the 1950 ore-processing capacity. Output of ferrosilicon can be increased in accordance with requirements. Production and capacity are estimated as follows:

Estimated Production and Capacity of Ferrous Metals
1951-52

Thousand Metric Tons

Commodity	1951 Production	1952 Production	1952 Capacity
Pig Iron	400.0	500	550 a/
Raw Steel	1,200.0	1,500	1,600 b/
Rolled Products	750.0	900	1,000 b/
Iron Ore	450.0	500	600 b/
Metallurgical Coke c/			
Scrap	900.0	950	N.A.
Ferroalloys			
Manganese	5.0	8	8 d/
Chrome	3.5	4	4 e/
Silicon	20.0	22	22

a/ Based on partial completion of new plant which is planned to have a 500,000-metric ton capacity by 1955.
b/ Based on expansion program of current Five Year Plan.
c/ Insignificant.
d/ Based on plans to build blast furnace for converting domestic ore to manganese.
e/ Based on plans to double 1950 processing capacity by 1955.

3. Domestic Requirements.

Little or no information is available regarding requirements of various raw materials by the East German ferrous metals industry. The following estimates of domestic requirements, therefore, are based on the most probable proportions of raw materials used in ferrous metals production. It is not possible to estimate requirements of any of the ferroalloys except manganese and chromium. Requirements are estimated as follows:

Estimated Domestic Requirements of Ferrous Metals
1949-52

Commodity	1949	1950	1951	1952
	Thousand Metric Tons			
Pig Iron a/	350	450	500	550.0
Raw Steel b/	1,300	1,750	1,875	2,000.0
Rolled Products b/	1,100	1,300	1,400	1,500.0
Iron Ore c/	500	600	700	800.0
Metallurgical Coke d/	300	370	420	480.0
Scrap a/	475	800	900	975.0
Ferroalloys				
Manganese	5	8	11	14.0
Chrome	N.A.	3	3	3.5

a/ Based on industry utilization of 80% scrap plus 20% pig iron in 1949-50, use of 65% scrap plus 35% pig in 1951-52.
b/ Based on statements that East Germany produced in 1949 and 1950 only 50% of requirements, but that this situation should improve in next few years.
c/ Based on 50% ore.
d/ Based on 1.2 metric tons of coke needed to produce 1 ton of pig iron.

4. Stockpiles.

East German stockpiles of ferrous metals are negligible because of the deficiency of all materials except silicon, which is believed to be plentiful, since some is exported. Scrap was formerly in abundant supply and probably was stockpiled until the current shortage occurred.

5. Surplus or Deficit.

East Germany is faced with a deficit in all ferrous metals and products except silicon. In 1950 there was a scrap surplus of 50,000 metric tons, some of which was shipped to the USSR as reparations and exported to Poland and Czechoslovakia. Deficits in many cases were met by imports from the Soviet Bloc, but the exact amounts of such imports are not known. Scrap and coke will undoubtedly be in critically short supply in the next several years. Although ferroalloy supplies are adequate, the ores must be imported. Deficits are estimated as follows:

Estimated Deficits of Ferrous Metals
1950, 1952

Commodity	Thousand Metric Tons 1950	1952
Pig Iron	150.0	50
Raw Steel	875.0	500
Rolled Products	700.0	600
Iron Ore	200.0	300
Metallurgical Coke	350.0	450
Scrap	a/	25
Ferroalloys		
Manganese	10.5	12
Chrome	3.5	4

a/ Surplus of 50,000 metric tons.

6. Internal Limitations.

East Germany possesses little of the raw materials needed to establish a steel industry. There is a deficiency of all essential raw materials except silicon and fluxing agents. Because of domestic shortages of iron ore and coke, the industry has been established on a scrap utilization basis. Immediately after the war, scrap was in abundant supply, but in 1951 scrap, especially high-quality grade, is in short supply as a result of excessive reparations deliveries and exports, and procurement on the world market is becoming increasingly difficult. High-grade refractories, needed to line smelting and melting furnaces, are in severely short supply.

In order to augment steel production without increasing scrap requirements, it was planned to increase pig iron output by enlarging present facilities and by building a new plant with a capacity of approximately 500,000 metric tons annually. Raw materials for this plant, chiefly iron ore and coke, are to be furnished by the Soviet Bloc.

Since domestic production of iron and steel is only enough to supply approximately 50 percent of requirements, the embargo on steel deliveries from West Germany has been a severe blow to East Germany. Illegal trade has supplied an estimated 225,000 metric tons of steel since mid-1949, and $3 million worth of steel reportedly was smuggled across the interzonal border in the first 6 months of 1950. Nevertheless, export restrictions have seriously hampered the East German expansion program.

7. Trends—Including Indications of Mobilization for War.

It is evident that an expansion of the iron and steel industry in East Germany is entirely dependent upon the aid given by the USSR and the Satellites in furnishing raw materials and finished steel mill products. In view of the limited assistance obtained from these sources in the past, it is unlikely that the industry can expand to any appreciable extent within the next few years.

B. Nonferrous Metals.

Summary

The output of nonferrous metals in East Germany is insufficient to meet domestic requirements, and deficits must be met by imports, which are received from both Bloc and non-Bloc sources. These deficits indicate that, in the field of nonferrous metals, East Germany is an economic liability to the Bloc.

Copper output in 1950 is estimated at about 35,000 metric tons and is expected to increase to 38,000 tons in 1952. Planned imports of copper for 1950 are estimated at 18,000 tons, which, together with the production of 35,000 tons, indicate total domestic requirements of 53,000 tons.

Lead production has been estimated at 19,000 metric tons in 1950 and 20,000 tons in 1951 and 1952. No primary zinc is produced, but the resmelting of scrap provided an estimated 3,000 tons in 1950. Planned imports of lead and zinc in 1951 are believed to be 14,000 and 7,500 tons, respectively, indicating total requirements of about 34,000 tons of lead and 10,500 tons of zinc.

In 1950 the output of primary aluminum was 1,200 metric tons, produced from imported bauxite, while 10,000 tons of secondary aluminum were recovered from scrap. Production in 1951 is estimated at 12,000 tons and in 1952 at 15,000 tons. The output of tin and antimony is small, and domestic needs are met largely by imports.

Plant capacities for nonferrous metals are believed to be adequate. The supply of raw materials apparently is adequate in the case of copper, but the ore deposits are not adapted to large-scale mining. The production of other nonferrous metals is limited chiefly by shortages of raw materials. Other limiting factors are the lack of skilled miners and possible shortages of repair parts, which formerly were obtained from the Ruhr.

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1. Copper.

a. Production.

Refined copper is produced in three plants in East Germany and comes from domestic ores and scrap. The Mansfeld installation, the largest copper mining, smelting, and refining operation in East Germany, in 1950 produced 79 percent of the total output of copper. Production is estimated as follows:

Estimated Production of Copper
1948-50

Year	Mansfeld Plants	Metric Tons Total
1948	20,400 1/	25,826 a/
1949	21,737 2/	27,519 a/
1950 3/	27,786	35,166

a/ Calculated as 126.6 percent of Mansfeld production.

b. Estimated Possible Production and Capacity.

In the spring of 1951 a new deposit of copper ore in the Sangerhausen district is reported to have come into production at the rate of 4,000 metric tons of copper a year, which ultimately is to be increased to 6,000 tons a year. 4/

Estimated Production of Copper
1951-52

	1951	Metric Tons 1952
Mansfeld Plants	28,000	30,000
Other Plants	7,500	8,000
Total	35,500	38,000

The smelting and refining facilities of the Mansfeld district were subjected to little bombing or dismantling and therefore probably have about the same capacity as in prewar years, when annual capacity was 55,000 metric tons. 5/ Equipment may have suffered, however, from lack of materials for maintenance and repairs. Information on the capacity of East Germany's other smelting and refining plants is lacking.

c. Domestic Requirements.

Information is lacking on copper requirements for the period 1948-52. One source indicates a demand of between 40,000 and 45,000 metric tons in 1955, 6/ but this range appears low, since production in 1950 was 35,166 tons and planned imports were 18,000 tons, indicating requirements in 1950 of roughly 53,200 tons.

d. Stockpiles.

Information is lacking on copper stockpiles in East Germany.

e. Surplus or Deficit.

It is believed that East Germany faces a considerable deficit in copper. A contract signed on 1 January 1950 with the USSR called for the delivery of 6,000 metric tons, which was reported as delivered. 7/ Other planned imports in 1950 were 8,000 tons from West Germany and 4,000 tons from other sources, making a total of 18,000 tons. 8/

f. Internal Limitations.

The Mansfeld and Sangerhausen deposits are the two major copper sources in East Germany. The Mansfeld reserves are said to contain about 150,000 metric tons of copper, which will be exhausted in 15 years at the planned production rate of 10,000 tons a year. 9/ This planned rate of output is only 37 percent of the 1950 rate because of the exhaustion of the richer ores. The Mansfeld district is an old producer, and its remaining ore is estimated to contain from 1.15 to 1.35 percent recoverable copper. The Sangerhausen deposit is estimated to contain 340,000 metric tons of copper and will eventually replace the Mansfeld operations. The planned output of the Sangerhausen is to be 10,000 metric tons a year, 10/ probably by 1955.

East Germany's copper ore deposits are not adaptable to large-scale mining as practiced in the United States. The Mansfeld mines are fast becoming depleted and more difficult to operate. The Sangerhausen mine, although new, may have a water problem, and time will be required to open up the ore body for a greater production than that which is planned.

The copper industry also apparently is hampered by a lack of technically trained men and skilled miners and by a shortage of repair parts and materials, which formerly were obtained from the Ruhr. 11/ Plant capacities are believed to be adequate for planned production.

g. Trends--Including Indications of Mobilization for War.

East Germany is a valuable asset to the USSR as a supplier of such manufactured products such as copper and copper-base alloy plates, sheets, rods, and tubes but must import primary copper. An intensive effort to increase copper production from all sources is being made. It is planned to increase ore production to 1.5 million metric tons a year by 1955, 12/ which would result in an estimated production of about 20,000 tons of copper a year from mines.

2. Lead and Zinc.

a. Production.

Since the end of World War II, when the German lead-zinc mines in the Upper Silesian area were ceded to Poland, East Germany has produced no zinc from ores. 1/ What zinc and zinc alloys are produced come from the resmelting of scrap. The production of lead from domestic ores meets over half of domestic lead requirements. Production is estimated as follows:

Estimated Production of Lead and Zinc
1948-50

	1948	1949	1950
			Metric Tons
Lead 2/	11,966	12,888	19,038
Zinc a/	1,298 3/	N.A.	3,000 4/

a/ From scrap.

b. Estimated Possible Production and Capacity.

Possible production of lead and zinc in 1951-52 is estimated as follows:

Estimated Possible Production of Lead and Zinc
1951-52

	1951	1952
		Metric Tons
Lead	20,000	20,000
Zinc a/	3,000	3,000

a/ From scrap.

The three lead smelters in East Germany have a combined rated capacity of 13,000 metric tons a year. 5/ In addition, one plant near Berlin produces electrolytic lead, but its capacity and source of raw materials are not known. 6/ The capacity of secondary zinc smelters, East Germany's sole domestic source of zinc, is not known. A new zinc smelting plant, to be built at Freiberg, Saxony, is listed under "Priority Plants" in the 1951 Plan for industrial development.

c. Domestic Requirements.

Since lead and zinc are not exported, domestic requirements, measured by production plus imports, may be estimated as follows:

Estimated Domestic Requirements of Lead and Zinc
1948-52

Metric Tons

Lead	1948	1949	1950	1951	1952
Production	12,000 7/	13,000 7/	19,000 7/	20,000	20,000
Planned Imports	15,000 8/	15,000	14,000 9/	14,000	14,000
Requirements	27,000	28,000	33,000	34,000	34,000
Zinc					
Production	1,300 10/	N.A.	3,000	3,000	3,000
Planned Imports	10,000 11/	N.A.	7,500 12/	7,500	7,500
Requirements	11,300	N.A.	10,500	10,500	10,500

Planned imports in 1950 were as follows 13/:

Planned Imports of Lead and Zinc
1950

Metric Tons

Source	Lead	Zinc
USSR	2,500	5,400
West Germany	9,000	300
Other	2,500	1,800
Total	14,000	7,500

d. Stockpiles.

Information is lacking on stockpiles.

e. Surplus or Deficit.

Annual deficits are estimated at 14,000 metric tons of lead and 7,500 tons of zinc in 1950, 1951, and 1952.

f. Internal Limitations.

East German production of lead and zinc is limited chiefly by shortages of raw materials, but technically trained personnel and skilled miners also may be in short supply. Although the total capacities of the lead and zinc smelters are not known, it is believed that any increase in production would require either the construction of new plants or the expansion of existing plants.

g. Trends--Including Indications of Mobilization for War.

East Germany is attempting to increase its output of lead and zinc from both mine production and the collection of scrap for remelting. A

project submitted in February 1950 to increase ore production at the Beihilfe mine from 100 to 300 metric tons a day would, if realized, provide an additional 2,000 tons a year, 14/ but its present status is unknown.

3. Aluminum.

a. Production and Capacity.

East Germany in 1950 produced about 1,200 metric tons of high-grade aluminum from imported bauxite at the Bitterfeld plant 1/ and about 10,000 tons of secondary aluminum from scrap. 2/ There is some evidence that primary aluminum production will be about 12,000 tons in 1951 and 15,000 tons in 1952, with bauxite imports increasing proportionately. 3/ Data on which to base estimates of capacity and of secondary production in 1951-52 are unavailable.

b. Domestic Requirements.

It is estimated that domestic requirements account for the entire East German production of aluminum.

c. Stockpiles.

It is believed that only working inventory stocks of aluminum are held in East Germany.

d. Surplus or Deficit.

East Germany's aluminum production fell short of domestic requirements in 1950, and the deficit probably will persist through 1951.

e. Internal Limitations.

East German bauxite reserves are of negligible value, and all supplies must be imported. Another major limitation upon the production of aluminum in East Germany is a shortage of equipment, most of which was shipped to the USSR following World War II.

f. Trends--Including Indications of Mobilization for War.

The expected expansion in the output of aluminum in the 1951-52 period represents only a small percentage of the total aluminum needs of the Soviet Bloc and probably does not indicate mobilization for war.

4. Other Nonferrous Metals.

Ore reserves of both tin and antimony are limited, production is unimportant, and East Germany must depend upon imports to meet domestic requirements. Tin output, estimated at about 100 metric tons a year, 1/ may be increased in 1951 and 1952. Capacity for the production of antimony is less than 100 metric tons a year. 2/ From 1 January 1949 to 31 March 1950, 200 tons of antimony were imported from Czechoslovakia and 350 tons were to be imported from the USSR, but receipt of Soviet deliveries has not been confirmed.

C. Coal.

Summary

East Germany has extensive reserves of brown coal* and is the largest producer of this type of fuel in the world, but the small size of reserves and output of bituminous coal constitutes a fundamental weakness of the economy.

The production of bituminous coal was about 2.8 million metric tons in 1950, nearly 500,000 tons less than the target. Brown coal output reached 137.5 million tons, exceeding the Plan goal by 5.5 million tons. Since the brown coal contains from 40 to 60 percent water and has a low heating efficiency, over 70 percent of the output is processed into briquettes, and all except a small part of the balance is consumed in making electric power. Briquette production was approximately 38.2 million tons in 1950, or almost 600,000 tons over the Plan target.

In 1951 the production of brown coal is to be increased by 5.7 percent and of brown coal briquettes by 5.2 percent as compared with 1950, indicating that the objectives are 145 million metric tons and 40 million tons, respectively. These outputs probably can be achieved, and further increases to 152 million tons of brown coal and 42 million tons of briquettes are possible in 1952.

With the exception of minor production from one mine in Saxony-Anhalt, all of the output of bituminous coal comes from the Lugau-Oelsnitz and Zwickau coal basins, which are located 40 and 60 miles, respectively, southwest of Dresden. Significant increases in production are unlikely. A new bituminous mine is under development in the Doberlug-Kirchhain area, but production probably will not be significant until after 1952. Moreover, the coal in this particular deposit is not of coking quality. It is estimated that bituminous production will be only 3 million metric tons in 1951 and 3.2 million tons in 1952. The targets for 1951 and 1955 are reported to be 4 million tons.

In prewar years, East Germany consumed from 14 million to 17 million metric tons of bituminous coal a year, of which only from 3 million to 3.6 million tons were domestically produced. The balance was obtained from Silesia and the Ruhr. The loss of the Silesian mines to Poland and severance of direct access to Ruhr supplies has left East Germany critically short of bituminous coal and has forced greater dependence on brown coal, which has also been in short supply because of large-scale dismantling at the brown coal strip operations by the USSR.

* East German brown coal is generally of lower rank than lignite.

Lack of adequate supplies of bituminous coal and coke is hindering industrial expansion, and possibly an additional 5 million metric tons of bituminous coal annually would have to be imported to alleviate the fuel shortages. There have been many difficulties connected with conversion to brown coal briquettes, which are not efficient for use in equipment that is not adapted for them. New equipment to facilitate such substitution has been hard to obtain.

Two small coke plants produce about 240,000 metric tons of smelting coke annually and consume about 325,000 tons of bituminous coal. There are 228 gas plants in existence which use bituminous coal, but only 177 were in operation in 1949, and many of these received much less coal than required for capacity production.

Brown coal is the basis for East Germany's large synthetic fuel industry. Production and processing of brown coal for this purpose and related uses is concentrated in about 12 Soviet-owned corporations which control about a third of the brown coal output and close to 40 percent of the briquette production.

East German imports from West Germany, Poland, and Czechoslovakia in 1950 are estimated to have consisted of approximately 3 million metric tons of bituminous coal, 4 million tons of brown coal, and close to 1.5 million tons of coke, which were offset by exports of as much as 2.5 million tons of brown coal briquettes. The actual deficiency in domestic supplies, however, is much more than is indicated in the import figures. Briquette shipments are not an indication of a surplus of that fuel, since briquettes are exported to pay for badly needed imports.

Labor shortages have retarded the production of both bituminous coal and brown coal, and it has been necessary to use forced labor, women, and disabled persons. Mining machinery and equipment have been overstrained during the past decade and are in need of replacement. There are shortages of spare parts, tools, and all types of nonferrous metals, while great problems exist in the construction of the massive excavators, bridge cranes, and auxiliary equipment used for stripping brown coal. The ability to fulfill higher goals each year for brown coal production depends in large measure on acquisition of sufficient quantities of new equipment for replacement and expansion needs.

1. Production.

East Germany is the world's largest producer of brown coal and has extensive brown coal reserves, but reserves and output of bituminous coal are limited. Production of bituminous coal was about 2.8 million metric tons in 1950, less than the output in 1948 and 1949 and nearly 500,000 tons below the Plan goal. Brown coal output in 1950 reached 137.5 million tons, exceeding the Plan target by about 5.5 million tons. Since brown coal contains from 40 to 60 percent water, it has little direct use except in the production of electric power. The bulk of the output is manufactured into briquettes, which have about three times the heat value of the equivalent weight of brown coal. The production of bituminous coal, brown coal, and brown coal briquettes is estimated as follows:

Estimated Production of Bituminous Coal, Brown Coal, and Brown Coal Briquettes 1948-50

	Million Metric Tons		
Year	Bituminous Coal	Brown Coal	Brown Coal Briquettes
1948	2.8	110.9	30.0
1949	3.0	124.5	34.8
1950	2.8	137.5	38.2
1950 (Plan)	3.3	132.0	37.6

The bulk of bituminous coal production comes from two small coal basins in Saxony, the Lugau-Oelsnitz and Zwickau districts, which are 40 and 60 miles, respectively, southwest of Dresden, but these reserves are nearing exhaustion. A minor producer, the Plotz mine in the Halle district of Saxony-Anhalt, supplied 51,600 metric tons in 1949, but the 1950 Plan called for only 35,000 tons.

Thick deposits of brown coal underlie large areas of Saxony, Saxony-Anhalt, Thuringia, and Southern Brandenburg and are exploited mainly in open-cut operations, which employ massive excavators and auxiliary equipment. About two-thirds of the brown coal production comes from state-owned mines (VVB mines), of which there are probably 90 or more, divided into 8 districts. The remaining production comes from about 12 large mines under Soviet control (SAG mines). Approximately 90 briquette plants are operated in conjunction with the mines. Seventeen of these, with over 40 percent of the capacity, are Soviet-owned.

Production of brown coal, brown coal briquettes, and brown coal coke in 1949 and Plan figures for 1950 and 1951 have been reported as follows:

Production of Brown Coal
1949-51

Thousand Metric Tons

VVB Mines	1949	1950 Plan	1951 Plan
District			
Borna (Borna and Adjacent Thuringia)	6,299	6,920	7,950
Meuselwitz (Altenburg, Meuselwitz, and Zeitz)	9,050	9,013	9,700
Morseburg (Halle and Merseburg)	25,653	26,562	28,120
Bitterfeld	12,407	12,697	12,850
Magdeburg and Stassfurt	2,500	2,626	2,750
Muckenburg (Eastern Saxony-Anhalt)	8,445	9,026	9,500
Senftenburg (Most of Brandenburg)	9,836	10,789	12,700
Welzow (Southeastern Brandenburg and East Saxony)	9,087	10,667	11,400
Subtotal	83,277	88,300	94,970
SAG Mines	41,203	43,700	47,530
Total	124,480	132,000	142,500 a/

a/ Increased to 145 million tons since these figures were reported.

Production of Brown Coal Briquettes
1949-51

	Thousand Metric Tons		
	1949	1950 Plan	1951 Plan
VVB Plants			
District			
Borna	2,466	2,540	2,750
Meuselwitz	3,398	3,410	3,450
Merseburg	4,776	4,840	5,080
Bitterfeld	1,129	1,230	1,285
Magdeburg	369	390	400
Muckenburg	2,235	2,390	2,460
Senftenburg	4,062	4,320	4,565
Welzow	2,263	2,880	3,010
Subtotal	20,698	22,000	23,000
SAG Plants	14,087	15,600	16,000
Total	34,785	37,600	39,000 a/

a/ Increased to 40 million tons since these figures were reported.

Production of Brown Coal Coke
1949-51

	Thousand Metric Tons		
	1949	1950 Plan	1951 Plan
VVB Plants			
District			
Bitterfeld	42.6	40	42
Meuselwitz	63.5	62	60
Welzow	236.0	233	234
Subtotal	342.1	335	336
SAG Plants	4,360.0 a/	N.A.	N.A.
Total	4,702.1		

a/ Estimated.

2. Estimated Possible Production and Capacity.

According to the Five Year Plan, the production objectives for 1955 are 205 million metric tons of brown coal, 56 million tons of brown coal briquettes, and 4 million tons of bituminous coal. In 1951, production of brown coal is to increase 5.7 percent and output of brown coal briquettes is to increase 5.2 percent as compared with 1950, which would establish the targets at about 145 million tons and 40 million tons, respectively. These outputs probably can be achieved, and further increases to 152 million tons of brown coal and 42 million tons of brown coal briquettes are possible in 1952.

While the goal for bituminous mining in both 1951 and 1955 has been reported to be 4 million metric tons, prospects for attaining this level are very unfavorable unless a new mine under construction at Doberlug-Kirchhain is able to supply about 1 million tons, which seems unlikely. This mine is scheduled to begin production in 1951, but considerable difficulties have been encountered, and it is probable that tonnage will not be significant until after 1952. Output of bituminous coal is therefore estimated at 3 million tons in 1951 and 3.2 million tons in 1952.

3. Domestic Requirements.

The coal consumption pattern in East Germany has undergone considerable change as a result of the war. The area used from 14 million to 17 million metric tons of bituminous coal in prewar years and produced only from 3 million to 3.6 million tons. Total postwar availabilities of this type of coal, however, have been reduced to about 5.6 million tons a year, of which about 45 percent has been imported, mainly from Poland. This severe shortage of bituminous coal has forced the substitution of brown coal, which, with the exception of that used by power plants, and, in minor quantities, for other purposes, is utilized in the form of briquettes. Brown coal is uneconomical to burn in facilities that are not adapted for it, and conversion has been hampered by inability to obtain the proper equipment.

Bituminous coal is essential for the production of metallurgical coke and for other purposes. The two metallurgical coke plants now in operation produce about 240,000 metric tons annually and consume about 325,000 tons of bituminous coal.

East Germany has 228 gas plants which use bituminous coal, but only 177 of these were operating in 1949. These plants produce coke as well as gas and are estimated to have consumed about 1.4 million tons of coal in 1949 and probably more in 1950. The shortage of bituminous coal is to a large extent responsible for the shutdowns of some of the plants, and those that are operating do not have sufficient supplies to meet their requirements.

If all the plants in existence were operated at capacity, coal requirements would probably increase by at least 1 million metric tons a year.

Bituminous coal provides the railroads and power industry with only a fraction of their energy requirements. The electric power industry has reduced consumption of bituminous coal through conversion of some of its facilities to brown coal, but conversion difficulties necessitate the continued use of bituminous coal at many industrial plants. Little, if any, bituminous coal is allocated for domestic use.

It is estimated that available supplies of bituminous coal were distributed as follows in 1950: railroads, 5.5 percent; power stations, 14.5 percent; gas works, 25.3 percent; smelting coke, 5.4 percent; and other industry, 49.3 percent. The total quantity consumed is estimated at between 5.9 million and 6 million tons, but this was considerably less than needed.

Out of approximately 141.5 million metric tons of brown coal available in 1950, including 4 million tons of imports, it is estimated that approximately 70 percent was processed into briquettes, 26 percent was used in making electric power, and the balance went mainly to industry. New railroad locomotives have been designed to burn brown coal dust, but as yet the quantities used are negligible. East Germany has consumed about 95 percent of its briquette output in recent years and has exported the balance to pay for necessary imports.

The bituminous coal deficiencies are partly responsible for shortages of brown coal briquettes. Current briquette requirements are not known, but they considerably exceed available supplies. Since at least an additional 5 million metric tons of bituminous coal are believed necessary to meet current fuel demands, it is certain that a much greater quantity of briquettes would be needed to alleviate shortages. The fuel requirements of railroad locomotives are met almost entirely by the use of brown coal briquettes, but results are not very satisfactory, because considerable coal drops through the grates before it is completely burned, and its high sulphur content has a corrosive effect on the equipment.

It is estimated that 35.6 million metric tons of brown coal briquettes were consumed in 1950 as follows: railroads, 18.9 percent; distillation coke (including use for synthetic fuel), 22.4 percent; power stations, 5.6 percent; other industry, 43.3 percent; and domestic use, 9.8 percent.

Brown coal is the basis for East Germany's large synthetic fuel industry. Production and processing of brown coal for this purpose is concentrated in about 12 Soviet-controlled combines, which in 1950 used about 14 million metric tons of brown coal in the production of electric power and produced about 16 million tons of brown coal briquettes, of which up to 50 percent was converted into distillation coke.

The following tables furnish estimates of the availability and requirements of solid fuels for the period 1948-52, but it must be emphasized that the figures are based on incomplete data and are to be regarded only as rough approximations. Actual needs are definitely much higher than the allocations given below, which represent estimates of quantities distributed.

Estimated East German Availability and Requirements of Bituminous Coal
1948-52

Thousand Metric Tons

Availability	1948	1949	1950	1951	1952
Production	2,848	3,019	2,807	3,000	3,200
Stocks (as of 1 January)	N.A.	N.A.	N.A.	a/	a/
Imports	2,459	2,606	3,138	3,200	3,400
Total	5,307	5,625	5,945	6,200	6,600
Exports	0	0	0	0	0
Stocks (as of 31 December)	N.A.	N.A.	N.A.	a/	a/
Total Availability	5,307	5,625	5,945	6,200	6,600
Requirements					
Railroads	180	300	325	500	600
Power Stations	1,200	1,400	860	900	900
Gas Works	1,250	1,350	1,500	1,500	1,600
Smelting Coke	320	320	320	320	320
Other Industry	2,357	2,255	2,940	2,980	3,180
Total Requirements	5,307	5,625	5,945	6,200	6,600

a/ Very small.

Estimated East German Availability and Requirements of Brown Coal
1948-52

Thousand Metric Tons

Availability	1948	1949	1950	1951	1952
Production	110,863	124,480	137,500	145,000	152,000
Stocks (as of 1 January)	N.A.	N.A.	N.A.	a/	a/
Imports	4,265	3,850	4,000	4,000	4,000
Total	115,128	128,330	141,500	149,000	156,000
Exports	0	0	0	0	0
Stocks (as of 31 December)	N.A.	N.A.	N.A.	a/	a/
Total Availability	115,128	128,330	141,500	149,000	156,000
Requirements					
Briquette Plants	78,100	90,450	99,300	104,000	109,200
Power Stations	31,000	33,000	37,000	39,400	41,000
Chemical Plants	1,000	1,100	1,200	1,300	1,300
Other Industry	4,000	2,720	2,840	3,100	3,200
Railroads	460	460	460	460	500
Heating	568	600	700	740	800
Total Requirements	115,128	128,330	141,500	149,000	156,000

a/ Very small.

Estimated East German Availability and Requirements of Brown Coal Briquettes 1948-52

Thousand Metric Tons

Availability	1948	1949	1950	1951	1952
Production	30,045	34,785	38,195	40,000	42,000
Stocks (as of 1 January)	N.A.	N.A.	N.A.	a/	a/
Imports	0	0	0	0	0
Total	30,045	34,785	38,195	40,000	42,000
Exports	1,778	1,991	2,555	2,400	2,500
Stocks (as of 31 December)	N.A.	N.A.	N.A.	a/	a/
Total Availability	28,267	32,794	35,640	37,600	39,500
Requirements					
Railroads	6,250	6,350	6,725	7,000	7,300
Distillation Coke	7,200	7,500	7,975	8,500	9,000
Power Stations	2,000	2,000	2,000	2,000	2,000
Other Industry	9,700	13,600	15,400	16,300	17,300
Domestic Use	3,117	3,344	3,540	3,800	3,900
Total Requirements	28,267	32,794	35,640	37,600	39,500

a/ Very small.

Estimated East German Availability of Coke a/
1948-52

Availability	1948	1949	1950	1951	1952
	Thousand Metric Tons				
Production					
Coke Oven Coke	240	241	240	240	240
Gas Coke	625	700	750	750	800
Low-temperature Coke					
VVB Plants	315	342	335	336	340
SAG Plants	4,200	4,360	4,665	4,995	5,300
Subtotal	5,380	5,643	5,990	6,321	6,680
Imports	372	1,129	1,430	1,600	1,800
Stocks (as of 1 January)	N.A.	N.A.	N.A.	b/	b/
Subtotal	5,752	6,772	7,420	7,921	8,480
Exports			45	50	50
Stocks (as of 31 December)	N.A.	N.A.	N.A.	b/	b/
Total	5,752	6,772	7,375	7,871	8,430

a/ Data on requirements are not available.
b/ Very small.

4. Stockpiles.

Chronic shortages of coal, particularly of bituminous coal, are sufficient evidence that East German stocks are perenially small. The railroad districts in October 1949 had accumulated emergency reserves totaling 400,000 metric tons of bituminous and brown coal, sufficient for 20 days' operations. These reserves were maintained through the following December, but, by February 1950, they had declined to 176,028 tons, enough for only from 8 to 9 days' operations. Stocks were built up in the summer of 1950 and were reported in mid-October to be adequate for 12 days' operations but subsequently fell again to about a week's supply.

Another indication of the low level of coal stocks is found in the fact that the SAG power plants usually have reserves of brown coal sufficient only for 1 or 2 days' operations. Since these plants are assured of a steady flow of coal, however, larger reserves probably are not necessary. Other industries would be expected to carry greater inventories, but it is doubtful if they generally average more than 2 weeks' requirements.

5. Surplus or Deficit.

Postwar coal shortages have resulted from the loss of the Silesian mines to Poland, the separation from supplies in the Ruhr, and large-scale dismantling of brown coal operations by the USSR.

While imports in 1950 are estimated to have consisted of about 3 million metric tons of bituminous coal, 4 million tons of brown coal, and close to 1.5 million tons of coke, the total deficit may have been as high as 11 million tons. Conversion from bituminous to brown coal may slightly reduce the net deficit.

Approximate import and export figures are given in the following tables, and in the case of the Soviet Union, the figures are subject to a wide range of error.

Estimated East German Imports of Brown Coal
1948-50

Source	1948 a/	1949 a/	Metric Tons 1950 b/
Poland	4,260,570	3,853,000	4,000,000
Czechoslovakia	4,404	6,000	N.A.
Total	4,264,974	3,859,000	4,000,000

a/ Exports reported by exporting countries.
b/ Estimated.

Estimated East German Imports of Bituminous Coal
1948-50

Source	1948 a/	1949 b/	Metric Tons 1950 b/
Poland	1,562,100	2,600,000	3,000,000
Czechoslovakia	6,000	6,000	N.A.
West Germany	890,875	0	138,000
Total	2,458,975	2,606,000	3,138,000

a/ Exports reported from exporting countries.
b/ Estimated.

Estimated East German Imports of Coke
1948-50

Metric Tons

Source	1948	1949	1950
Poland	297,461 a/	725,000 b/	900,000 b/
Czechoslovakia	74,000 b/	404,000 b/	480,000 b/
West Germany	c/	c/	50,000 b/
USSR	154	c/	c/
Total	371,615	1,129,000	1,430,000

a/ Reported by Poland.
b/ Estimated.
c/ Possible Shipments.

Estimated East German Exports of Brown Coal Briquettes
1948-50

Metric Tons

	1948	1948	1950
Non-Soviet Bloc			
Austria	0	0	25,000
Denmark	0	198,500	280,000
Sweden	174,852	0	0
Switzerland	68,914	3,608	0
West Berlin	210,867	225,000	250,000
West Germany	123,198	5,800	450,000
Subtotal	577,831	432,908	1,005,000
Soviet Bloc			
Poland	0	50,022	50,000
USSR	1,200,000	1,508,000	1,500,000
Subtotal	1,200,000	1,558,022	1,550,000
Total	1,777,831	1,990,930	2,555,000

According to the 1951 Plan, East Germany will export 2,400,000 metric tons of brown coal briquettes as compared with the estimate of 2,555,000 tons for 1950. Brown coal coke exports are reported at 220 metric tons in 1949, divided between Switzerland and Czechoslovakia, and 45,000 tons, all of which went to West Germany, in 1950.

6. Internal Limitations.

Basic restrictions on the East German coal industry are the limited resources of bituminous coal in the Zwickau area and of coking coal. The development of the Doberlug-Kirchhain deposit probably will not add to domestic supplies of coking coal, because the coal in this particular deposit is reported to be unsatisfactory for coking purposes.

A lack of manpower has retarded the production of both bituminous and brown coal. The shortage of qualified technicians, especially those with management capabilities, has been especially acute, and attempts to educate Party supporters by short-term courses for responsible positions have proved a failure. The number of employees actually employed in coal production is small in relation to the total number of employees in the industry, resulting in high overhead costs which depress miners' wages.

Youths are reluctant to become miners, because the work is unappealing and the pay low. The inability to obtain enough voluntary apprentices resulted in the recruitment of forced laborers and increased employment of women. It has been reported that approximately 2,500 women were recruited in October 1950 for the brown coal mining districts of Welzow and Senftenburg. In the hard coal mines at Zwickau, a large number of women have been employed in the cleaning plants, but it was planned also to employ women inside the mines. Goals have been set for the employment of partially disabled persons, but, because of the hard work involved, the quota could not be realized.

The coal industry has to depend almost entirely on machinery and equipment that have been badly overstrained and worn out during the last decade. Great problems exist in the construction of the massive excavators, bridge cranes, and auxiliary equipment used for stripping brown coal. Briquetting equipment is in need of replacement. Brown coal operations have been hampered by shortages of such items as links, nuts, screws, and bolts. The bituminous coal mines likewise are struggling along with worn equipment. Spare parts and tools are in short supply, and miners complain about the inferior quality of their tools, which are made of soft steel.

7. Trends—Including Indications of Mobilization for War.

Bituminous production in the old mining districts has been relatively stable, though inadequate in amount, since the end of the war, and no significant change is likely to occur before 1952. The new bituminous coal mine at Doberlug-Kirchhain is expected to produce about 1 million tons annually, but several more years of development probably will be required before the operation can attain that level of output.

There has been a steady increase in brown coal production since 1947, and this trend should continue, providing the industry can obtain sufficient quantities of new equipment for expansion as well as for replacement.

D. Petroleum.

Summary

East Germany's synthetic liquid fuel industry, the largest and most highly developed in the world, makes an important contribution to the economic potential for war of the Soviet Union. Production meets domestic requirements and provides a surplus for export and for stockpiling.

The synthetic refineries produce over 95 percent of the country's output of liquid fuels, and Boehlen, Leuna, Zeitz, and Schwarzheide, the four largest refineries, together account for about 90 percent of the production of gasoline and 62 percent of the production of diesel oil. The total output of liquid fuels in 1950 was almost 1.1 million metric tons, including about 70,000 tons of 95/130 aviation gasoline produced at Boehlen but not including unknown amounts of jet fuel produced at Boehlen and Schwarzheide. Production goals of 780,000 metric tons of motor gasoline and 475,000 tons of diesel oil in 1955 probably will be met.

In 1950 the petroleum industry, in addition to furnishing about 600,000 metric tons of petroleum products for the domestic economy, supplied 50,000 tons to Soviet authorities in East Germany and exported nearly 300,000 tons of gasoline, kerosene, and diesel oil to the USSR, Poland, Czechoslovakia, and West Germany. About two-thirds of the supply of lubricants is produced from small quantities of crude oil imported from Austria.

Stockpiling of petroleum products undoubtedly has taken place, but the size of reserves is unknown. In addition to the nearly 150,000 metric tons of surplus products available in 1950, a portion of the allocations to the East German economy probably was used to build up stocks. Shortages of gasoline, diesel oil, and lubricants have been reported, and cuts in the domestic allotments of these commodities for the purpose of stockpiling were reported in the fall of 1950. Gasoline storage depots either have been or are in the process of being filled, and drums have been confiscated by the government.

Apparently the Soviet Union has realized that the dismantling carried out in 1946 and 1947 was shortsighted. Efforts at rehabilitation are evident, and particular attention is being given to increasing the output of such specialized products as aviation gasoline, iso-octane, and jet fuel. In addition to Boehlen, Leuna and Zeitz are to produce aviation gasoline in 1951.

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1. Production.

East Germany has no known deposits of crude oil, being entirely dependent on its well-developed synthetic liquid fuel industry and on several small refineries which refine crude oil imported from Austria. Bomb damage and

dismantling by the USSR after the war reduced the capacity of the synthetic refineries by one-half. Numerous reports indicate that the output of the remaining plants is increasing. Planned production was 700,000 metric tons in 1949 and 1.06 million tons in 1950. The plants are operating almost at capacity in 1951. SAG plants, owned and controlled by the Soviet Union, account for 96 percent of synthetic fuel production, and German-owned (VVB) plants produce the remaining 4 percent.

The output of liquid fuels in 1950 is estimated as follows 1/:

Estimated East German Production of Synthetic Fuels
1950

Product	Thousand Metric Tons Estimate
Aviation Gasoline	70
Motor Gasoline	395
Kerosene	25
Diesel Oil	405
Fuel	55
Lubricants	110
Total	1,060

According to recent reports, two of the synthetic refineries, Boehlen and Schwarzheide, experimentally produced 2,000 metric tons each of T-1 jet fuel, 2/ all of which was shipped to the USSR, in the last quarter of 1950. Aviation gasoline of 95/130 grade is made at the Boehlen refinery, which also produces iso-octane. Lubricants are produced both synthetically and from crude oil imported from Austria, which totaled 120,000 metric tons in 1950.

The 13 operating refineries are listed below, with their 1950 production of gasoline and diesel oil 3/:

East German Refinery Production
1950

Name	Owner	Process	Gasoline	Diesel Oil
			Metric Tons	
Boehlen	SAG	Bergius	220,000	50,000
Leuna	SAG	Bergius	90,000	0
Zeitz	SAG	Bergius	80,000	190,000
Schwarzheide	SAG	Fischer-Tropsch	35,000	12,000
Goelzau	SAG	Carbonization	10,000	30,000
Webau	SAG	Carbonization	7,500	20,000
Koepsen	SAG	Tar Distillation	6,000	20,000
Rositz	SAG	Carbonization	5,000	60,000
Leutzkendorf	VVB	Crude Oil and Fischer-Tropsch	8,000	20,000
Edderitz	VVB	Tar Distillation	2,000	500
Boesdorf	VVB	Tar Distillation	0	3,000
Klaffenbach	VVB	Crude Oil	2,000	0
Herrenleite	VVB	Crude Oil	420	0
Total			465,920	405,500

2. Estimated Possible Production and Capacity.

Although plans for 1951 and 1952 are not known, there is little doubt that output, especially of such specialized products as aviation gasoline and jet fuel, will increase. The production of motor gasoline and diesel oil is to be 780,000 metric tons and 475,000 tons, respectively in 1955. 4/ The planned production of liquid fuels at Boehlen in 1951 shows an increase in the amount of aviation gasoline and iso-octane. The scheduled output is as follows 5/: aviation gasoline, 90,000 metric tons; motor gasoline, 140,000 tons; iso-octane, 22,000 tons; diesel oil, 27,000 tons; and kerosene, 10,000 tons.

The Leuna and Zeitz plants reportedly were being converted to the production of aviation gasoline early in 1951. 6/ The Fischer-Tropsch installation at Leutzkendorf was to be closed down on 31 March 1951 and transferred to Schwarzheide for more efficient operation. 7/

3. Domestic Requirements.

On the basis of information available, civilian and military requirements cannot be estimated separately. The planned distribution of liquid fuels in East Germany in 1950 is reported as follows 8/:

Planned Distribution of Liquid Fuels (East Germany)
1950

Consumer	Thousand Metric Tons				
	Gasoline	Diesel Oil	Kerosene	Fuel Oil	Total
Commerce	5	5	0	0	10
Berlin	11	5	0	0	16
Transportation	13	12	3	13	41
Industry	77	38	2	18	135
Agriculture	18	55	3	0	76
Central Government	32	18	0	0	50
States	104	72	2	15	193
Reserves	13	10	1	0	24
Total	273	215	11	46	545

In addition to this distribution, about 50,000 metric tons of gasoline and diesel oil were allocated to the Soviet civil and military organizations in East Germany. The estimated total requirements for lubricants have been placed at about 145,000 tons, 9/ but the East German share of this total is not known.

Actual consumption of petroleum products probably did not equal the planned allocations. Gasoline allocations were cut to 35 percent of June and July levels in September, October, and November and to 20 percent in December, 10/ and a reduction in gasoline rations has been reported by other sources. 11/ Considerable cuts in diesel fuel allocations were reported in September 1950. 12/

4. Stockpiles.

The exact extent of East German petroleum stockpiles is undetermined, but they are known to be large. The capacity of permanent shortage facilities exceeds 1 million metric tons. All of the gasoline storage depots either have been or are in the process of being filled, 13/ and new storage facilities are under construction. The cut in gasoline allotments in the fall of 1950 was reported to have been the result of stepped-up stockpiling. 14/ In Saxony-Anhalt alone, 100,000 drums were confiscated in November 1950, and similar action was reported in the other Laender. 15/ The storage depots at Velten and Riesa each received 35 tank cars of 100-octane gasoline a month in 1950 from Boehlen. 16/ In addition to gasoline, part of some of the other products allocated for consumption in 1950 probably were stockpiled instead.

5. Surplus or Deficit.

East Germany has a surplus of all petroleum products except lubricants, which are chronically in short supply. In September 1950 the Soviet authorities ordered that deliveries of synthetic lubricating oils to East German consumers be stopped immediately, thus making the shortage more critical. 17/

In addition to stockpiling some of its surpluses, East Germany exports petroleum products to the USSR, Poland, Czechoslovakia, and West Germany. A limited interzonal trade agreement reached in early December 1950 provided for the sale of at least 30,000 metric tons of petroleum products, and probably an additional 20,000 to 30,000 tons, to West Germany. 18/

Exports to the Soviet Bloc in 1950 are estimated as follows 19/:

Estimated Petroleum Exports to the Soviet Bloc
1950

	Thousand Metric Tons				
Destination	Aviation Gasoline	Motor Gasoline	Kerosene	Diesel Oil	Total
USSR	35	15	0	73	123
Poland	0	35	5	67	107
Czechoslovakia	0	30	0	20	50
Total	35	80	5	160	280

6. Internal Limitations.

The chief limitation on the East German petroleum industry is a shortage of equipment for the production of synthetic fuel. Expansion of facilities, and even reconstruction of war-damaged plants, has been seriously hindered by the effects of the Soviet dismantling policy, which, however, apparently has been reversed. Supplies of tetraethyl lead, all of which must be imported from the USSR, are inadequate. Total annual requirements are reported at 400 metric tons, but in 1950 the USSR shipped only about 184 tons and in 1951 planned to deliver 150 tons. 20/ Tank car shortages seriously restrict these imports.

7. Trends--Including Indications of Mobilization for War.

The output of liquid fuels in East Germany has increased steadily in the postwar period. Dismantled plants are being rebuilt, and the efficiency of operation is increasing.

Production efforts are being concentrated particularly on aviation gasoline and jet fuel. The 1955 production goals of 780,000 metric tons of gasoline and 475,000 tons of diesel oil probably will be met. There are indications that heavy emphasis is being placed on increasing production of the larger synthetic plants at Boehlen, Leuna, Zeitz, and Schwarzheide.

E. Electric Power.

Summary

The electric power industry in East Germany contributes significantly to the economic potential of the Soviet Bloc through the important part that it plays in the manufacture of industrial goods for export to the Soviet Bloc. The largest consumers of electric power are the chemical and synthetic fuel industries. Although power is not exported in appreciable quantities to the other Satellites, small amounts are transmitted to Poland in return for Polish coal.

The USSR plays a direct role in the production and consumption of electric power. SAG plants (Soviet-owned industrial enterprises) control about 31 percent of the generating capacity, produce about 45 percent of the electric power, and consume from 35 to 45 percent of total production.

Postwar production of power has constantly increased and has satisfied the essential requirements of the economy, but at no time has output been sufficient to meet all requirements. SAG has increased its share in the production, and probably in the consumption, of electric power.

Because of the poor condition of the generating equipment and the difficulties encountered in effecting repairs, replacements, and additions and in importing necessary equipment from the West, the electric power industry cannot in the future maintain the postwar rate of increase of production. This decline in the rate of increase will tend to limit the expansion of those industries requiring large quantities of electric power. The expanded output from the electrical equipment industry may enable generating capacity to be enlarged and more efficiently used by late 1952, but planned goals for electric power production are not likely to be met.

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1. Economic Importance of the Industry.

The electric power industry contributes significantly to East Germany's high level of industrialization. Although almost all industries depend on electric power to some extent, the chemical and synthetic fuel industries are the largest consumers.

2. Prewar and Present Trends and Developments.

Prior to the Soviet dismantling of a large portion of East Germany's generating capacity and transmission equipment in 1945-47, the electric power system in East Germany was highly developed, in fairly good condition, and closely geared to war production. Since World War I, when the use of brown coal for power production became practical, expansion has been continuous, the

greatest increases in generating capacity occurring during war and rearmament periods, 1/ when emphasis was placed on the production of nitrate, carbides, aluminum, copper, and other goods requiring large quantities of cheap electric power for their production. At the end of World War II, brown coal was virtually the sole fuel source for power production. Transmission facilities were widely developed, not only for reasons of economy, but also because the large concentration of capacity in a few plants, which results from the location of the generating plants at the site of the brown coal deposits, makes it imperative that consumers be protected from supply interruptions by access to alternative sources. Much of the older equipment, particularly boilers, suffered during the war from lack of proper maintenance, but enemy action disabled not more than 5 percent of the generating capacity. 2/

Dismantling seriously decreased the efficiency of the electric power system. Most of the newer generating equipment and considerable quantities of transmission equipment were removed, and economic distortions were created by the removal of disproportionate quantities from different parts of the country.

Despite these handicaps, the electric power industry raised production by 45 percent from 1946 to 1950 3/ by cannibalizing, importing spare parts, balancing boiler and turbine capacity, strictly regulating consumption, and operating generating units far beyond the normal safety limits. Although the increasing postwar requirements have largely been met, power production has not expanded so rapidly as requirements, and added restrictions are being imposed on less essential users.

The electric power industry will face difficulties in the next 2 years. The efficiency of existing capacity can be improved only slightly. The worn condition of equipment, the strain imposed upon all units, particularly the boilers, and the improbability of installation of new capacity will limit the efforts to increase production. Although some increase may be expected, the rate of growth will be slow, and the lack of electric power will tend to limit industrial expansion.

3. Internal Limitations.

a. Energy Resources.

East Germany's extensive brown coal reserves constitute almost the entire energy base of its electric power system. Since bituminous coal must be imported, it is used only in power-consuming centers such as Berlin, which are located too far away from brown coal burning plants to make transmission of power from these plants economical. Lack of adequate supplies and the prior claims of more essential users have prevented gas and oil from being used for power generation. Hydroelectric resources are so limited that only about 1 percent of present capacity is hydroelectric.

Brown coal reserves are sufficient to enable the power industry to maintain and expand production. The savings from low-cost production with this fuel are slightly offset by the necessity of locating generating capacity at the fuel source to avoid excessive transmission costs and of employing special techniques and equipment. These limitations have put a premium on repair facilities and skilled manpower and have increased the strategic vulnerability of the industry by forcing a concentration of capacity at the fuel sources.

b. Electricity Generating Plants.

The available figures for annual installed capacity in East Germany, including East Berlin, range from 4.4 million kilowatts 4/ to 4.85 million kilowatts 5/ and apply to 1947. These capacity estimates appear unrealistic, since they include much equipment that cannot be put into operating condition. Operable capacity in 1950 amounted to only 2.9 million kilowatts a year. 6/ Although this figure shows the broad discrepancy between operable and installed capacity that now exists, indicating the poor condition of much of the equipment, it represents a considerable improvement over conditions in 1946, when only 2.05 million kilowatts a year were in operating condition. 7/ Soviet dismantlers took the newest equipment and reduced annual installed capacity by 3.1 million kilowatts. 8/ The remaining generating equipment was obsolescent and in need of repair, the bad condition of the boilers being the chief factor that prevented many power plants from operating at capacity.

It is unlikely that the operating capacity of presently installed equipment will increase beyond 3.2 million kilowatts a year by the end of 1952, being retarded by the age of the equipment, the continued postponement of repairs, and the lack of sufficient spare parts and materials. Although the Five Year Plan (1951-55) envisages an increase of annual operating capacity of 2.1 million kilowatts, 9/ it is estimated that the total operable capacity will not exceed 3.25 million kilowatts a year by the end of 1952.

Installed capacity in 1947 10/ was almost equally divided between industrial and public utility use, and SAG plants controlled 31 percent of total capacity. Nearly 68 percent of the capacity was installed in Saxony-Anhalt and Saxony, where the largest brown coal deposits are located. Similar information for 1950 is not available, but it is unlikely that the pattern has changed radically since 1947. Nationalization of all power installations in East Germany, centralization of control for the purpose of aggregate operation, and a tendency toward closer ties between SAG and German industries have increased the efficiency of the power system.

The following table lists the 10 largest power plants, which together account for about half of the present capacity. All of these plants burn brown coal. The table also shows the extent of SAG control and the geographical concentration of capacity. 11/

Capacity of Selected East German Power Plants
1950

Thousand Kilowatts a Year

Name of Plant	Installed Capacity	Operable Capacity	Land	Ownership
Espenhain	332	279	Saxony	SAG
Boehlen	257	191	Saxony	SAG
Klingenburg	230	155	Berlin	German
Schkopau	209	135	Saxony-Anhalt	SAG
Bitterfeld	205	177	Saxony-Anhalt	German
Zschornewitz	176	152	Saxony-Anhalt	German
Hirschfelde	164	130	Saxony	German
Harbke	140	110	Saxony-Anhalt	German
Leuna	126	80	Saxony-Anhalt	SAG
Lauta	79	63	Brandenburg	German
Total	1,918	1,462		

6. Transmission Systems.

The transmission network in East Germany is highly developed and is an important factor in the power system. With this network it is possible to operate from 85 to 95 percent of the operable capacity on an aggregate basis. Aggregate operation permits the concentration of capacity at sources of fuel supply and maximum utilization, and prevents the frequent breakdowns of the individual generating units from seriously affecting the stability of the total power supply.

The transmission network was developed as part of a national network which included regional and local lines built to provide complete service within East Germany. In 1947 the following lengths of different-voltage lines existed in East Germany:

Voltage and Lengths of East German Transmission Lines

Kilovolts	Double Lines	Single Lines
	Kilometers	
220	40.8	245.3
110	2,225.2	1,687.3
60	65.6	413.8
50	614.4	1,620.6
40	63.4	593.1
30	296.3	1,228.1

The 220-kilovolt lines, which previously had connected the brown coal burning plants in East Germany with generating plants in Bavaria and the Ruhr, are now being dismantled so that the equipment may be used to build additional lines from Dieskau through Bitterfeld to the Aue-Zwonitz uranium area. 12/

The 110-kilovolt lines crisscross the entire area of East Germany and are the principal means of interregional transmission. 13/ There are many 110-kilovolt lines running from the major brown coal plants in Saxony and Saxon Anhalt to regional collecting points, which, in turn, are connected with one another, and others surround and radiate in all directions from Berlin. This network protects Berlin from the effects of individual generating failures and provides a means of transmitting power from the brown coal plants in the southern third of East Germany to the central and northern regions. Two 220-kilovolt lines, four 110-kilovolt lines, and numerous low-voltage lines run into West Germany. A high-tension cable connects the Hirschfelde power plant and the Polish city of Gorlitz across the Oder River, and low-tension cables connect East Germany with Poland and Czechoslovakia.

The large SAG power plants have their own network, which, although part of the national network, is operated directly by the Soviet authorities to supply power to the SAG chemical plants.

Soviet dismantling of transmission equipment was not extensive enough to affect seriously the distribution of power. Despite shortages of new equipment and materials, many improvements have been made by cannibalizing existing unused equipment. The benefits of this practice probably have been exhausted in line construction, however, 14/ and the shortage of high-tension cable is now considered serious. 15/

Most of the DM 100 million allocated under the Five Year Plan 16/ for expansion and maintenance of the network will be spent on strengthening the linkage between East Berlin and the brown coal plants in Saxony and Saxony-Anhalt and on altering the network to avoid transmission through West Berlin. 17/ Despite the scarcity of new equipment, it is possible that the power industry can accomplish most of its objectives by the end of the Five Year Plan. It is likely, however, that important changes will not occur before the end of 1952.

4. Production.

Production of electric power has increased since 1946 as follows 18/:

Production of Electric Power in East Germany
1946-50

Billion Kilowatt Hours

Year	Production
1946	11.7
1947	13.7
1948	15.4
1949	17.2
1950	18.5

Two important features of this expansion have been the concentration of production in relatively few plants and the increasing proportion of power produced by SAG plants, which reportedly rose from 37 to 45 percent of total output between 1947 and 1949.

Improvements in distribution have greatly increased utilization of capacity, permitting the remarkably high average use of capacity of about 6,500 hours a year, which equals a plant factor of 75 percent. Although this high rate of equipment utilization could not have been reached without multishift operations in other industries to spread consumption evenly over time, and although further production increases may result from the operation of additional capacity, it is not expected that hours of operation will increase above 6,500 hours a year. Assuming that the level of imports of equipment and materials from West Germany can be maintained, production in 1952 may be 20.5 billion kilowatt-hours. An increase in the rate of equipment breakdowns and the cessation of West German exports, however, could reduce 1952 production to below 1950 levels.

The planned goal of 31.4 billion kilowatt-hours for 1955 19/ is considered unrealistic, although the rate of increase of production may rise towards the end of the Five Year Plan period, when the electrical equipment industry should be able to deliver new generating units.

5. Consumption.

The importance of electric power to the East German economy and to the economic potential of the Soviet Bloc is best illustrated by the power consumption pattern. The largest consumers are the chemical, synthetic fuel, and brown coal industries, which together consume about 35 percent of the power produced. Power plants and transmission losses account for another 15 percent of the power, leaving only 50 percent of total output for other users.

Electric power is particularly important to the SAG industries, chiefly because almost all chemical production is SAG-controlled. Most of the power consumed by the SAG industries is produced by SAG power plants, which are

connected by their own power grid, and their present production is completely consumed by SAG industries connected to this grid, leaving no reserve power available for emergencies. Additional demand can be met only by East German plants, which must restrict the distribution of power to the national sector of the economy in order to meet SAG demands. 20/

The following table 21/ gives the consumption pattern for 1947 and illustrates the importance of electric power to the SAG industries. Since 1947, there may have been a slight increase in the proportion consumed by the chemical industry and some reduction in the proportion used in households. The statistics exclude East Berlin, where SAG controls no power plants and consumes only a small amount of power.

Consumption of Electric Power in East Germany
1947

Consumer Group	Consumption a/ (Million KWH)	% of Total Consumption	SAG Consumption (Million KWH)	% Consumed by SAG	% of Total SAG Consumption
Brown Coal Industry	1,423.05	12.9	417	29.3	10.7
Other Mining	353.94	3.2	168	49.0	4.3
Gasoline Industry	1,166.81	10.5	1,140	98.0	29.5
Chemical Industry	2,089.88	18.9	1,840	88.0	47.3
Metalworking Industry	491.08	4.4	186	38.0	4.9
Textile Industry	192.06	1.7	0	0	0
Leather Industry	13.63	0.1	0	0	0
Paper Industry	164.84	1.5	16	10.0	0.4
Woodworking Industry	59.92	0.5	0	0	0
Building Materials Industry	158.34	1.4	58	36.4	1.5
Transportation	150.34	1.3	0	0	0
Other Industry	181.20	1.6	17	9.5	0.5
Hand Trades and Small Industry	448.44	4.1	0	0	0
Food Processing Industry	204.85	0.8	0	0	0
Sugar Industry	87.18	0.8	0	0	0
Public Supply	288.56	2.6	34	11.6	0.9
Agriculture	367.42	3.3	0	0	0
Households	1,255.26	10.4	0	0	0
Occupying Power	227.62	2.0	0	0	0
Other Consumers	115.82	1.0	0	0	0
House Service in Power Plants and Losses	1,732.80	16.0	0	0	0
Total	11,073.13	100.0	3,876	35.0	100.0

a/ Excluding Berlin.

About 2 percent of total power production is exported to West Germany, Poland, and Czechoslovakia. 22/ Most of the power delivered to West Germany and Poland is exported by the Harbke and Hirschfelde plants in return for coal mined immediately across the border in the British zone and in Poland. Insignificant quantities are supplied to Czechoslovakia. 23/

The excess of requirements over supply of electric power has necessitated stringent restrictions on use since the end of the war. The imposition of tighter restrictions in April 1951 probably indicates that industrial expansion is progressing at a faster tempo than is expansion of power production. 24/ Although power shortages have been responsible for a general reduction in industrial efficiency, they have not seriously curtailed production in the important industrial plants. It is possible, however, that electric power will become an industrial bottleneck in the next 2 years. The predicted decline in the rate of increase of electric power production, if it occurs, will widen the gap between requirements and supply. Since restrictions on nonindustrial consumption already are severe, and since industrial consumers already have economized on the use of electric power, it appears that the rate of industrial expansion cannot be as rapid as heretofore. The large consumers of power will be most seriously affected by these shortages. For instance, restoration of the large aluminum industry, which was dismantled by the USSR, probably will be delayed by the inability to increase power production.

6. Input Requirements.

Manpower requirements for the electric power industry probably do not exceed 30,000 persons. 25/ A shortage of technically skilled personnel handicaps the industry. Brown coal for fuel is available in sufficient quantities. It is estimated that 37 million metric tons of brown coal, 2 million tons of brown coal briquettes, 1.5 million tons of low-carbonization coke, and 350,000 tons of bituminous coal were consumed by the electric power industry in 1950. 26/

Maintenance requirements of equipment are high because of the poor condition of the over-age installations, the high deterioration rate caused by the burning of brown coal, and the continual postponement of overhauls. The maintenance of boilers, which have broken down at almost four times the rate of turbogenerators, has been a particularly serious problem. 27/ The plan to expand operating capacity by 2.1 million kilowatts in the next 5 years will create large additional equipment requirements. The industry will need many new boilers, turbines, generators, transformers, and cables, in addition to new parts for existing equipment. It has been estimated that from DM 700 million to DM 800 million will be required to repair, replace, and expand generating equipment 28/ and that DM 100 million will be needed for improvement to the network. 29/

7. Vulnerability.

Dependence on West Germany and the Western Sectors of Berlin for materials, replacement parts, and new units makes the East German power industry highly vulnerable to economic warfare. These imports are essential to the maintenance and expansion of production. Progress has been made recently in equipping repair plants and in manufacturing spare parts within East Germany, but even this activity is dependent upon imports from West Germany. In 1949 it was estimated by officials of the industry that DM 20 million would be needed to meet demands for 1950. 30/ Essential imports for 1950 included condenser tubes, copper cable, boiler tubes, superheater tubes, blade steel, special electric motors and replacement parts, replacement parts for turbines, galvanized steel cable, high-grade steels, heavy current cable, and special machines. 31/

Improvements of facilities have been slight and have been achieved in a few categories of materials and equipment. Officials of the industry have estimated that the task of replacing and repairing power stations now in poor condition and meeting the additional electricity requirements of the next few years will require DM 1 billion, of which from 50 to 60 percent will be required in the form of foreign currency. 32/

F. Chemicals.

Summary

The production of caustic soda in East Germany, which is estimated at 145,000 metric tons in 1950, is inadequate to meet domestic requirements. The industry is plagued with many limiting factors, among them electric power shortages, shortages of spare parts, and antiquated equipment, which contributed to the failure to meet the 1950 production quota. Despite domestic shortages, East Germany is believed to be continuing reparations shipments of caustic soda to the USSR.

To better its caustic soda position, East Germany must increase imports from the West, since the entire Soviet Bloc is faced with a general shortage of caustic soda. The largest imports are supplied by Sweden and the Netherlands. Deficiencies in the caustic soda supply are partially responsible for the failure of many industries requiring caustic soda, among them the rayon and cellulose, soap, dyestuffs and intermediates, and other heavy chemicals industries, to expand production.

The estimated 1955 output goal of 250,000 metric tons of caustic soda is not likely to be met. Unless necessary materials are obtained, particularly from the West, the industry faces stagnation and even deterioration.

No pure sulphur is mined in East Germany, but large quantities are recovered from nonferrous smelters, from coke ovens, from synthetic fuel manufacture, and from other sources. Production from these and from new sources is being continually increased. Compelled to send sulphur and products requiring sulphur to the USSR as reparations, East Germany has been obliged to curtail drastically domestic production of rayon, rubber goods, certain chemicals, and other products which require pure sulphur. The world sulphur shortage and Western export controls make the procurement of imports from the non-Orbit countries, which produce most of the world's output, difficult if not impossible.

East Germany depends principally on imported pyrites for the manufacture of sulphuric acid, sulphite pulp, and many other chemicals. Most of the world supply of pyrites comes from non-Bloc countries and is in great demand as a substitute for sulphur, which is in short supply throughout the world. As a result of this increase in world demand, coupled with Western trade controls, pyrites exports from Western countries to East Germany may cease altogether in 1952. Because of earlier procurement difficulties, stocks on hand fell so low that the rate of operations in sulphuric acid works was reduced after 1949. East Germany, however, apparently plans to reach

eventual self-sufficiency for sulphuric acid production through the use of the more expensive process based on gypsum and through increased utilization of sulphate by-products from the potash and major industries.

So long as East Germany can procure the necessary quantities of pyrites from non-Orbit areas, it will continue to contribute importantly to the war potential of the USSR by supplying strategic goods requiring pyrites. If the pyrites is not forthcoming from the West, however, this aid will be seriously impaired, although in lessening degree as alternative sources of raw materials are developed.

East Germany is the only significant producer of synthetic rubber in the Soviet Bloc. The Bunawerke plant in Schkopau, Germany's largest synthetic rubber plant, produced 60,000 metric tons a year, over 50 percent of the total German output of synthetic rubber, during World War II. The effects of dismantling and the shortage of raw materials reduced output considerably in early postwar years, but production in 1950 was nearly 40,000 metric tons and is expected to reach about 47,000 tons in 1951. The Five Year Plan (1951-55) envisages production at prewar levels by 1955.

Little more than half of the synthetic rubber produced in East Germany is believed to be retained for use by domestic rubber fabricating plants, most of the remainder going to the USSR, Czechoslovakia, and Poland. Great efforts have been made to build up a rubber fabricating industry in East Germany, which before the war was supplied by West German plants. Four automobile tire plants produced an estimated 450,000 units in 1950, and production is expected to double between 1951 and 1955. This planned expansion, however, is dependent on the acquisition of special equipment and the availability of raw materials. Domestic production of automobile tires is not sufficient for requirements, about half of which must be met from imports, mainly from West Germany, Poland, the Netherlands, Czechoslovakia, and Italy. Since the types and sizes produced by East German plants are severely limited, imports will still be required for replacements for many vehicles, even if production gains are achieved. Tire cord and rubber goods are exported to the USSR and the Satellites, and the flow of rubber goods and of synthetic rubber as reparations and as exports to the Soviet Bloc is expected to continue to handicap the expansion of the East German economy.

Stocks of synthetic rubber and rubber goods, including tires, are reported to exist in East Germany, but such supplies are not believed to have yet reached large proportions.

Most of the chemical products used for the production of synthetic rubber are available domestically, and additional raw materials are obtained from the other Satellites, particularly Poland. Production of the chemicals used in synthetic rubber production and in the rubber fabrication processes was begun after the Western counterblockade cut off supplies from West Germany in 1948. Carbon black production also has been increased. Additional supplies are now being obtained from Poland and West Germany and by clandestine trade with Western countries.

The high level of German technical personnel and the advanced nature of the processes used are considered capable of supporting a large expansion of the rubber industry. This technical leadership in East Germany is also being used in training of Soviet and Satellite personnel to overcome the lack of skilled rubber workers elsewhere in the Soviet Bloc.

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1. Caustic Soda.

a. Production.

East Germany's production of caustic soda is estimated at 110,190 metric tons in 1948, 138,000 tons in 1949, and 140,000 tons in 1950. Planned output in 1950 was 145,000 tons. Caustic soda is produced at the present time almost entirely by the electrolytic method. Before and during the war, two soda ash plants also produced caustic soda by the causticification process. Both of these plants were largely dismantled by the USSR.

b. Estimated Possible Production and Capacity.

New caustic soda plants at Radebeul and Wolfen are expected to be in operation by 1952. Rough estimates of production and capacity in 1951 and 1952 are as follows:

Estimated Production and Capacity of Caustic Soda
1951-52

	Thousand Metric Tons	
Year	Production	Capacity
1951	150	190
1952	170	210

c. Domestic Requirements.

The minimum quantities of caustic soda required to permit slight production increases for the consuming industries are estimated as follows:

Estimated Domestic Requirements of Caustic Soda
1948-52

Year	Thousand Metric Tons Requirements
1948	115
1949	145
1950	165
1951	185
1952	210

One report indicates that the total demand for 1950 would be in excess of 300,000 tons.

The rayon industry, producing artificial silk and staple fiber, is the largest single consumer of caustic soda and in 1950 used approximately 40 percent of the caustic soda output. Other caustic soda users are the pulp and paper (bleached sulphite pulp and sulphate pulp), soap, dyestuffs and intermediates, fine chemicals, heavy chemicals, and textiles industries. No detailed analysis of consumption is possible, since soda ash also may be used in the pulp and paper, soap, dyestuffs, and heavy chemical industries.

d. Stockpiles.

There is no direct indication that caustic soda is presently being stockpiled in East Germany. One 1949 report stated that, of the planned production of 118,200 metric tons, about 6,300 tons were allocated to the "reserve."

e. Surplus or Deficit.

Caustic soda deficits are estimated as follows:

S-E-C-R-E-T

Estimated Deficits of Caustic Soda
1950, 1952

	Thousand Metric Tons	
	1950	1952
Requirements	165	210
Availability		
Production	140	170
Imports	22	20
Total Availability	162	190
Net Deficit	3	20

East Germany faces a serious supply situation for caustic soda. Planned annual production quotas have had to be revised downward for several years. The production quotas for the cellulose, artificial fiber, and soap industries also have had to be lowered, partly as a result of the caustic shortage. Although soda ash may be used as a substitute for caustic soda in the pulp and paper, soap, and other industries, its production also is inadequate, partly because the soda ash plants were extensively dismantled by the USSR, and it is a question whether soda ash or caustic soda is in shorter supply.

The shortage of caustics is further aggravated by reparations deliveries to the USSR. In 1949, about 2,500 metric tons of caustic soda were sent to the USSR, and 300 tons of soda lye were scheduled to be shipped to the Soviet Union in March 1951. Although its production is low, East Germany has been supplying Bulgaria, Czechoslovakia, Poland, the USSR, and China with caustic potash, which can be used as a partial substitute for caustic soda.

Many attempts have been and still are being made to import caustic soda from the West. In both 1949 and 1950, about 2,500 metric tons were supplied by the Netherlands, while nearly 4,000 tons were furnished by West Germany in 1950. In August 1950 a trade contract was signed with Sweden for caustic soda deliveries amounting to $338,287, and it is believed that this contract carries over into 1951.

The other European Satellites can furnish little assistance to alleviate the shortage in East Germany, as the caustic shortage is general in the Bloc. Poland, however, supplied 3,070 metric tons in 1949.

S-E-C-R-E-T

f. Internal Limitations.

Salt, the basic raw material needed in caustic soda production, is in plentiful supply in East Germany. The chief limitations on production are shortages of electric power, equipment and spare parts, and mercury.

(1) Electric Power.

East Germany is believed to be operating at forced capacity with no electric power reserve. Failures and breakdowns have occurred, although not for extended periods. In order to maintain continuous operation, the electric power grid for the chemical industry receives first priority in supply and maintenance demands.

(2) Equipment and Spare Parts.

Much of the caustic soda equipment is old and inefficient. The USSR is reported to have reduced the annual caustic soda capacity by about 68,000 metric tons through dismantling, and much of the equipment taken was of a modern type. New equipment and parts for the electrolytic installations are in short supply, and little of this type of equipment is produced domestically. Maintenance work formerly was done by firms now in West Germany, and there is believed to be little capacity to build and repair electrolytic cells in East Germany at this time. The supply of suitable electrodes also has been a limiting factor, and satisfactory asbestos diaphragms for the cells have been lacking.

(3) Mercury.

This metal is necessary in the operation of mercury-type electrolytic cells. Several sources have reported a shortage of mercury in East Germany.

g. Trends--Including Indications of Mobilization for War.

There has been no indication of mobilization for war in the caustic soda industry. In fact, the industry has become increasingly dependent upon the West and apparently desires to keep trade channels open to permit sufficient imports.

Several electrolytic caustic plants are scheduled for expansion in 1951 and later. The increase in electric power supply which is essential to these plans, however, unquestionably will encounter great difficulties. Another problem is maintenance of the antiquated plant installations with inadequate tools and equipment. The East German chemical industry cannot obtain adequate quantities of machinery, instruments, and other equipment

from the Soviet Bloc countries. Even Czechoslovakia can only slightly replace the former deliveries from West Germany. Precision mechanical instruments of high quality cannot be supplied at all from Bloc sources, which produce only low-quality instruments.

It has been reported that apprentices are not properly indoctrinated. Young workers of proved efficiency who have the necessary talent for university studies are being retained in the plants, while other, less efficient workers are proposed for university training because of their social background. These limitations indicate that the estimated production goal of 250,000 metric tons of caustic soda in 1955 is not likely to be attained.

2. Sulphur and Pyrites.

a. Production.

(1) Sulphur.

No pure sulphur is mined in East Germany. Large quantities of by-product sulphur are recovered from the smelting of nonferrous metals, from the waste gases of coke ovens, from process gases produced in the manufacture of synthetic liquid fuels, and from spent oxides produced in the purification of city gas. 1/ Planned production of by-product sulphur in 1949 was 32,200 metric tons, but attainment of this target is unconfirmed. 2/ The 1950 Plan called for an output of 53,550 tons, and, in the first 7 months of 1950, production was 25,000 tons, equal to an annual rate of 42,900 tons. 3/

(2) Pyrites.

The only pyrites deposits in East Germany are located at Elbingerode in the Harz Mountains and at Himmelfahrt near Holsbruecke. Production is estimated as follows:

Estimated Production of Pyrites
1949-50

	Elbingerode	Himmelfahrt	Metric Tons Total
1949	60,000 a/	10,000 a/	70,000 a/
1950 b/	77,000	13,000	90,000

a/ Estimated from monthly output rates in November 1949 and total planned output. 5/
b/ Estimated from output of 52,052 metric tons in the first 7 months of 1950 and the planned 1950 output of 90,000 tons. 6/

b. Estimated Possible Production and Capacity.

(1) Sulphur.

Plans for the production of by-product sulphur in 1952 have not been reported. On the basis of planned production of 60,000 metric tons in 1951, 7/ it is estimated that the 1952 output will approach 70,000 tons.

(2) Pyrites.

Planned production of pyrites in 1951 is 110,000 metric tons, 8/ of which 96,000 tons is to be produced at Elbingerode. 9/ From these and earlier data, it is estimated that total production of pyrites in 1952 will be about 130,000 tons.

c. Domestic Requirements.

(1) Sulphur.

Sulphur requirements include not only reparations shipments of sulphur as such but also the amounts needed in the manufacture of reparations products. Nearly two-thirds of total requirements are for the manufacture of carbon bisulphide for rayon, and one-third is for reparations and for exports to West Germany. 10/ Small quantities of sulphur are required for rubber vulcanization, mine flotation agents, certain rubber chemicals, and a variety of other chemicals.

Since planned requirements of sulphur were 60,000 metric tons in 1951, 11/ it is estimated that 1950 requirements were about 50,000 tons and that requirements in 1952, including reparations and other exports, will be about 70,000 tons.

(2) Pyrites.

The principal requirements of pyrites are for sulphuric acid, sulphite pulp, and a large number of chemicals. Sulphuric acid, in turn, is essential in varying degrees in the production of explosives, rubber chemicals, many metal products, rayon, nylon, bichromates, and other strategic products. Planned imports of 165,000 metric tons 12/ and an estimated production of 70,000 tons in 1949 indicate that requirements for pyrites in that year were 235,000 tons. Requirements in 1950 were 280,000 tons for consumption, plus 60,000 tons for stockpile, of which 250,000 tons were to be imported and 90,000 tons were to be domestically produced. 13/

Requirements in 1951 and 1952 are estimated at 280,000 metric tons on the assumption that some production of sulphuric acid from gypsum and from sulphate by-products of the potash and rayon industries will have begun. 14/

d. Stockpiles.

Shortages of both sulphur and pyrites have prevented extensive stockpiling of either of those materials. As of 31 July 1950, stocks of sulphur and pyrites were only 577 and 382 metric tons, respectively. 15/ Although it is planned to import 60,000 tons of pyrites in excess of requirements in 1951 as a precaution against a recurrence of 1949-50 shortages, 16/ it is doubtful whether this extra supply can be obtained.

e. Surplus or Deficit.

(1) Sulphur.

East Germany is compelled to send sulphur and products depending on sulphur as reparations to the USSR, while at the same time its own industries, particularly the viscose rayon industry, have been operating at low rates since 1949 because of sulphur shortages. Whether the country would be self-sufficient in sulphur if reparations requirements were eliminated cannot be estimated, since it is not known at what rate the sulphur-consuming industries would have to operate in order to satisfy domestic requirements.

In 1949, exports of sulphur amounted to 11,500 metric tons, of which 6,442 tons went to the USSR as reparations and the remainder went principally to Czechoslovakia, with small quantities going to Rumania, Poland, and Yugoslavia. 17/ Reparations shipments to the USSR of 8,359 tons of sulphur had been made as of 30 September 1950 18/ under an agreement of 12 April 1950 providing for deliveries of 12,000 tons. 19/ There were no known imports of sulphur in 1949, but 2,000 tons were purchased in Italy in 1950, 20/ although delivery has not been confirmed. Some carbon bisulphide is believed to have been imported from West Germany in 1950 for the rayon industry. 21/ The surplus-deficit situation in 1952 will depend largely upon Soviet reparations requirements and the achievement of the production target for that year.

(2) Pyrites.

Planned imports of pyrites in 1949 were 165,000 metric tons, 22/ but, so far as can be ascertained, only 142,000 tons were actually received.*

* Compiled from official statistics of non-Bloc producers and from reports on Bloc producers. 23/

The severity of the pyrites deficiency is illustrated by the plan to import 10,000 tons of sulphuric acid in 1949 24/ (equivalent to about 7,500 tons of 45 percent-sulphur content pyrites), by the cessation of sulphuric acid exports to West Germany in 1950, 25/ and by a 30-percent reduction in the output of acid plants in the last quarter of 1950 and the first quarter of 1951 until a supply of pyrites was assured. 26/

In 1950, planned pyrites imports were 250,000 metric tons, 27/ but in the first 7 months only 45,064 tons had been received, 28/ and it is doubtful whether 60,000 tons contracted for in Greece, Cyprus, and Poland 29/ and 50,000 tons purchased in Italy 30/ were finally obtained. Attempts were made to procure supplies from Spain and Portugal, using British, French, and Swiss firms as covers, 31/ and a special mission went to Bulgaria in an attempt to procure additional supplies. Planned imports in 1951 also total 250,000 tons, of which 220,000 tons are to be from non-Orbit countries. Plans for pyrites imports have been included in trade agreements with Norway, Sweden, Finland, Yugoslavia, and Italy.

f. Internal Limitations.

(1) Sulphur.

Inability to procure necessary extraction equipment, which comes mainly from West Germany 32/ and which differs for the several types of extraction processes, has been a principal factor in retarding the expansion of by-product sulphur recovery. Imports of equipment from the USSR cannot be relied upon, and Czechoslovakia has been unable to replace deliveries from West Germany. 33/

(2) Pyrites.

In 1949, US occupation forces reported that the old deposits at Elbingerode would be exhausted in from 18 to 24 months but that new deposits had been discovered which would last 10 or more years. 34/ The original Elbingerode deposits were reported in 1950 to be largely exhausted, yielding ore of only 30-percent sulphur content, which necessitated admixture of richer ores (probably imported) before roasting. 35/ The extent of the reserves at Himmelfahrt is unknown.

g. Trends--Including Indications of Mobilization for War.

East Germany faces increasing difficulties in procuring sulphur and pyrites from non-Bloc countries, which are already confronted with a critical shortage of sulphur and are expected to be short in pyrites in 1952. 36/ Consequently, East Germany is making every effort to increase domestic supplies of sulphur in one form or another. These efforts include: (1) increased

production of pyrites and elemental sulphur from waste gases; (2) rebuilding of the sulphuric acid (gypsum base) plant at Wolfen, completion of which is expected by mid-1951, 37/ which will have an initial acid capacity equivalent to 59,000 metric tons 38/; and (3) production of sulphuric acid from magnesium sulphate, a by-product of the rayon industry. 39/

The Five Year Plan (1951-55) calls for the production of 438,000 metric tons of sulphuric acid (equivalent to 312,000 tons of 45 percent sulphur content pyrites) from gypsum alone by the end of 1955 at the former IG Farben plant at Wolfen. 40/ It is extremely doubtful, however, whether this conversion will be completely achieved by then. Furthermore, the Plan does not mention acid production from the waste sulphur dioxide gas of nonferrous smelters. Nevertheless, in a sense East Germany is self-sufficient, on a restricted basis, in elemental sulphur, despite Soviet reparations requirements.

Increased pyrites demands are being partly met by larger domestic production, while the increasing import requirements, filled principally from non-Orbit countries, are beginning to level off. Many strategic products requiring sulphuric acid or sulphur dioxide in their manufacture are exported to the USSR and Satellites. East Germany's ability to furnish these goods constitutes an important contribution to the Soviet war potential but will continue only as long as adequate supplies of pyrites can be obtained from non-Bloc areas. No basis exists for believing that Albania, Bulgaria, and Rumania can supply East Germany with sufficient pyrites, even if these countries cease exporting to Czechoslovakia, Hungary, and Poland. Even the availability of Yugoslav pyrites would not fully meet Satellite requirements in the event that supplies from Norway, Sweden, Finland, and Cyprus were cut off.

3. Rubber.

a. Production.

Over two-thirds of the synthetic rubber industry in prewar Germany was located in what is now West Germany, although the Buna works plant at Schkopau in East Germany was Germany's largest synthetic rubber plant, producing annually about 60,000 metric tons, or over 50 percent of a total German output. 1/ Since the end of the war, Soviet dismantling of a substantial portion of such facilities has considerably reduced output. 2/ Aided by replacement of some equipment and improvement of technological processes, however, production has gradually increased 3/

Estimated Production of Synthetic Rubber
1948-50

Metric Tons

Year	Estimate
1948	30,500
1949	27,000
1950	40,000

Buna S (equivalent to the GRS rubber produced in the US) is the major type of synthetic rubber produced, but Buna SS, Buna S3, Bunas 32 and 85, Perbunan (Buna N, equivalent to GRA in the US), and other variations of buna-type rubber also are produced.

Some research work on behalf of the USSR reportedly has been conducted on low-temperature polymerization of rubber and on the development of rubber capable of withstanding low temperatures. 4/ Formulas and facilities for the production of Purzell, a type of cellular or sponge rubber, were acquired by the Soviet Union in 1945. This sponge rubber may be the type reported to be useful in antiradar coating on submarine hulls. 5/

Almost all of the prewar tire manufacturing facilities are located in West Germany, and the industry in East Germany had to start from the bottom in building up such production after the war. 6/ Until the imposition of the Western counterblockade in 1948, considerable quantities of tires made from synthetic rubber supplied by East Germany were received from plants in West Germany. The counterblockade stimulated vigorous efforts to increase East German tire production. 7/

There are now four plants producing automobile tires in East Germany, the major producer being the Deka plant in Ketschendorf. Production of tires and tubes is estimated as follows 8/:

Estimated Production of Automobile Tires and Tubes
1948-50

Units

Commodity	1948	1949	1950
Automobile Tires	103,000	267,000	450,000
Automobile Tubes	220,000	410,000	467,000

b. Estimated Possible Production and Capacity.

An increase in synthetic rubber production is scheduled in the Five Year Plan (1951-55), with output to reach 60,000 metric tons, or 50 percent more than 1950 production, by 1955. 9/ With the addition of polymerization equipment and adequate quantities of raw materials, the Bunawerke plant at Schkopau could rapidly reach its prewar peak of production. Synthetic rubber production is estimated at 47,000 metric tons in 1951 and 50,000 tons in 1952. 10/

Production of automobile tires is scheduled to double in the next 5 years, reaching 900,000 units by 1955. 11/ This expansion of production, like the increase in synthetic rubber output, will depend on the addition of special equipment and the availability of raw materials. Some machinery for tire production reportedly has been made in East Germany, 12/ but whether or not new facilities will be sufficient to meet production goals is not known. In order to attain such output by 1955, production probably would have to be 540,000 units in 1951 and 630,000 units in 1952. 13/

c. Domestic Requirements.

Most of the chemical components which go into production of synthetic rubber are derived from calcium carbide, the industry's basic raw material. One metric ton of lime, 600 kilograms of coke, and about 3,500 kilowatts of electric power are required to produce a ton of calcium carbide. It was reported in 1948 that 4.3 tons of carbide were required to produce 1 ton of Buna S, but this ratio probably has been lowered.

Of the 47,000 metric tons of synthetic rubber to be produced in 1951, little more than half probably will be retained for the domestic production of goods, the remainder being allocated to the USSR and the other Satellite countries as reparations and as exports. Data on the rubber supplies available to plants in East Germany in postwar years are not available, but preliminary estimates are as follows 14/:

Estimated Domestic Availability of Rubber
1948-50

Metric Tons

Commodity	1948	1949	1950
Synthetic Rubber	10,000-12,000	15,000-18,000	20,000
Natural Rubber	928	2,000	3,000
Total	10,928-12,928	17,000-20,000	23,000

No information is available on supplies or procurement of reclaimed rubber.

Supplies of synthetic rubber allocated for use by East German plants are expected to increase. In the next 2 years it is estimated that about 25,000

metric tons of synthetic rubber a year will be available for East German consumption, 15/ and imports of natural rubber also are expected to increase.

Domestic production of automobile tires, a large quantity of which goes to the USSR, is not sufficient for requirements. Since the total number of vehicles is approximately 170,000, requirements are estimated to be about 850,000 tires a year, of which over half must be imported. About 600,000 motor vehicle tires, of which 440,000 were to be imported, reportedly were required in 1948. 16/ Since the range of types and sizes produced by East German plants is severely limited, many motor vehicles depend entirely on imports for replacement tires. 17/ The reportedly poor quality of domestic tires necessitates a high rate of replacement.

d. Stockpiles.

A stockpile of 6,000 metric tons of synthetic rubber existed at the end of 1946, 18/ and part of 1948 production was scheduled to go into reserve stocks. Plans for 1949 provided for the allocation of only 6.6 tons to reserves, 19/ and present stocks probably are still small.

In 1950 a small reserve of used rubber, said not to exceed 1,200 metric tons, was reported, and the SAG administration reportedly notified the MIAI Innere Reserven Office, which controls industrial stockpiles, that in 1951 the SAG plants would take all the remaining stock. 20/ Stocks of natural rubber existing at the end of the war were appropriated by the USSR, but some of these reserves reportedly were allocated for use by German plants. 21/

Fabricated rubber goods also are reported to be going into reserves, but these accumulations may be only temporary stocks, to be maintained pending the inauguration of a strict system of distribution. It is also possible that these reserves are intended for reparations or bartering exchanges with the USSR and the other Satellite countries. 22/ Stocks of approximately 60,000 tires at a depot in Berlin reportedly were heavily depleted when supplies from West Germany were cut off in 1948. 23/ About 24,800 automobile tires and 110,300 tubes were included in the 1949 plan for reserve stocks. Other major items included for reserves in 1949 were 241,500 pairs of rubber footwear, 48,100 pairs of rubber boots, 321,100 square meters of conveyor belts, and 446,400 meters of rubber V-belts. 24/

e. Surplus or Deficit.

East Germany suffers from deficits of both natural and synthetic rubber. Because of the excessive allocation of synthetic rubber to the USSR and the other Satellites, the quantities available for domestic consumption are not sufficient to meet requirements. 25/ Diversions of synthetic rubber to reparations and/or exports to Soviet Bloc countries, especially to the USSR, Czechoslovakia, and Poland, and to reserve stocks are estimated at 20,000 metric tons in 1950, 22,000 tons in 1951, and 25,000 tons in 1952. 26/

Because of the lack of sufficient capacity for the manufacture of rubber goods and the large allocations of such goods to the USSR and the other Satellites, there is also a deficit of fabricated goods, especially tires. 27/ At present, it is estimated that from one-half to two-thirds of domestic requirements of tires must come from imports. Conveyor belts were in such short supply in 1948 that industrial plants were faced with a shutdown, but imports from the West enabled minimum operations to continue, and domestic production has been increased. 28/ The export plan for 1951 provides for the shipment of 275,000 pairs of rubber boots and 400,000 rubles worth of rubber tubing and other rubber products to the USSR, Poland, and Czechoslovakia. 29/

East Germany produces a surplus of dipped rubber goods, of which it was once the major and almost sole producer. Although some factories were dismantled after the war, it is reported that productive capacity is still higher than current demand, and some factories have had to close down from time to time. Increasing quantities of these goods, particularly prophylactic rubber goods and surgeons' gloves, 30/ have been illegally sent to West Germany and "dumped" at prices that would barely cover the cost of producing them in West Germany.

f. Internal Limitations.

(1) Availability of Raw Materials.

Natural rubber is obtained by transshipment from the USSR and the Netherlands. 31/ Some stocks of natural rubber, taken by the Soviet Union after the war, may have been made available to German plants, 32/ but future supplies must be imported. Synthetic rubber will be supplied from domestic production. Carbon black and rubber chemicals are now produced in East Germany, and additional supplies are procured from other Orbit countries and from Western sources. 33/ West Germany was the main source of these supplies until these exports were halted by the imposition of the Western counterblockade in 1948. The shortage became so acute as a result of this action that some rubber chemicals reportedly were borrowed from Dutch firms in order to bridge the gap until orders placed in the US through a Dutch intermediary could be filled. 34/ By late 1949, production of the major rubber chemicals had been started in East Germany, illustrating the rapidity with which such materials can be put into production in response to economic warfare. 35/ Phenyl-beta-naphthylamine, domestic production of which started in 1949 at the Wolfen plant, 36/ is imported from Poland, and some probably is still obtained by clandestine means in Western Europe. 37/

Carbon black production also has been increased, 38/ and additional supplies are imported from West Germany. Production of gas carbon black is estimated at 1,200 metric tons in 1950.

Tire cord is produced in East Germany, and the Five Year Plan provides for increased production in the next 5 years. 39/ Quantities of viscose rayon and Perlon (nylon) cord for the production of tire cord are supplied to the USSR and the other Satellites, particularly Czechoslovakia.

(2) Shortages of Raw Materials, Technical Personnel, Equipment, Containers and Other Limiting Factors.

The shortage of natural rubber has lowered the quality of rubber products, and plans provide for increased imports of natural rubber from the Netherlands to supplement the meager quantities supplied by the USSR. 40/

While most of the chemical products used for the production of synthetic rubber are domestically available, some of the basic raw materials must be imported. Lime comes from Rubeland/Harz, but coke must be imported from Poland. Benzol has been imported from Austria, but it is reported that, since the end of May 1950, approximately 25 percent of requirements has come from Poland and the remainder from the USSR. Phenyl-beta-naphthylamine, required in the final stages of polymerization, formerly was procured mainly from West Germany, but production was initiated at the Wolfen plant after supplies were cut off during the counterblockade in 1948. Some 597 metric tons reportedly were imported in 1948 from Austria, Czechoslovakia, Poland, and Italy. Production of pheryl-beta-naphthylamine probably is still insufficient, since 90 tons reportedly were imported from Poland in the first 3 months of 1950. Present requirements are estimated to be about 300 tons a year.

Soviet dismantling at the Schkopau synthetic rubber plant seriously decreased East Germany's synthetic rubber capacity. These removals affected mainly polymerization and styrene production facilities. It was reported that, as a consequence of the lack of benzol for styrene production, only 8 percent styrene is included in the synthetic rubber mixture, rather than the planned 12 percent. US producers commonly use about 23 percent styrene, but experimentation has been made with lower ratios. Although it is reported that the rubber produced is suitable for all arctic uses and would meet military specifications down to -70 degrees F, it is believed to be inferior in other respects. With the addition of polymerisation equipment and with assurance of adequate quantities of raw materials, the Schkopau plant could rapidly reach its prewar peak of production.

The increased synthetic rubber production scheduled in the Five Year Plan may permit additional quantities to be allocated to the German economy. In former years, more than half of East Germany's production of synthetic rubber reportedly has gone to the USSR and to Satellite countries, causing a severe domestic shortage of fabricated rubber goods. This shortage of rubber goods also results in part, however, from the lack of manufacturing capacity which resulted from the postwar division of Germany and from Soviet dismantling. Auto tire production has received the greatest emphasis in the postwar expansion program. Existing installations have been consolidated and equipment pieced together to provide increased capacity, but these practices have resulted in breakdowns of old equipment. The industry also has suffered from a lack of electric power.

The high technical level of East Germany's personnel and the advanced nature of the processes used are considered capable of supporting a great

expansion of the rubber industry. East German personnel and methods are now being used to train rubber workers of the USSR and the other Satellites in an attempt to overcome the lack of skilled labor in those countries.

g. Trends--Including Indications of Mobilization for War.

As a contribution to the Soviet plan to increase automobile tire production, East German tire production is expected to double in the next 5 years. This increased production, however, would only equal present East German tire requirements, whereas requirements by 1955 probably will have increased.

C. Engineering Industry.

Summary

The engineering industry accounts for about 25 percent of the value of East German industrial production. The industry was dismantled by the Soviet Union after World War II, reducing its capacity to about 28 percent of the prewar level, but, by the end of 1950, capacity had been reconstructed to the 1936 level and comprised about 700 major plants, employing about 700,000 workers, or 25 percent of the industrial labor force. Of the present production capacity, about 30 percent is Soviet-owned. The value of 1950 production of the industry was about DM 5.2 billion.

Under the Five Year Plan, production in 1955 is to reach a value of DM 11.28 billion. The Plan provides for supplying equipment for the expansion of the mining, metallurgy, and electric power industries; for production of many lines of equipment formerly imported from the West; and for traditional surpluses to export in exchange for raw material imports. The Plan is ambitious and probably impossible to achieve in its entirety.

East Germany is delivering huge quantities of the products of its engineering industries to the USSR as reparations and in commercial transactions. Reparations deliveries in 1950 were about DM 1 billion. Most of the production of the Soviet-owned firms, which in 1950 had a planned production of DM 1.3 billion, also goes to the USSR. Thus the USSR gets about 45 percent, by value, of production of the industry, aside from regular commercial imports.

The Five Year Plan aims at a complete integration of the East German economy with that of the Soviet Bloc. Production of capital goods in 1955 will be from 250 to 260 percent of the 1936 level and will be very similar to the output achieved in 1944. Among the key goals of the Plan are economic independence of West Germany and conversion of the industrial potential to direct and indirect armaments production.

East Germany lacks many basic materials and components for the production of machinery which formerly were freely obtained from West Germany. To eliminate these bottlenecks, many new industrial activities must be initiated.

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1. General.

a. Production.

In 1937 the area which is now East Germany produced 29 percent of the total German output of machine tools, 54 percent of textile and other light machinery, 34 percent of fittings and valves, and 35 percent of precision and optical equipment. The engineering industries of the present East and West Germany were highly interdependent before the war. East Germany produced surpluses of certain types of textile machines, office equipment, precision instruments, some machine tools, and other light machinery but was dependent on

West Germany for trucks; bearings; heavy electrical equipment; most types of heavy machine tools; metallurgical equipment; and heavy mining, construction, and lifting equipment.

At the end of the war the Soviet Union dismantled about 72 percent of the East German machinery production capacity and later converted to Soviet ownership plants comprising 10.5 percent of the prewar capacity, including 60 of the most important installations. 1/ Of the balance left in German hands, a large portion had suffered serious war damage. The Soviet-owned SAG plants account for from 25 to 30 percent by value of engineering production, and most of their output is shipped to the USSR as Soviet-owned property 2/ in addition to reparations. The SAG engineering plants had a planned production value in 1950 of DM 1.33 billion, 3/ and actual production probably exceeded the planned figures.

The Soviet authorities have demanded preferential treatment for the SAG plants in the procurement of workers, materials, and components, and plants under the control of the Ministry of Machinery Building have been forced to deliver components or materials as required by the SAG firms on a priority basis at 1944 prices, which are lower than present prices. Almost all of the production of the SAG plants is delivered to the USSR, and the remainder is sold elsewhere for Soviet account.

The plants and workers under the Ministry of Machinery Building and under Soviet ownership are shown in the following table 4/:

Ownership and Employment in Selected East German Engineering Industries December 1950

Industry	German-Owned		SAG	
	Plants	Workers (Thousands)	Plants	Workers (Thousands)
Heavy Machinery	198	96.0		
General Machinery	261	106.4	21	37.0
Electrotechnical Equipment	129	87.9	15	30.0
Precision and Optical Equipment	62	54.3	8	22.0
Rail and Motor Transport Equipment	65	50.7	10	24.0
Shipbuilding	18	37.2	6	11.0
Total	733	432.5	60	124.0

In addition to the SAG plants and the nationalized plants (VVB's), there are a large number of small privately and communally owned firms in East Germany, which in 1950 had a planned production equal to about 22 percent of planned production of the entire engineering industry. 5/ Assuming that these firms also employ 22 percent of the workers, the total number of workers is about 700,000. Workers in the engineering industries, therefore, constitute about 25 percent of the 2.8 million industrial workers employed in the manufacturing and extractive industries.

Production of Selected East German Sectors of the Engineering Industry - 1949-50

Percent

Commodity	Nationalized Plants		SAG Plants		Private Plants	
	1949	1950	1949	1950	1949	1950
Machinery, including Land and Water Transport Equipment	48	49	28	28	24	23
Electrotechnical Equipment	46	47	39	37	15	16
Precision and Optical Equipment	48	48	23	21	29	31
Total	47	49	30	29	23	22

In 1946 the Soviet Union began a policy of demanding and assisting in the expansion of the engineering industry. 6/ Under the Two Year Plan (1949-50), reconstruction of metallurgical and machinery plants was started, and dismantled machinery was returned from the USSR for some of this reconstruction. 7/ The Plan provided for expanding capacity by 50 percent in the 1949-50 period, with special emphasis on metallurgical, locomotive, freight car, automotive, machine tool, instruments and optical equipment, agricultural machinery, and bicycle plants. 8/ The Two Year Plan, in most respects, appeared to be a normal plan for rebuilding capacity to prewar levels, and, by the end of 1950, average production capacity of the industry had reached the 1936 level. 9/

b. Estimated Possible Production and Capacity.

Production goals established by the Five Year Plan (1951-55) far exceed normal domestic requirements for engineering products. Output and planned output are as follows:

Production and Planned Production of the
East German Engineering Industry
1949-51, 1955

Million DM

Commodity	1949	1950 10/	1951	1955 11/
Machinery, including Land and Water Transport Equipment	2,350	3,665	4,258 12/	8,1)
Electrotechnical Equipment	700	1,148	N.A.	2,250
Precision and Optical Equipment	278	389	N.A.	930
Total	3,328	5,202	7,300 13/	11,280

These figures compare with a total industrial production in 1950 valued at DM 23 billion and a scheduled output in 1955 of DM 43.8 billion. 14/ Thus the output of the engineering industries in 1950 represented 22.7 percent of total industrial production, by value, and in 1955 is to account for 25.8 percent. While industry as a whole is scheduled to reach 190 percent of 1950 production levels in 1955, the goal of the engineering industries is 217 percent. Reports indicate that the Five Year Plan is unrealistic and cannot be carried out in its entirety, but that the key projects can be completed at the expense of the standard of living.

c. Domestic Requirements.

Prewar Germany was a large producer and exporter of machinery, and East Germany shared in these exports. In some prewar years, Germany supplied as much as one-third of the machinery offered in world markets. 15/ Over-all engineering capacity is adequate to meet domestic requirements, but Western export controls on raw materials and components have hampered production and have created shortages.

The principal domestic requirements of machinery are for (1) reconstruction of plants either destroyed during the war or dismantled by the Soviet Union; (2) increasing electric power generating capacity; (3) opening up coal and mineral mines; (4) building a metallurgical industry; and (5) expanding production of machinery formerly imported from the West.

In addition to the demands of the domestic economy, the East German engineering industry also faces heavy requirements in the form of Soviet reparations charges. The value of planned reparations of engineering products in 1949 was DM 1.02 billion, but actual deliveries were DM 1.07 billion. 16/ Shipments in 1950 totaled about DM 1.31 billion, although planned reparations were valued at only DM 969 million, broken down as follows 17/:

Planned Reparations of East German Engineering Products 1950

Million DM

Commodity	Reparations
Railroad Rolling Stock	113
Power and Electrical Equipment	127
Mining, Metallurgical, and Metalworking Equipment	124
Cranes, Derricks, Cement, and Construction Equipment	61
Food-Processing and Refrigeration Equipment	96
Ships, Ship Services, and Marine Equipment	116
Precut Houses and Building Materials	72
Printing Equipment	80
Laboratory and Communications Equipment	40
Chemical, Rubber, and Other Equipment	38
Equipment for Polish Account	102
Total	969

It will be noted that the industrial products delivered as reparations are largely products of the machinery-producing industries. These deliveries in 1948 were about one-third of engineering production. In later years, as a result of the reduced value of deliveries and the increased value of production, this percentage has decreased, amounting in 1950 to about 25 percent. 18/

Of 1950 reparations, DM 468 million were to be supplied by the SAG plants, in return for which the plants of the Ministry of Machinery Building were to supply products of an equal value to the SAG factories at 1944 prices. 19/ It is believed that almost the entire production of the SAG plants either goes to the USSR or, if supplied to the East German economy, must be paid for in equal value by goods. Thus it appears that, in 1950, the USSR removed from East

Germany machinery and equipment of a total value of about DM 2.3 billion, of which SAG production was DM 1.3 billion and reparations about DM 1 billion. These removals amounted to about 44 percent of the value of engineering production in 1950.

The total value of reparations for 1951 is not known, but it probably is about the same as in 1950. Some important items to be delivered are steel rolling, wire, drawing, and tube mills; equipment for cement and peat briquette factories; 400 mobile, steam, electricity generating sets, valued at DM 16 million; 200 fishing luggers and seiners, valued at DM 57 million; 307 various types of metal shears, valued at DM 3.8 million; 55 various types of crank and hydraulic presses, valued at DM 5.8 million; several types of Universal milling machines; 1,500 refrigerated railroad cars; high-tension electrical equipment; 100 all-metal railroad coaches; 25 750-millimeter-gauge industrial locomotives; and numerous machine parts. 20/

d. Stockpiles.

Other than normal working inventories, there are no known stockpiles of engineering products in East Germany.

e. Surplus or Deficit.

Before the war, East Germany produced some engineering products, notably light machinery and instruments, in excess of local requirements and made up its deficits, which were largest in bearings, automotive equipment, and heavy machinery, with imports, chiefly from West Germany. These surpluses and deficits did not extend over entire categories of machinery but rather existed in various individual types of machines and components. For example, watches and instruments were exported by East Germany, but their production was dependent upon imports of such components as screws, springs, and bearings from West Germany or foreign countries.

War damage, Soviet dismantling, and the curtailment of free trade with non-Bloc areas have aggravated the effects of East German deficits. While postwar plans for reconstruction and expansion of the engineering industry aim at the elimination of these deficits and the achievement of self-sufficiency, these goals cannot be realized without help in the form of raw materials, components, and machinery from the West.

f. Internal Limitations.

East Germany lacks adequate supplies of many basic materials and components for machinery building, which formerly were freely procurable from West Germany. These items include all kinds of metals, especially high-grade alloy steel for bearings and machine parts, tool steel, tungsten,

aluminum foil, cadmium, and bismuth; machine components of many kinds; and even simple tools, such as saws, files, and gear cutters. To cope with these bottlenecks, many industrial activities, particularly mining and metallurgy, must be expanded or initiated. New types and sizes of machines must be developed and produced, and more imports of heavy machinery are needed.

g. Trends--Including Indications of Mobilization for War.

The Five Year Plan aims at a complete integration of the East German economy with those of the Soviet Bloc countries. Production in 1955 will be more or less the same in composition and quantity as that achieved in 1944. Production of capital goods in 1955 will be from 250 to 260 percent of the 1936 level, or slightly above the 1944 level.

Emphasis will be on increased production in 24 key engineering plants. Quotas for these indicate that the industry is to seek economic independence of West Germany through domestic production of machinery previously imported and is to convert its industrial potential to armaments production, both direct and indirect. 21/

In 1950 the area was able to produce 21 percent of the types and sizes of machines formerly imported, and an additional 20 percent is to be produced in the near future under present plans. Nevertheless, despite the fact that self-sufficiency is to be sought, East Germany must continue to lean heavily on West Germany for imports if Plan goals are to be achieved.

Among the key projects scheduled for earliest completion are new plants and plant expansions for producing mining and metallurgical equipment, boilers, turbines, generators, transformers, motors, electrical switch gear and other apparatus, briquette presses for brown coal, dredges, cranes, conveyors, heavy gears, pumps, compressors, machine tools, and bearings. Many of these items were previously produced only in small quantities and sizes. The Plan provides for producing much larger machines and machines never before produced.

The emphasis on heavy industry is clearly shown in the distribution of the DM 250 million to be invested in 1951 by the Ministry of Machine Building. The following table shows the percentage of employment in each branch of the industry and the corresponding percentage of investments 22/:

Planned Employment and Investment in the East German Engineering Industries
1951

Industry	Employment	Percent Investment
Heavy Machinery a/	22	42
General Machinery	25	8
Electrotechnical Equipment	20	14
Precision and Optical Equipment	12	6
Rail and Motor Transport Equipment	12	5
Shipbuilding	9	25
Total	100	100

a/ Includes the machine tool and bearing plants, which are to employ 4.5 percent of the workers and share in 17 percent of the investment.

The central plan for research and development for 1951 includes 196 outlined research tasks for machinery construction and 612 additional development projects, which are to be accomplished at a cost of over DM 50 million. 23/

2. Machine Tools.

In 1942 there were 1.9 million machine tools in all of Germany, of which 700,000 were in East Germany. The major part of the largest and most efficient of these machine tools was removed by the USSR, and machine tool plants were reduced to from 20 to 30 percent of their former capacity.

The 1951 Plan provides for the production of DM 187 million worth of machine tools and metalworking machines. 1/ Production in 1949 was valued at only DM 28 million and in 1950 at DM 104 million. The principal products in the 1951 Plan, which calls for an output 180 percent above 1950 levels, 2/ are as follows:

Planned Production of Principal Machine Tools (East Germany)
1951

Commodity	Number	Million DM Value
Lathes	4,365	45.7
Boring Mills	190	6.9
Multispindle Automatics	114	1.7
Milling Machines	2,000	17.2
Gear-cutting Machines	350	5.3
Small Planers	320	10.0
Shapers and Other Machine Tools	1,900	16.0

The list also includes a large number of small drilling, grinding, filing, and sawing machine tools and light metalworking presses, forging machines, and shears. Few heavy tools are to be built in 1951. In addition, the 1951 Plan also provides for the production of DM 136.6 million worth of accessory tooling, such as cutting tools, drills, millers, saws, and files.

Because the Five Year Plan lays heavy emphasis on expanding the means of production, the machine tool industry receives the highest priority in investment funds allotted to the Ministry of Machine Building. The Plan provides for expanding machine tool production in 1955 to 347 percent of the 1950 level and for attaining a production capacity of 30,000 units. 3/

Of the 24 key plants producing machinery which are to be enlarged in the early years of the Five Year Plan, 6 are machine tool plants. Plans provide for achieving self-sufficiency in all kinds of machine tools, many of which formerly were imported from West Germany. Heavy emphasis is placed on the production of large planing, milling, boring, and gear-cutting machines. By 1955, production is planned to include 135 planers of up to 12 meters in length; 1,000 lathes of over 300 millimeters in work-diameter; and 165 boring mills of 4 meters and over in diameter. A new activity will be the production of portal milling machines of 100 millimeters and over in spindle diameter. Heavy gear production is to increase from 180 units in 1951 to 11,500 units in 1955, and the value of production of gear-cutting machines will increase from DM 5.3 million in 1951 to DM 27 million in 1955. 4/

The plan for machine tool production must provide for a vast amount of engineering design and development work because the Soviet Union not only dismantled the chief plants but also took important drawings, specifications, patterns, and other items essential for renewing production. Furthermore, industry before the war relied heavily on West German imports for many types of machines, components, and parts, which now must be produced internally. If the plan of the Ministry of Machine Building is to meet with any success, the machine tool industry must reach a large percentage of the 1955 goal by 1952 and 1953.

3. Heavy Machinery.

a. Production.

The heavy machinery plants are among the most important in East Germany. At the end of 1950 their status was about as follows:

Ownership and Employment in the East German Heavy Machinery Industry
1950

Sector	German-owned 1/ Plants	German-owned 1/ Workers (Thousands)	SAG 2/ Plants	SAG 2/ Workers (Thousands)
Metallurgical and Mining Machinery, Cranes, Derricks, etc.	35	20.7	8	21.2
Boilers, Turbines, Diesels, Pumps, Compressors, and Heavy Industrial Machinery	37	23.3	8	16.6
Total	72	44.0	16	37.8

The 16 SAG plants are among the largest in the industry, 1 employing about 6,000 workers, 3/ and together they employ about 47 percent of all heavy machinery workers.

b. Estimated Possible Production and Capacity.

Ten of the 24 machinery plants scheduled for priority treatment under the Five Year Plan produce heavy machinery, and 21 percent of the 1951 investment in the engineering industry is allocated to these plants. 4/ The quotas assigned to these 10 priority plants clearly reveal that East Germany aims to become self-sufficient in the types of heavy machinery formerly imported.

These plants are expected to supply the mining and metallurgical equipment required to double steel production between 1950 and 1952 and to triple it between 1950 and 1955. 5/ Production capacity is not yet sufficient to meet the early requirements for expanded steel production. Some equipment is being supplied, however, by the SAG plants, and several rolling mills, tube mills, and furnaces are being provided by Czechoslovakia. 6/ At the same time, East Germany has been furnishing large quantities of metallurgical equipment to the USSR. 7/

The Five Year Plan also provides for the expansion of diesel engine production and for the production of diesel engines of larger sizes and for new uses. Nine hundred and fifty diesel "aggregates," which probably are units of more than 100 horsepower designed for other than automotive

and tractor use, are to be produced in 1955. 8/ The use of diesels in tractors, motor vehicles, power units, locomotives, and ships will be increased. Both two-cycle and four-cycle units are to be built. While diesels of up to 500 horsepower are now being produced, prototypes of units ranging up to 2,000 horsepower are being tested, 9/ and a 3,500-horsepower gas turbine for use in locomotives is being developed for the USSR. 10/

Additional key plants scheduled for expansion include those producing boilers, turbines, pumps, compressors, dredges, cranes, and mechanical transport equipment. 11/

c. Conversions.

Those key plants which formerly produced medium-weight machines are to be converted to the production of heavy machinery. For example, a former locomotive plant is to construct mining and metallurgical machinery. A sewing machine plant is to convert to the construction of medium-sized foundry machinery, and a gear plant is to undertake production of the largest-size gears. These new plants and plant expansions are all scheduled to be in full operation by 1953. 12/

4. Electrotechnical Equipment.

a. Production.

Postwar dismantling reduced the output of electrotechnical plants to from 25 to 30 percent of their 1938 level, 1/ and a large part of the plant capacity remaining was taken over by the SAG plants, which furnished about 38 percent of the 1950 production. Rebuilding was spurred by the Soviet reparations demands, 2/ and by 1949 the total production value of electrotechnical equipment had risen to DM 700 million. The 1950 Plan called for production valued at DM 1,150 million. 3/ Employment in the industry in 1950 was about as follows 4/:

Ownership and Employment in the East German Electrotechnical Equipment Industry 1950

	Plants	Workers (Thousands)
German-owned Plants		
Electrical Machinery	29	32
Electrical Apparatus and Cables	56	28
Communications Equipment	46	28
Subtotal	131	88
SAG Plants	15	30
Total	146	118

b. Estimated Possible Production and Capacity.

The Five Year Plan provides for expanding production of electrotechnical equipment to a value of DM 2.25 billion in 1955, or 197 percent of 1950 output. 5/ Heavy emphasis will be placed on expansion of capacity for building large electrical machinery. Four of the largest plants in this industry are designated among the 24 key engineering plants to be expanded. These plants must supply the large units for expanding electric power generating capacity by 2.15 million kilowatts by 1955 and for expediting the rehabilitation of existing plants, of which 60 percent are from 20 to 40 years old. Generators of capacities up to from 25,000 to 30,000 kilowatts will be produced. 6/

The Five Year Plan provides for investment expenditures in the electrotechnical equipment industry of DM 80 million in 5 years, of which DM 54 million will be applied to the four plants building heavy machinery. 7/ About 50 percent of this investment expenditure is scheduled for 1951. 8/

c. Reparations and Exports.

The electrical machinery plants furnish a large part of East German reparations and commercial exports to the USSR as well as of exports to other countries. 9/ Exports include rectifier stations, transformers, and switchgears in large quantities. Reparations to the USSR in 1951 included 116,000 radio tubes of 8 kinds. 10/ Bulgaria is to receive

priority shipment of DM 110 million worth of heavy machinery and electrical equipment in 1951. 11/

5. Tractors.

Tractors were not produced in East Germany in prewar years. 1/ The industry is rapidly being built up, however, and by 1955 production is expected to reach 12,000 wheel and track-laying tractors of sizes ranging from 22 to 60 horsepower. 2/ The tractor industry has three final assembly plants, but parts and components are supplied by the automotive and other machinery plants. The 1950 Plan provided for the production of 5,400 units, but in the first 6 months only 1,466 units were produced, and production for the year hardly exceeded 3,000 units. 3/

6. Agricultural Machinery.

Agricultural machinery is produced in 30 plants, employing 6,500 workers, 1/ which also produce other related machinery items. The largest plant employs 1,600 workers, but employment in the others ranges mainly from 120 to 280 workers. The Five Year Plan provides for the value of production to reach DM 162 million in 1955, or 202 percent of planned production in 1950. The inventory of farm equipment is scheduled to increase as follows 2/:

Inventory of Farm Equipment in Use in East Germany
1950, 1955

Commodity	Units 1950	1955 (Planned)
Tractors	11,950	37,500
Tractor Plows	14,090	38,500
Tractor Cultivators	1,112	8,500
Tractor Drills	975	7,000
Tractor Binders and Mowers	1,312	9,000
Tractor Threshers	4,100	6,000

7. Railroad Equipment.

a. Production.

The railroad equipment plants after the war suffered heavy dismantling which left few installations aside from three plants taken over by the USSR and the repair shops. Many of the plants have been rebuilt, but some have

been converted to the production of mining and metallurgical equipment and other heavy machinery. At the end of 1950, SAG firms controlled four car plants and one wheel and axle plant. Total employment in these installations is estimated at about 20,000 workers. 1/ At the same time, the East Germans operated 17 plants, including 1 locomotive plant (small steam and diesel locomotives), 6 car plants, 9 accessory plants, and 1 plant being rebuilt mainly for the production of heavy machinery other than transportation equipment. Among these are six repair plants which are remodeling locomotives to burn coal dust and are making other improvements to rolling stock. In addition, one electrical machinery plant has started building electric locomotives. Total employment in these 17 plants in 1950 was 21,690 workers. 2/

The railroad equipment plants are being expanded for increased car production. The value of output in the VVB plants, which was DM 83 million in 1949, 3/ is to be DM 192 million in 1951, broken down as follows 4/:

Planned Production of Railroad Equipment (East Germany)
1951

Commodity	Units	Thousand DM Value
Small Steam Locomotives	392	31,360
Diesel Locomotives up to 50 Horsepower 5/	510	25,500
Tenders	3	80
Open Freight Cars	220	2,728
Closed Freight Cars	3,350	41,540
Refrigeration Cars	300	6,000
Dump Cars	220	6,600
Special Cars	875	26,255
Passenger Cars	254	27,178
Narrow-gauge Cars	17,000	10,200
Commuter Cars for Berlin Elevated Railroad	24	4,320
Street Cars	200	10,000
Total		191,761

b. Estimated Possible Production and Capacity.

The 1955 Plan provides for the production of 13,000 freight and passenger cars, a goal which represents increases over 1950 output of 250

and 273 percent, respectively. 6/ No plan has been made available on the production of main-line locomotives, 39 of which were to be produced in 1949. 7/ One plant is working on electric locomotives of Soviet design, 8/ and 40 electric locomotives are scheduled for production as soon as possible. 9/

Investment expenditure in the railroad equipment plants in 1951 is planned to be DM 5,130,000, a small total as compared with the size of the industry and with investments in other engineering industries. It comprises only 1.9 percent of the total investment of the Ministry of Machine Building. 10/

c. Reparations and Exports.

About 70 percent of the total railroad equipment production of East Germany is being used to meet reparations charges. 11/ Production targets of the VVB plants for 1950 and for 1951-52 for freight cars are 3,480 units,* of which about 500 are to be exported to Poland, 500 are to be allocated to the Red Army in East Germany, and 2,480 are destined for domestic use. 12/

Reparations, of which about 67 percent came from SAG plants in 1950, are as follows:

Reparations of East German Railroad Equipment a/
1950-51

	Units	
	1950 13/	1951 14/
Locomotives, 750-millimeter Gauge	250	25
Electric Locomotives, 750-millimeter Gauge	21	
Steel Passenger Coaches, 1,524-millimeter Gauge	350	100
Refrigerator Cars	1,100	1,500
Freight Cars	1,050	
Closed Cars, 750-millimeter Gauge	1,500	
Other Special Cars	160	250
Mobile Steam Electricity Generator Stations		400

a/ This list is probably incomplete.

Reparations deliveries include many specially equipped cars, such as 160 repair shop cars complete with machine tools, 15/ supplied in 1950; 6-axle, 25-ton car chassis for cranes, which might also be mounts for guns 16/; special slag trucks; and dump trucks.

* Reduced from the original goal of 3,570 units.

8. Automotive Equipment.

All but two automotive plants, which the USSR took over, were either destroyed during the war or dismantled. The two SAG plants have an annual capacity of 3,000 automobiles and 7,200 motorcycles and employ from 3,500 to 4,500 workers. 1/ About 70 percent of this production has been going to the USSR. 2/ By the end of 1950 the VVB automotive and tractor industries combined had 47 plants in operation, employed 25,400 workers, 3/ and in 1950 produced 10,000 automobiles and 2,400 trucks 4/ of 0.75-ton, 1.5-ton, and 3-ton capacity. The 1951 Plan provided for an output of 9,000 motorcycles and 150,000 bicycles, 5/ while the 1955 Plan provides for the production of 24,000 trucks, 6/ which is 947 percent of production in 1936. Only a few of the 3-ton trucks now have diesel motors, but the Plan provides for expanding production of diesel motors. The 1951 production is reported to be falling short of planned levels because of shortages of special steels, crankshafts, and most special components, many of which must be imported from West Germany. VVB production is of poor quality, and even the SAG plants are operating considerably below capacity. 7/

9. Antifriction Bearings.

War destruction and dismantling reduced East German bearing production to a small fraction of former levels. The USSR took over three plants which had an annual capacity of 2 million bearings and 420 metric tons of bearing balls. 1/ Five plants left to the East Germans were put back into service and in 1949 produced 3.7 million bearings. Combined production of all plants in 1949 totaled 4.6 million bearings, but requirements in 1949 were 8.5 million, of which 5 million were required by SAG plants and 3.5 million by East German plants. In 1950, requirements rose to about 12 million bearings, still less than prewar requirements of 15 million units, 2/ and production remained far below requirements.

The Five Year Plan provides for a tremendous increase in bearings production, from DM 11 million in 1950 to DM 106 million in 1955. 3/ No figures are available on the number of bearings to be produced, but from the values it may be deduced that production is planned to cover both domestic use and export. Materials required for bearing production in 1951 amount to 16,570 metric tons, consisting of 1,130 tons of balls, 5,100 tons of steel bars, 7,500 tons of tubing, 840 tons of steel sheets, and 2,000 tons of forgings. On the basis of 2 pounds of material required per bearing, this material would yield 18 million bearings. Estimates on a similar basis indicate a production of 27 million bearings in 1953 and of 32 million bearings in 1955.

As in the case of machine tools, most of the production increases contemplated in the Five Year Plan are to be achieved by the third year, and the bearing plants are included among the key plants selected for priority treatment. Most of the machine tools required for bearing production are being built in the nationalized plants. The major production problem in 1951 is procurement of various alloy steel items which the VVB plants are not

yet capable of producing. Curtailment of shipments from West Germany has made it necessary to use domestic steel of unsuitable quality. Some steel has been imported from Czechoslovakia, but apparently the Satellites are not capable of meeting East German requirements.

Although the USSR has taken a considerable part of the production of the SAG bearing plants, these also have supplied bearing balls to the VVB plants, and Soviet bearings have been imported. In 1950-51 the USSR will receive 2 million needle bearings from the principal SAG plants. 4/

10. Instruments and Optical Equipment.

Under the East German government are 62 plants producing instruments and optical equipment with 54,300 workers. The largest prewar plant was completely dismantled but has been rebuilt to its former capacity by the addition of over 3,000 machines, and it now employs almost 17,000 workers. Other dismantled plants have gone through the same process of rehabilitation. In addition to the VVB plants, there are eight plants, employing 22,000 workers, which are controlled by the USSR. The most important of these produces watches, clocks, and instruments and employs about 4,000 workers. 1/

The Plan for 1950 provided for a production value of DM 390 million, of which 21 percent was produced in the SAG plants. 2/ Production in 1951 was planned to exceed 1950 production by 56 percent, and production in 1955 is to reach DM 840 million, or 239 percent of the value of 1950 output. 3/

Instruments and optical equipment are delivered as reparations, and since the amounts of raw materials needed in production are small, 4/ large quantities can be produced for exports. Instrument exports, excluding optical equipment, totaled DM 23 million in 1949. Production capacity in 1950 exceeded demand, and even the SAG firms needed new orders to keep plants busy. 5/ As a result of surplus capacity and Soviet pressure to undertake new lines of production, the industry is expanding into different fields, many of which are closely related to armaments needs. 6/ New production includes various types of instruments for ships and aircraft. Soviet requests for other new items, such as torpedo heads, motors and steering mechanisms, and gun sights, have been turned down by VVB firms on the grounds of lack of facilities. 7/ These plants also manufacture office machinery, exports of which are sizable. All kinds of calculating and bookkeeping machines are produced, and there are several typewriter plants, two of which have 5,000 workers each. The industry has been highly dependent on West Germany, Switzerland, and France for screws, springs, jewels, and other small parts which have been in acutely short supply. 8/

11. Munitions.

a. Production.

Except for tank manufacturing plants, which were bombed for 3 months in 1944 but were quickly rehabilitated, the German munitions industry was never the object of systematic air attack. As a result, the industry emerged from the war with its large productive capacity relatively intact. The Yalta Agreement and the Potsdam Declaration, however, outlawed the production of munitions, and under the 1946 Plan for Reparations, which was actually a plan for industrial disarmament, only from 50 to 55 percent of Germany's total prewar munitions industry was to remain by 1949. The heavy industry which had made the steel, ordnance, and tanks for the Nazi war machine was to be reduced to about one-third of its former capacity.

The East German liquidation was completed even before the target date of June 1948, but Soviet policy began to change by 1949, and for the past 2 years the USSR has violated the demilitarization agreements by giving East German plants extensive orders for weapons components. Fulfillment of these orders has been assured by assistance in plant rehabilitation and by insuring the provision of raw materials.

It is believed that little or no manufacture of assembled military weapons has yet taken place in East Germany but that components of Soviet weapons are being made in substantial quantity and sent to the USSR for assembly. Among the components are parts for both small arms and heavier weapons, including tanks, railroad guns, submarines, and aircraft. In addition, explosives, ammunition, machinery for munitions manufacture, and small ships are produced. No less than 30 firms are reported to be making major components of the Soviet T-34 tank.

The German Type-42 machine gun, about 1,000 of which are believed to have been made within the past 2 years, is the only complete weapon manufactured in East Germany. Before the war, Germany had a well-developed export business in hunting rifles, and some 66,000 were produced in 1950 in East Germany. The Alert Police are equipped in part with the World War II 98-K rifle, and there are reports of new East German production of this rifle in 1950 for the police.

In addition to the manufacture of components for Soviet weapons, the East German industry regularly engages in repair work on weapons of the Soviet occupation forces.

b. Estimated Possible Production and Capacity.

It is estimated that less than one-third, and perhaps less than one-fourth, of prewar Germany's total munitions capacity was located in what is now East Germany. Of the 13 principal wartime manufacturers of heavy weapons, only 2 were located in East Germany, both in Magdeburg. These are the Maschinenfabrik Buckau R. Wolfe A.G., makers of gun barrels, shells, bombs, and cartridge cases, and the Friedrich Krupp Grosonwerke A.G., prewar designer and manufacturer of the Mark IV tank and maker of antiaircraft guns, tanks and components, shells, and torpedoes. Two tank assembly plants, Alkett A.G. and Daimler-Benz A.G., were located in Berlin.

Even the manufacture of small arms and of small-arms ammunition centered in the West, but Suhl in East Germany remains an important center of this production. Of the Reich's total explosives capacity of 29,720 metric tons monthly in September 1944, only 6,200 tons (21 percent) were located in East Germany and 1,830 tons (6 percent) in territory occupied by Poland after the war.

It is expected that few, if any, complete weapons will be produced in East Germany in 1952, and the table below, therefore, is designed to indicate production of parts equivalent to the quantities of finished items shown therein. Since the USSR has been furthering the production of military items in East Germany for the past 2 years, it seems reasonable to assume that with continued Soviet assistance, production in 1952 will be the equivalent of 30 percent of either (1) about half of what all of Germany produced in 1940 or (2) one-fourth of what all of Germany produced in 1941. The application of these ratios to known 1940 or 1941 production gives the following results:

Estimated Production of Weapons in East Germany
1940, 1941, and 1952

Units

Commodity	All Germany			East Germany
	1940	1941	1952	1952
Aircraft	10,826	N.A.	5,413	1,625
Armored Combat Vehicles	1,643	N.A.	820	246
Passenger Cars for Armed Forces	28,511	N.A.	14,255	4,275
Motor Trucks for Armed Forces	53,348	N.A.	26,674	8,000
Field Artillery	N.A.	2,160	540	162
Antitank Infantry	N.A.	1,800	450	135
Other Light Antiaircraft Guns	N.A.	2,400	600	180
Mortars	N.A.	4,200	1,050	315
Light Infantry Weapons	N.A.	1,824,000	456,000	136,800

Estimated Production of Ammunition and Explosive Devices in East Germany 1941 and 1952

Thousand Units

Commodity	All Germany 1941	All Germany 1952	East Germany 1952
Small Arms	1,056,000	264,000	79,200
Hand Grenades, Land Mines, etc.	15,600	3,900	1,170
Mortars	1,200	300	90
Light Antiaircraft (20-30 Millimeters)	60,000	15,000	4,500
Artillery	8,160	2,040	612
Aerial Bombs	1,776	444	133

Estimated Production of Explosives in East Germany 1941 and 1952

Metric Tons

Commodity	All Germany 1941	All Germany 1952	East Germany 1952
Propellants	112,200	28,050	8,415
High Explosives	228,000	57,000	17,100

c. Domestic Requirements.

Under present conditions the only East German users of weapons and ammunition of military type are the Alert Police. These include 42,000 members, plus 10,000 in school. Originally the Alert Police were equipped with World War II German weapons, but more recently they have been largely reequipped with Soviet weapons of current type, including T-34 tanks. They have also received training in chemical warfare and have been issued German gas masks and tear gas made in Czechoslovakia. The only drain on postwar German military production for domestic requirements, therefore, has been the gas masks for the Alert Police.

d. Imports and Exports.

About half of the 1950 production of sporting rifles went to the USSR. All components of weapons are sent to the USSR for assembly, but no item, value, or weight figures are available on this trade.

12. Aircraft.

a. Production.

The East German aircraft industry is presently small, and its potential is not much greater, because of the large-scale dismantling of aircraft factories carried out after the war by the USSR. It is probably true that in 1947 the Soviets stopped dismantling underground manufacturing installations, many of which were aircraft factories, and investigated their possible use in the event of war. No information received, however, reports the reactivation of the plants to production of aircraft parts. In any event, the deportation of key German scientists has made it almost impossible to rebuild the industry. No tactical or transport aircraft, either jet or conventional, are made, production being limited to aircraft parts and low-horsepower engines.

(1) Engines.

It is quite probable that BMW, at Eisenach, is producing a 200-horsepower aircraft engine, designated as the As. 410, which is suitable for use in training, liaison, reconnaissance, artillery-spotting aircraft, and seaplanes. Information in 1949 mentioned that this engine also was produced at the Audi Works in Zwickau. Reports have been received of receipt of these engines at Rostock.

Radial engine castings for Soviet aircraft are reported to be made in a foundry at Megu in West Leipzig. It is probable that some aircraft engine parts are manufactured in plants producing engine parts for automobiles and tanks. These could come from a piston ring and gasket plant, from several cylinder-liner plants, and from nine tank and aircraft engine assembly plants.

(2) Aircraft Parts and Accessories.

Zeiss at Jena, with little previous experience in gyro instrument production, was reported to be completing tooling in August 1950 for mass production of automatic pilots for Soviet bombers. Gyro compasses and gyro horizons also are being made at this plant, with production reported to be 30,000 units a year, according to early 1950 information. Zeiss has also developed a simulated gunnery training set for fighter pilots. Two hundred sets were originally ordered in 1950, and the order was doubled by July of the same year.

Orders for 2,400 units of 5 types of turn potentiometers for aircraft were received by VVB Optik at Jena in mid-1950. An unidentified factory in Luebrenau is reportedly producing parachutes for the Soviet Union, with part of the output to be delivered to the German Peoples' Police.

b. Technology.

The technology used in the East German aircraft industry is not so high as it was before and during World War II. Training of new technicians has been stopped for about 6 years, and the insignificant size of the present aircraft industry and the deportation of key German scientists to the USSR have further lowered the level of technical skill. Reports indicate, however, that some German scientists have been repatriated to East Germany.

The technology of the aircraft industry also is handicapped by the destruction of aircraft factories and aeronautical research facilities and the defection of technicians and scientists to the West. There have been no reports of extensive or even partially successful rehabilitation of research facilities formerly used by the East German aircraft industry.

c. Domestic Requirements.

East Germany is prohibited by international agreement from producing or operating aircraft.

d. Exports.

It may be assumed that all aircraft engines, parts, and accessories are exported to the USSR, although no specific data on quantitative exports are available.

e. Stockpiles.

There is no major stockpiling of aircraft, aircraft parts, or components in East Germany. A Soviet aircraft supply depot at Strausberg maintains supplies for a military strength of 750 tactical airplanes, but it is not known whether part of its supplies originate in East Germany.

f. Vulnerabilities.

Most of the plants presently producing aircraft items are vulnerable to aerial bombing. There are, nevertheless, underground facilities not in use at the present time which would be extremely difficult to locate or damage from the air.

g. Internal Limitations.

The aircraft plants were the first to be stripped by the Soviet Union after the war, and the equipment has not been widely replaced. Therefore, large-scale aircraft production cannot take place at this time.

h. Trends—Including Indications of Mobilization for War.

There will be no large-scale production of aircraft or engines in East Germany except in the unlikely event that many key German scientists are returned from the USSR. It is probable, however, that production of component parts of aircraft and engines will be stepped up.

Although the contribution of the East German aircraft industry to the Soviet war potential is not great, trends within the industry indicate that the USSR could be mobilising East Germany for war. These trends are evident in the following:

(1) Orders to stop the dismantling and blasting of underground aircraft factories.

(2) Exploitation of old, reliable East German firms to produce aircraft components for Soviet aircraft, especially items of critical importance to fast, high-altitude, long-range bombers.

13. Shipbuilding.

a. Production.

Immediately after the war, the Neptun in Rostock was the only East German shipyard employing more than 1,000 workers and capable of building vessels larger than barges. Soviet dismantling and war damage had destroyed the major installations. Between 1945 and 1947 all yards were nationalized or placed under trusteeships, and the industry concentrated its efforts on the repair of war damage. Employment increased, but the lack of equipment, materials, and skilled labor precluded noteworthy gains in production. In 1947, when shipbuilding was assigned high priority, employment reached 9,000 workers, and construction of fishing vessels was reported as six times the output of 1945.

In 1948 the Federation of Nationalized Shipyards was formed. The labor force rose to 13,000, dismantling was curtailed, and some of the equipment already taken was returned. The construction program specified standardized types of vessels, the numbers to be built in each yard, and the source and quantity of materials required. An output of 124 vessels of 22,800 gross tons overfulfilled the planned goal of 120 vessels of 19,000 tons.

In 1949, investment for shipyard expansion surpassed DM 60 million, and employment rose to 17,000. Three new yards were reported under construction. Planned production for the year was 39,000 gross tons, consisting of 214 craft, at a total cost of DM 86 million, but available information

indicates that this goal was not attained. It is estimated that, considering the increase in employment and the introduction of assembly-line technique, production must have exceeded 30,000 gross tons. On the basis of tonnage output per man of the previous year, the minimum production would be 25,500 tons, whereas, by cost analysis, a reported value of DM 80 million for the 1949 production indicates that output could have been 35,000 tons.

The planned quota for 1950 is indicative of the progress and importance of the industry. In addition to repairs amounting to DM 45 million, it was planned to build 311 fishing vessels of 65,800 tross tons. Still further expansion of the shipyards was planned with an investment in excess of DM 100 million. The labor force increased rapidly to a total of 37,000 in the fourth quarter of the year, at which time it was reported that an even greater increase in both manpower and facilities was required to meet the demands. Construction time for the standard types was halved, increasing the rate of delivery at the year's end for the largest class to 13 units a month. From the figures available, it appears that the shipbuilding quota was exceeded, and that actual production was 317 vessels totaling 89,000 gross tons. This success can be attributed, in large part, to the flexible system whereby manpower can be shifted or the quotas of the individual yards changed to accommodate total requirements.

b. Estimated Possible Production and Capacity.

The Five Year Plan goals are conservative in the light of the production figures for 1950. Emphasis in the Plan still is centered on fishing craft of the lugger and cutter types, of which over 1,500 will be built, although plans also include larger vessels of 1,000, 3,000, 5,000, and 8,000 gross tons. The total 5-year output is to be 369,000 tons varying in yearly quotas. In 1951 the keels of 250 fishing vessels are to be laid; in 1952, 280; in 1953, 350; in 1954, 450; and in 1955, 260. The first two large ships are to be completed in 1952. The 1948-50 average output rate of 2 tons per man per year is low and can be expected to improve, but even without such improvement the planned tonnage can be achieved with the present labor force, which is estimated at more than 40,000 workers.

There are 59 shipyards in East Germany, but only 15 of these, comprised of 14 nationalized yards and 1 Soviet joint-stock company yard, are of major importance. The remainder are boatyards limited in capacity to building and repairing small craft. Despite the fact that the major yards have an annual estimated capacity of over 100,000 gross tons, most of them are geared to the production of fishing craft, and only three have facilities for large ship construction. A fourth, the Volkswerft at Stralsund, was reportedly installing ways for vessels of heavy tonnage, but, in the 1951 building program, it was not assigned a quota of large merchant ships. The estimate of the capacity of

the industry is based on the 1950 tonnage output per worker, which is less than per capita output in other European countries and only one-sixth of that in the US. Therefore, it can be assumed that capacity will be greatly increased as more trainees complete the trade school courses and as building facilities are augmented. Another factor which will have a decided effect on new ship construction, especially of large vessels, is the completion, scheduled in 1952, of repair obligations included in the reparations settlement.

c. Domestic Requirements.

Ship production in 1948-50 was for both reparations and the East German fishing fleet. In 1948, only a negligible tonnage was allowed the latter. In 1949, approximately 33 percent of new ship construction remained in East Germany, while in 1950 domestic allocations amounted to 45 percent of total output.

It is the expressed intention of East German officials to offset the loss of Polish and West German craft, which before the war conducted almost the whole of the East German fishing industry. It is further planned to build large ocean-going ships and enter the international merchant marine field. To accomplish these plans, East Germany must retain the major part of the output of its shipyards.

d. Stockpiles.

The small percentage of the output of fishing vessels that the Soviet authorities have permitted the East Germans to retain cannot be considered stockpiling. Since demands for materials and manufactured parts have far exceeded the supply, no accumulation of reserves of these items has been possible.

e. Surplus or Deficit.

The output of the East German shipbuilding industry probably will continue to be deficient in the next 5 years, despite the tremendous expansion it has undergone. However, as the pseudo-independence of the country progresses and reparations decrease, shipyard production will be adequate to provide an export surplus.

f. Internal Limitations.

Until the creation of a central purchasing agency for the nationalized shipyards in 1948, procurement of materials was difficult. Each yard was responsible for obtaining its own raw materials and was compelled to fabricate all necessary parts. Concurrently with the centralization of procurement,

new factories were established for the manufacture of finished component parts, and subcontracting was initiated. As a result of these improvements, the shipyards by 1949 were obtaining two-thirds of their entire requirements from East German industry, whereas previously they had relied on Czechoslovakia, the USSR, West Germany, and, to some extent, other Western countries. There is still some dependence on Czechoslovakia for diesel engines and on West Germany for navigation equipment, but even these deficiencies are being eradicated.

The lack of tools and equipment was, in the early postwar years, a serious handicap. This disadvantage was overcome with Soviet imports, which continue despite East Germany's progress toward self-sufficiency. A most important limitation in the shipbuilding industry is the lack of trained personnel such as welders, mechanics, carpenters, and shipfitters. Some reports indicate that skilled labor in the yards is as low as 10 percent of total employment. Numerous trade schools have been established in the various shipbuilding centers to remedy this defect. Throughout 1950 many reports indicated morale in the industry was low because of poor housing conditions in areas where employment has mushroomed, the low rate of pay (DM 4 to DM 6 an hour), and the presence and interference of Soviet supervisors.

g. Trends--Including Indications of Mobilization for War.

Emphasis continues to be placed on expansion of the shipbuilding industry. Investment from 1951 to 1955 is scheduled to be DM 209 million. In 1951, DM 70 million is planned, representing one-fourth of the total investment to be made in the machinery building industry. With such emphasis on expanding shipbuilding facilities, it is possible that the 1955 goal of a merchant fleet large enough to eliminate dependence on foreign vessels will be realized.

Production of marine components in plants engaged in other manufacturing has increased. For example, the Dieselmotorenwerk in Rostock, a unit of the Ocean-going Shipbuilding Department, reportedly delivers its entire output to the shipbuilding industry. The diesel engine plant of Wolff-Backau has been greatly expanded, as has the Finsterwalde generator manufacturing plant.

Since the East German shipbuilding industry apparently does not produce naval vessels, its program cannot be called a direct indication of mobilization for war. Aside from the military value of merchant ships, however, the industry is of vital importance in an estimate of the Soviet war potential in four ways. First, its shipyards provide a basis for naval construction. Second, these yards are employed as advance repair bases for the Red Fleet. Third, their current production of merchant ships permits the shipyards of the USSR to concentrate on naval construction. Fourth, the fishing craft being produced are designed for fairly ready conversion to minelayers, minesweepers, and patrol boats.

14. Abrasives.

The Soviet Union, after the war, dismantled the largest and most modern abrasives plants in East Germany. At the end of 1950 the industry was comprised of one ancient aluminum oxide plant of a capacity of from 8,000 to 12,000 metric tons a year, one new silicon carbide plant producing 3,500 tons a year, and nine abrasives products plants with an annual capacity of 4,600 tons. Present capacity for abrasives and abrasive wheels is below requirements but is increasing and probably will expand sufficiently during the Five Year Plan to meet future increases in requirements. To meet other production targets in 1951, East Germany will depend on West Germany for a large part of its abrasive product requirements. 1/

15. General Machinery.

Under the administration of the Ministry of Machine Building there are 261 general machinery plants, which employ 106,400 workers. These plants produce all kinds of light machinery and metal products and supply components to plants building heavy machinery. 1/ Principal items of production include textile, sewing, printing, paper, food-processing, light chemical, refrigerating, and other light machines; fittings; plumbing and sanitary equipment; fire extinguishers; and other similar items. A few SAG plants also produce some of this light equipment. 2/

Dismantling of these light machinery plants was comparatively slight, and only a small percentage of the investment funds for 1951 was allotted to these plants. Some of the plants are being converted to the production of other types of machines and components useful in the expansion of heavy machinery production.

Recent export contracts included considerable quantities of the products of these plants, among which were sewing, textile, printing, paper-processing, agricultural, and dairy machines and similar items. 3/

H. Uranium.

1. Production and Capacity.

Production from the uranium deposits in East Germany began in 1945 and increased gradually through 1948. There was a sharp upswing in output in 1949 and a smaller but regular increase in 1950. The 1949-50 rate of increase is expected to continue through 1952. Ore and concentrates are recovered and shipped to the USSR for final processing. The East German output represents 45 percent of the total uranium available to the USSR.

2. Domestic Requirements.

As there are no atomic energy plants in East Germany, there are no domestic requirements for fissionable materials.

3. Stockpiles.

No stockpiles of uranium are maintained in East Germany.

4. Surplus or Deficit.

The total output of uranium represents a surplus, which is shipped to the Soviet Union.

5. Internal Limitations.

The deposits of uranium-bearing minerals in East Germany are the largest single source of fissionable material available to the Soviet Union. Sufficient supplies of manpower are available because of the large numbers of war and political prisoners that can be utilized. Efficient mining practices, mine ventilation, and other safety measures are not practiced, and proper food and clothing are short in many mines. These limitations are not of great importance, however, because of the almost limitless supply of manpower available. Transportation requirements and the supply of highly skilled personnel are believed to be adequate.

6. Trends — Including Indications of Mobilization for War.

The output of uranium concentrates in the 1948-50 period has moved steadily upward. Increases since 1949, however, are believed to represent the operation of a larger number of mines, as well as being an indication of a stepped-up program aimed at mobilization for war.

VII. Transportation.

Summary

The East German transportation system makes an important contribution to the Soviet economic potential for war, principally the railroad system but also, to a lesser extent, the water and highway transport systems. Although the East German airfield network is of great strategic significance, as are all forms of East German transport, no internal air transport operations are conducted, and international operations are of no economic consequence.

The USSR's traffic with East Germany is of greater importance and volume than its traffic with any other Satellite. The East German rail system carries a large proportion of this traffic, which includes reparations, military supplies, products of Soviet-owned industry in East Germany, normal commerce, and transit traffic from the West. East German rail traffic destined for the USSR moves both across Poland for transloading to the Soviet broad-gauge network and to East German Baltic ports for transshipment by sea. The total volume of rail traffic destined for the USSR is probably at least 25,000 metric tons a day. In addition, the much greater volume of East German internal rail traffic is essential to the maintenance of industrial production for Soviet account. The Soviet Union also receives railroad equipment out of current East German production.

East German inland and maritime water transport facilities, which are important to the domestic economy, also participate in the movement of traffic to and from the USSR. East Germany has no ocean-going fleet, but its Baltic ports handle a substantial volume of eastbound sea-borne traffic which the rail lines across Poland to the Soviet Union probably could not entirely accommodate. The highway network of East Germany makes little direct contribution to the Soviet economic potential. Highway traffic plays a significant part in the internal economy, however, and its volume and relative importance are greater than in any other Satellite country.

A. Railroads.

1. Direct Contributions of Railroads to the Economic Potential for War of the USSR.

The facilities of the East German railroads, although impaired, probably are adequate for foreseeable economic and military traffic requirements. East German rail traffic, already heavy and increasing, operates in large measure directly or indirectly for Soviet benefit and contributes significantly to the economic potential for war of the USSR. Over-all capacity is only slightly in excess of traffic requirements and is being increased yearly at rates comparable to the increases in requirements. Although the system is vulnerable to serious disruptions of civilian traffic, essential military traffic probably could be maintained.

a. General Description of the Network.

Despite extensive postwar dismantling, the East German State Railways (Deutsche Reichsbahn--DR) has by far the densest network in the entire Soviet Bloc, 12.1 kilometers per 100 square kilometers. Trackage now totals approximately 13,000 kilometers, 32 percent less than in 1945. The network comprises 13 major lines radiating from Berlin, still the largest railroad hub in Europe, which are joined together by many lateral lines, some of which form a north-south route and three east-west routes across the country, by-passing Berlin. In addition, a double-track railroad encircles Berlin, providing a route for transit traffic outside the center of the city. Despite these by-passes, so high a proportion of postwar through traffic has passed through Berlin that a second north-south connection has recently been opened along the Polish frontier, an outer freight ring has been built to ease the burden on the Berlin "Ringbahn," and a second outer freight ring has been begun.

b. Traffic.

Traffic on the DR approximated 16.74 billion ton-kilometers in 1950, 21 percent heavier than in 1949 and 82 percent heavier than in 1947. The rail system accounts for roughly 85 percent of total East German traffic, in terms of ton-kilometers. Rail traffic includes exports of minerals, cement, chemicals, petroleum, metals, and machinery to the Soviet Bloc, chiefly to the USSR, and imports of coal, ores, and metals for fabrication in East Germany for Soviet account. The largest part of the total, however, consists of internal traffic. Because much of the internal traffic moves directly or indirectly in the Soviet interest, it is difficult to estimate accurately what proportion of the total traffic is of economic importance to the USSR. It is certain, however, that a large part of activity is beneficial to the USSR and

that East German rail traffic is more important to the Soviet economic potential for war than that of any other Satellite.

Military rail traffic in East Germany is heavy and is of considerable importance to Soviet occupation forces. There are no railroad facilities in the European Satellites of greater potential importance to the Red Army than those of the DR.

Traffic from East Germany destined for the Soviet Union crosses Poland via the Frankfurt-an-der-Oder and Kuestrin border stations. Polish-German traffic, on the other hand, enters Poland further south via the Neisse River border stations of Guben, Forst, and Horka. It is noteworthy that industrial production from the Chemnitz area and uranium ore from the Erz Gebirge, both located in the south, are routed circuitously to the USSR via Berlin and Frankfurt-an-der-Oder rather than directly across Poland via the Neisse River stations. German traffic across Poland has nearly reached capacity, with the result that much additional traffic destined for the USSR now moves north for transshipment at East German Baltic ports.

c. Equipment.

The fixed facilities of the DR network are in poor condition. Eleven years of overloading, inadequate maintenance, and extensive destruction and dismantling have resulted in severe deterioration of the system. Rails and ties are old, badly worn, and generally long overdue for replacement. Ballast is light and poorly drained. One-third of the total network has been dismantled and removed.

Despite these handicaps, the condition of the fixed facilities is not now a serious handicap to rail traffic. The present network is handling about double the amount of prewar traffic, and an additional 60-percent increase in traffic is planned in 1955. In accordance with the Soviet-sponsored policy of utilizing existing facilities as intensively as possible, with minimum expenditures for maintenance and replacement, capacity is maintained only slightly above current requirements, thus permitting the maximum allocation of materials to war production. Since the Soviet Orbit is able to produce all the railroad equipment necessary to meet probable traffic requirements, the railroad policy in East Germany, which appears to be one of inefficient overexploitation, may be the most efficient way of liquidating a superannuated investment preparatory to a sweeping modernization.

d. Capacity.

In accordance with the Soviet practice of maximum exploitation, it is believed that total DR traffic currently is within 5 percent of total capacity. Traffic occasionally may even exceed rated capacity, causing temporary and local congestions. The planned expansion of facilities, completion

of some of which has already been reported, will provide considerable yearly increases in capacity through 1955. Planned annual increases in traffic, however, are expected to absorb all of the increased capacity.

A yearly increase in traffic of about 2 billion ton-kilometers, approximately 12 percent of present traffic, is planned through 1955 and is the best available index of planned increases in capacity. The type of expansion of facilities now going on in East Germany is not extensive enough to produce an annual increase in capacity greater than 12 percent of present capacity. The program to double-track five major east-west lines, which was projected by Soviet authorities in the summer of 1950, would have provided a greater increase, but this plan has not been carried out. Other less effective ways of increasing capacity, including increases in the number and length of passing sidings and improvement of the traffic control system, have been adopted on several key lines. Only a few short stretches of track are being doubled. Facilities in some yards are being improved, but the yards are not being greatly expanded.

e. Vulnerability.

DR facilities are vulnerable to both air action and sabotage. The network contains few tunnels, but numerous bridges on nearly all the key lines afford targets which are highly vulnerable to air attack. Although the network is dense and provides lines parallel to almost every vulnerable route, the system affords few practical alternative routes, because all lines are operating close to maximum capacity. If any major lines were blocked, essential traffic could be rerouted only at the expense of equal volumes of traffic on parallel lines.

Disruption of one or two major lines, while it would not halt essential Soviet military traffic, would seriously curtail civilian traffic on the alternative lines over which military traffic was rerouted. If continued, such dislocation would have a detrimental effect on industry and would reduce the economic assistance which East Germany supplies to the USSR. Only a long-term, full-scale program of attrition by air, however, could close the DR network to all traffic, and this program would require air supremacy and sustained attacks.

Sabotage can be more effectively employed against workshops and rolling stocks than bridges. Because the rolling stock inventory is limited and obsolescent, the high level of traffic now maintained by the DR depends in large measure upon the productivity of the workshops. Recent slight gains in inventories have been largely attributable to increased output in the DR heavy workshops. Sabotage campaigns against these workshops, coupled with direct attacks on rolling stock, could gradually reduce the inventory of operable rolling stock.

2. Direct Contributions of Railroad Equipment to the Economic Potential for War of the USSR.

a. Inventories.

The DR has a total of approximately 106,500 freight cars and 5,650 locomotives, of which about 93,500 and 4,005, respectively, are serviceable at any given time. If special-purpose and reserve equipment is excluded, the system has about 80,000 cars and 3,400 locomotives in daily service. This inventory is adequate for current DR traffic requirements and will gradually be expanded to meet the planned increases in requirements.

The condition of the DR equipment is poor. Because most of it is old and worn and due for replacement, it is not expected that any important quantities of DR equipment will be removed to the USSR, despite the fact that the East German system has several thousand adjustable-axle cars currently in service. Nevertheless, the USSR continues to receive new equipment out of current East German production.

b. Production Capabilities.

East German industry has a surplus capacity for the production of railroad equipment, although some of this capacity is now devoted to other purposes. The planned 1950 freight car production of 7,000 units for the USSR probably was achieved, while production for the DR probably was negligible. For 1951 the planned production of freight cars was reduced from 3,870 to 3,270, of which 500 were for the DR, 500 for Polish reparations, and the remaining 2,270 for the USSR. The cutback in freight car production reflects principally an increased production of weapons. East German industry can produce whatever rolling stock the DR can convince the Soviet economic authorities it must have.

c. Effect of Transfers to the USSR.

It is believed that the USSR will not remove worn rolling stock from the DR as long as East German industry is fulfilling Soviet demands for new equipment. In view of the fact that the rolling stock now in service on the DR is making a substantial contribution to the Soviet military potential, it is highly unlikely that the USSR will withdraw appreciable quantities of this equipment.

It is extremely unlikely that locomotives would be removed to the USSR, because most of the existing inventory would require extensive rebuilding for conversion to broad gauge. In the unlikely event that the USSR were to make emergency removals of freight cars, the DR system could afford limited

losses but thereafter would be affected in proportion to the number of cars withdrawn. Between 3 and 5 percent of the working park (from 2,500 to 4,000 cars) could be removed before all existing surplus traffic capacity were dissipated. Removals of 10 percent (8,000 cars) would reduce the capacity for handling traffic of secondary economic importance. Removals of over 15 percent (12,000 cars) would seriously restrict traffic of primary economic importance.

3. Indirect Contributions.

a. Role of Railroads in Soviet Trade.

(1) Extent and Nature of Traffic with the USSR and the Satellites.

The DR handles four kinds of traffic between Germany and the USSR: (a) the output of Soviet-owned industry in East Germany (SAG traffic), (b) products of East German industry delivered to the USSR as reparations, (c) East German production exchanged with the USSR under trade agreements, and (d) transit traffic in goods procured outside East Germany for the Soviet Bloc. The shipment of dismantled equipment such as plant machinery and railroad installations, removed by the USSR as "war booty," has now come to an end. Traffic to the USSR is reported at about 25,000 metric tons a day, moving via rail both across Poland and to Baltic ports for transshipment. 1/ It is not certain that all four categories of traffic are included in this figure, and total traffic may be half again as large. The principal items shipped to the USSR are fertilizers, machinery, electrical equipment, and transportation equipment. Major items imported from the USSR by rail include steel plates, bars, and wire; other metals; and replacement parts for transportation equipment.

The considerable military traffic between East Germany and the USSR is not included in these figures and makes total traffic even heavier than indicated.

(2) Importance of Traffic to the Soviet Economy.

Of all traffic moving into the USSR across its western frontiers, that originating in East Germany is heaviest and of greatest economic importance to the USSR.

b. Role of Railroads in Trade with the West.

(1) Extent and Nature of Traffic.

Except for Vienna, Berlin is perhaps the chief focal point for traffic between the USSR and the West. East Germany, through quasi-legitimate agencies, has devised means for carrying on trade with the West which directly or indirectly serves Soviet interests. For example, "Derutra," the Soviet-German

forwarding agency, with headquarters in East Berlin, stations representatives in various guises in many commercial centers of Western Europe. Nearly all the commodities which "Derutra" procures in the West move into Berlin via rail and are forwarded on via rail to the East. Many scarce commodities which are important to Soviet industry are procured, although not all of them are necessarily destined for the USSR. Satellite countries also procure, via East Germany, critical items which are in short supply throughout the Orbit. These items include ball bearings, tungsten, industrial diamonds, and machine-tool components. The volume of this traffic is not known, but it is believed to have been reduced since the application of export controls by Western nations.

(2) Clandestine Traffic.

Much of East Germany's commerce with the West is clandestine. As export controls reduce legitimate commerce, clandestine traffic may be expected to increase. The volume of this traffic cannot be accurately estimated, but it is certain that its importance to the USSR far outweighs its dollar value and is much greater than its relatively small tonnage would indicate.

4. Inverse Contributions.

a. Equipment and Materials.

For its own needs, the DR requires neither equipment nor materials from the USSR. Domestic industry has ample capacity to produce all the locomotives and other rolling stock, rails, ties, and signal equipment which the DR may need. There is also a large surplus capacity available to manufacture equipment for export, but considerable quantities of steel must be imported yearly from the USSR to maintain this export production.

b. Manpower.

The DR was short of personnel through 1948, but increased training and the introduction of more women into railroad work has eased the situation in many labor categories. The most critical shortages, those of skilled mechanics and machinists for the workshops, probably have been considerably relieved.

c. Soviet Control.

Control of the East German railroads by the USSR is assured in several ways. The principal direction is supplied by the German Economic Commission (DWK), which regulates the planning and attempts to control the productivity of every facet of the economy and is, in turn, completely controlled by the USSR. The Director-General of the DR is a blindly loyal

Communist who has three deputies, including a "Director of Cultural Affairs." Each regional railroad directorate has a cultural director, directly under its president, who is responsible for thought control and political indoctrination of all railroad personnel throughout his directorate. Soviet military personnel occupy key posts throughout the DR to assure that Red Army requirements are properly dispatched.

5. Probable Developments.

The East German railroad system is expected to be able to meet all military and economic requirements placed upon it in 1951 and 1952 and, by the end of 1952, to show improvement in virtually every department.

A gradual strengthening of facilities on selected routes of the DR will continue throughout 1952. This program will include lengthening of sidings, replacement of the most worn rails and ties, modernization of some signaling equipment, limited expansion of terminal facilities in key yards, and the construction of connecting curves at some junctions. The southern half of the Berlin outer freight ring and a north-south connection to by-pass Berlin to the west will be completed. It is unlikely, however, that any major program of double-tracking will be completed, or even undertaken, before the end of 1952.

B. Highways.

1. Direct Contributions of Highways to the Economic Potential for War of the USSR.

To date, the direct contribution of East German highways to the Soviet economic potential for war has been negligible. Indirectly, however, highway transport is of considerable importance in maintaining the productivity of East German industry, much of which is operating on Soviet orders.

Extensive use of the highways by the Soviet occupation forces also contributes substantially to the Soviet military potential. In addition, despite the handicaps stemming from war damage and inadequate maintenance, the roads in their present condition probably could carry heavy military traffic in support of large-scale offensive operations for a period of from 3 to 6 months. 1/

a. General Description of the Network.

The density of the East German road system is 0.38 kilometer per square kilometer. 2/ The network is most dense in the area south of an east-west line through Berlin, while roads are relatively few in the North German plain. The highway situation in 1950, as compared with 1947, is shown in the following table:

East German Highways
1947 and 1950

Category	Surface	Width (Feet)	Length 3/ (Kilometers) 1947 3/	1950 4/
Reichsautobahnen (Superhighways)	Concrete with Short Asphalt Sections	2 Lanes, 30 Each	1,378	1,378
Reichsstrassen (National or State Roads)	Asphalt, Cobble, or Waterbound Macadam	16-21	9,676	8,646
Landstrassen				
Class I (Provincial)	Gravel or Loosely Bound Waterbound Macadam	12-21	18,410	17,401
Class II (Local)	Gravel or Loosely Bound Waterbound Macadam	10-18	19,168	18,348
Total			48,632	45,773

3/ In view of the source, the 1950 figures appear reliable. The 1947 figures may not be accurate, although it is possible that 3,000 kilometers of roads have been abandoned since that time.

War damage to East German roads was heaviest in the area east of Berlin, but total damage generally was not so extensive as that sustained in Western Europe. Damage to road surfaces was relatively light, being caused mainly by excessive use and lack of maintenance, while damage from demolition, shellfire, and bombing was of little consequence. Damage was most extensive and effective on the Autobahnen and Reichsstrassen. 5/ Bridge destruction by retreating Germans was widespread and thorough, and 1,131 bridges in East Germany were destroyed during the war. 6/ Temporary repairs were made immediately after the war, but permanent reconstruction was not undertaken on a large scale until the period of the Two Year Plan (1949-50). Most of the present emphasis is being placed on reconstruction of the Autobahnen and Reichsstrassen bridges, but progress until recently has been slow as a result of steel, cement, and asphalt shortages. 7/ The most recent information states that restoration of the Autobahnen bridges is now "well in hand." 8/ The condition of the Elbe, Oder, Saale, and Neisse River bridges, which are of great importance to east-west traffic, was as follows in 1950 9/:

Condition of East German Major Highway Bridges
1950

River	Prewar Crossings	Intact or Restored a/	Destroyed and Unrepaired	Units Condition Unknown
Elbe	25	20	5	0
Oder	15	7	8	0
Saale	61	16	4	41
Neisse	57	5	19	33

a/ Not necessarily permanent restoration.

Under the Five Year Plan (1951-55), 660 bridges are to be rebuilt, 270 by the national government and 390 by the various Laender, and all temporary bridges are to be replaced by permanent structures. 10/ Six hundred kilometers of new roads also are to be built by 1955. 11/

b. Traffic.

The following traffic figures have been reported for East Germany 12/:

East German Motor Vehicle Traffic
1947-50

Traffic	1947	1948	Planned 1949	Planned 1950
Passengers Carried (Millions)	58.0	71.0	73.0	78.0
Passenger-kilometers (Millions)	1,122.0	1,047.0	1,121.0	1,159.0
Metric Tons Carried (Millions)	34.7	39.8	44.0	45.6
Average Length of Haul (Kilometers)	30.0 a/	30.0	34.0	34.0
Ton-kilometers (Billions)	1.0 a/	1.2	1.5	1.6

a/ Estimated.

No 1950 traffic figures have yet been issued, but it was announced that the 1950 traffic Plan was 102.7 percent fulfilled by the end of September. According to the East German press, 38 percent of all transport, by weight, is currently carried on the highways. 13/ In terms of ton-kilometers, however, the highway network handles less than 10 percent of all East German internal traffic. It is planned that, in 1955, highway transport will carry about 35 percent of total traffic, or 100 million metric tons. In comparison, the railroads are scheduled to haul 195 million tons in 1955. 14/

The average length of haul for truck transport is relatively high. Although the proportion of long-distance traffic is declining, over 25 percent of all tonnage moved by motor vehicle in 1950 traveled 50 kilometers or more. 15/ In 1948, long-distance truck transport accounted for about 30 percent of the total tonnage moved by highway. 16/

A large proportion of total highway traffic is carried by East German vehicles in direct support of Soviet military forces in East Germany. Soviet military motor transport units also operate extensively over East German highways. Regular commercial traffic involves mainly the collection and distribution of agricultural produce and the movement of industrial raw materials and products between ports, rail terminals, and industrial installations.

c. Equipment.

Little data are available on the amount, condition, and use of road-building machines in East Germany, but it is known that such equipment is

inadequate and frequently obsolete. 17/ Required new equipment listed as of August 1950 by the Directorate General, Motor Traffic and Roads, included 30 trucks, 30 trailers, 20 passenger cars, 50 motorcycles, 50 tar sprayers, 10 asphalt boilers, 2,500 tar barrels, 2,500 meters of tar spray hose, 75 tar boilers, 75 tar and chips mixing machines, 10 large snowplows, and 1,500 bicycles for road maintenance personnel. 18/

d. Capacity.

The present capacity of the East German highway network is well below prewar levels. Many of the main routes still have temporary timber bridges, and maintenance and repair of the road surfaces has been generally inadequate and of inferior quality since the war. 19/ The highways, however, are considered more than adequate in terms of present economic requirements. 20/ In 1946 the Transportation Corps of the US Army estimated that three east-west highways south of Berlin and one highway from Berlin to Nuremberg each had a capacity of 20,000 short tons a day.

e. Vulnerability.

Highway transport in East Germany is more vulnerable than in any other Satellite, because the volume of highway traffic is greater than in the other Orbit countries. Since, however, alternative routes, either rail or highway, are available in many cases, effective attacks on the highway net would have to be widespread, persistent, and coordinated with action against the rail system.

The bridges, particularly those spanning the major rivers and those on the Autobahnen, are the most vulnerable points in the road system. Demolition, rather than air attack, probably would be the most thorough and effective method of destroying these structures. However, the ease with which temporary bridges can be built, as was demonstrated in 1945-46, greatly increases the effort required to produce a serious disruption of highway traffic.

Highway traffic also is vulnerable, particularly to low-level air attack. Autobahnen traffic is easily observable from the air, and traffic on other roads, although frequently hidden by tree cover, can often be spotted by dust, particularly on the gravel roads in summer.

2. Direct Contributions of Highway Transport Equipment to the Economic Potential for War of the USSR.

East Germany's direct contributions of motor vehicles are significant to the USSR's economic potential. It is a well-established fact that ex-German vehicles are still widely used in the USSR, and current trends suggest that future contributions to the Bloc are to remain at a high level. In view of indications pointing toward the curtailment of long-distance highway traffic,

it seems likely that road transport in East Germany is being reoriented according to the Soviet pattern, which emphasizes the use of motor transport for short-haul traffic. Such a transport program would require only a relatively small number of vehicles, used intensively, and would reduce the economic significance of the road system. The potential strategic value of the highway network will remain largely unchanged.

a. Inventories.

The following motor vehicle inventories have been reported for East Germany, excluding East Berlin and vehicles owned by Soviet installations 21/:

East German Motor Vehicle Inventory
1948-49

Units

	1 November 1948			10 October 1949		
	Serviceable	Unserviceable	Total	Serviceable	Unserviceable	Total
Trucks	68,742	25,240	93,982	70,790	15,787	86,577
Tractor-Trailer Combinations						
Tractors	9,465	4,446	13,911	8,461	2,687	11,148
Trailers	36,827	18,792	55,619	39,574	12,932	52,506
Special Vehicles	3,946	1,816	5,762	3,317	909	4,226
Buses	1,073	1,267	2,340	1,134	361	1,495
Passenger Cars	46,127	21,153	67,280	50,335	12,905	63,240
Total (excluding Trailers)	129,353	53,922	183,275	134,037	32,649	166,686

Although the total motor vehicle park declined between November 1948 and October 1949, serviceable vehicles* increased in that period from 129,353 to 134,037, or from 71 to 80 percent of the total inventory. A high rate of retirement and cannibalization of older vehicles in order to secure replacement parts probably was responsible for the net decline in inventory. A Soviet Military Administration (SMA) order in 1949 stated that "the stripping of motor vehicles withdrawn from traffic is to be organized, and spare parts required for repair shops are to be gathered systematically." Salvage of 9,800 metric tons of spare parts was anticipated as a result of this program. 23/ It is probable that the shortage of spare parts and truck tires has continued, since a further reduction in total vehicle strength was expected in 1950, although the percentage of serviceable

* Serviceable vehicles should not be taken as the number actually in use. From 10 to 15 percent of the serviceable vehicles usually are undergoing normal operational maintenance, repair, and servicing. 22/

vehicles probably continued to increase slightly. 24/

The number of motor vehicles registered in East Berlin is not known. In the entire Greater Berlin area, there were 17,199 licensed motor vehicles in March 1950. 25/

b. Effect of Transfers to the USSR.

Available evidence indicates that reparation deliveries of production facilities and finished vehicles, together with deliveries made under Soviet-East German trade agreements, have reduced the number of serviceable vehicles in East Germany to the absolute minimum required to meet planned traffic commitments. It seems likely that the total inventory will decline further as the serviceability of the motor vehicle park increases and the utilization of the serviceable vehicles is intensified. There are indications that domestic vehicle production facilities are to be rebuilt and expanded, 26/ with the possible aim of making East Germany a major source of vehicles for the entire Bloc, comparable to Czechoslovakia. To date, however, East German vehicle exports from current production have not been great. The USSR has received chiefly passenger cars, obtaining 1,697 in 1949, the last year for which complete data are available. 27/ Automobile engines and parts also have been exported, both to the Bloc and to the West. 28/ Although these exports have not had much effect on the domestic economy, other than possibly to prevent use of productive capacity for alternative purposes, East Germany has been left with an overage, badly deteriorated stock of motor vehicles which is barely able to meet the traffic requirements placed upon it.

3. Indirect Contributions.

a. Role of Highway Transport in Soviet Trade.

Although precise data are not available, it is unlikely that any through traffic of economic importance is carried by highway between East Germany and the USSR. There may be some military traffic in support of Soviet units in Germany, but it is more probable that almost all these shipments are made by rail and water.

b. Role of Highway Transport in Trade with the West.

It is not known whether commercial highway operations are conducted between East Germany and the West on a scheduled basis, but it is certain that a large volume of traffic is carried. The commodities hauled are of real importance to East Germany and, indirectly, to the USSR. Most of this traffic is believed to be in commodities subject to Western export controls and is, therefore, clandestine in nature. Highway transport is better suited to this type of operation than rail transport because of its greater flexibility. In addition to East German traffic with the West,

Czechoslovak and possibly a few Polish trucks also operate on East German highways in both intra-Bloc and East-West trade.

4. Inverse Contributions.

The Soviet Bloc has contributed little, other than supervision, to the restoration of highway transport in East Germany. The only known shipments of vehicles supplied by the Bloc amounted to 46 automobiles and 881 trucks delivered in 1949. 29/ These imports originated in the USSR and Czechoslovakia in about equal numbers, and most, if not all, of the vehicles were assigned to East German paramilitary units. As the East German vehicle industry expands, such shipments, presumably curtailed in 1950, probably will cease altogether.

Soviet supervision and control of East German highway transport appears likely to continue indefinitely. Although control is nominally vested in the East German General Directorate for Transport, the Transport Administration of the SMA actually holds ultimate authority, which it exercises at all levels of highway transport activity. 30/ Many of the Soviet supervisors reportedly are poorly qualified, and their authority is resented, particularly by the German technicians serving under them. 31/

5. Probable Developments.

Little important change in the East German highway system is indicated through 1952, and present trends are expected to continue. The tonnage of traffic handled by the highways will increase slightly, while the reduction in long-haul motor freight will result in a stationary or declining ton-kilometer total. The number of motor vehicles probably will continue to decline, despite increasing domestic production. Most of this production will be for export purposes and will increase East Germany's direct contribution to the Soviet potential for war. The role of highway transport as a supplementary transport service will be accentuated, thus reducing its economic significance. Further development of the highway system probably will be pointed more toward its potential strategic value to the Soviet Bloc than toward its role in the East German economy.

C. Water Transport.

1. Direct Contributions of Water Transport to the Economic Potential for War of the USSR.

a. General Description of the Network.

East German water transport facilities are of considerable importance to the Soviet economic potential for war. The waterways form the last link in the east-west water route from the USSR to the western boundary of the Soviet Bloc. They comprise the greater part of the Elbe River, the Oder, the Mark Brandenburg system connecting the Elbe and the Oder, the Mecklenburg waterway system in the north, and the eastern portion of the Mittelland Canal system, which runs across Germany from the Rhine River.

The Elbe rises in Czechoslovakia and flows through Saxony and Prussia. It is navigable throughout East Germany. The Oder is the main water route from Upper Silesia to the Baltic but at present is of greater value to Poland than to East Germany. The Mark Brandenburg system, with Berlin at its center, links the Oder with the Elbe and is one of the most important routes in the entire East German network. 1/ Details on important segments of the principal waterways in East Germany are as follows 2/:

Principal East German Waterways

Waterway	Length (Kilometers)	Estimated Barge Capacity (Gross Tons)
Elbe River	472.8	1,000-1,350
Berlin-Spandauer Canal	12.2	1,000
Britz-Kanne Branch Canal	3.5	1,000
Charlottenburg-Verbindungs Canal	3.2	1,000
Elbe-Havel Canal	57.6	1,000
Havel-Oder Waterway	102.7	1,000
Lover-Havel Waterway	170.2	1,000
Prinz Friederich-Leopold Canal	3.8	750-1,000
Spree-Oder Waterway	132.6	750-1,000
Teltow Canal	37.8	750-1,000
Hohensaathen-Friedrichstal Waterway	67.0	750
Neukoellner Ship Canal	1.8	750
Oder River	191.0	750
Saale River	174.7	450

East Germany has a number of important ports. The principal maritime ports are Rostock, Warnemuende, Wismar, and Stralsund. In addition to these major seaports, there are numerous small ports of importance to the fishing trade and to local traffic. The major inland port is Berlin, now believed to handle more traffic than any other East German inland port. Dresden, Magdeburg, Koenigs-Wusterhausen, Riesa, Genthin, and Halle are other important inland ports.

b. Traffic.

The water transport facilities have largely regained their prewar importance as carriers of bulk, slow-moving traffic, and they play a significant supporting role in peacetime traffic movements to and from the West, as well as within the Soviet Bloc. In addition, they provide alternative routes for wartime use. Inland waterway traffic, moreover, is of considerable significance in maintaining the productivity of East German industry, which is producing largely under Soviet direction and for Soviet account. Although East German ocean trade is carried by vessels of other nations, the traffic passing through the country's Baltic ports is of importance to the USSR and relieves the rail lines across Poland of a burden which probably would exceed their capacity.

The total volume of ocean traffic to and from East German ports is not known, but it is apparent that there has been a steady increase since the end of the war and that the traffic of the Baltic ports is now of economic importance. In 1950 the twin ports of Rostock-Warnemuende handled 1.5 million metric tons of cargo, and traffic in the port of Stralsund totaled 1 million tons. 3/ In addition to normal East German-Soviet commerce, the movement of reparations goods of various types to the USSR constitutes an important part of East German ocean shipments and a substantial portion of the traffic of domestic ports. While there is still a considerable volume of traffic between East Germany and the West, this traffic is being reduced by the tightening of Western export controls.

Inland water traffic has steadily increased since the end of the war but is still well below the 1938 level of 20.2 million metric tons. 4/ According to official figures published in the East German press, waterway traffic in 1948 totaled 8.5 million tons, 5/ while the 1950 Plan figure of 14.7 million tons was fulfilled by 104 percent on 21 December 1950, 6/ making the 1950 traffic level slightly more than 15.3 million tons. Although inland water traffic accounts for only about 7 percent of the ton-kilometer traffic of the entire inland transport system, the tonnage hauled on the inland waterways represents about 20 percent of the total tonnage. Inland water transport is important for the domestic movement of a wide range of commodities, but from 50 to 75 percent of the total tonnage hauled on the system is accounted for by five categories of bulk cargo: coal, coke, building materials, grain, and lumber. The nature of the inland export and import traffic is substantially the same as that moved by ocean transport.

e. Equipment.

The ports and waterways of East Germany are in fairly good condition in spite of vast war destruction. Substantial appropriations for their rehabilitation and expansion have been made, and this work is proceeding as rapidly as possible. Ports have been cleared of much debris, cranes have been installed or are scheduled for installation, and navigation facilities have been restored over most of the routes. Improvement in maritime port facilities also is progressing, and Rostock-Warnemuende can now accommodate all but the largest ships. Continued emphasis on water transport is indicated by the fact that the planned investment for "inland water transport and ocean traffic" has been fixed at DM 220 million ($55 million) for the 1951-55 period. 7/

d. Capacity.

The capacities of the East German waterways decrease from west to east, being largely concentrated in the Elbe system, the Berlin network, and the routes leading east and west out of that city. The Oder, which forms the present eastern border of the country, contributes little to the performance of East German water transport.

Although there is little information available as to the total capacity of the system, it is possible to make reasonable estimates based upon available figures for plans and performance. Since the waterway system is still being rehabilitated and expanded, and traffic is increasing, it is likely that planned traffic figures are established at levels not far below full capacity. If this assumption is correct, the fact that performance since 1946 has consistently been slightly above the target figures indicates that the system is operating at nearly full capacity. Therefore, the present capacity of the system probably does not exceed by more than 15 percent at best the 1950 traffic total of about 15.3 million metric tons, and the annual capacity might be estimated at not more than 17.5 million tons, a figure still below the 20.2 million tons carried in 1938.

Waterway capacity is seasonally restricted, sometimes severely, by ice, low water, and floods on long segments of the inland water routes. For example, a 400-mile sector of the Elbe above Hamburg is restricted by low water to about 220 days of full-scale operation, with operations at 75 percent of capacity for about 80 more days. Ice also is a handicap on virtually all routes for varying lengths of time.

Cargo-handling capacity for ocean shipments is concentrated largely in the ports of Rostock, Warnemuende, Wismar, and Stralsund. At present these ports are estimated to have the following annual capacities:

Rostock-Warnemuende, 3,900,000 metric tons; Wismar, 3,400,000 tons; and Stralsund, 3,000,000 tons. 8/

In terms of strategic capabilities, the potential of the East German fleet cannot be considered an important factor, since it consists of only one merchant ship of over 1,000 gross registered tons. Surveys of the traffic between East German and other ports reveal that East Germany's ocean traffic is carried predominantly in ships owned or chartered by the USSR or Poland.

e. Vulnerability.

The inland water network and maritime ports of East Germany are extremely vulnerable to military action and, to a lesser degree, to economic warfare measures by the West. During the war, port installations, dikes, dams, sluices, and locks throughout East Germany were the object of air and ground attacks which were quite successful. In the important area around Berlin (Land Brandenburg), for example, 59 percent of all locks and 97 percent of all bridges were destroyed. In addition, about 1,000 vessels were sunk along the inland routes. 9/ Virtually all routes have locks at frequent intervals, and some routes depend heavily upon the maintenance of elaborate facilities for their continued operation. The disruption of such facilities, although probably difficult because of their massive size and the protection given them, would constitute a severe and probably vital blow to continuous water transport operation. 10/

Western control of Hamburg and the lower reaches of the Elbe, East Germany's principal waterway, is a major factor in the economic vulnerability of the inland water transport system, although there has been little interference thus far with East German traffic. The continued increase of inland water transport capacity despite the tightening of Western export controls indicates that inland water transport is not affected by this type of economic warfare. Domestic and Satellite sources can supply the barges and powered vessels required, while port equipment probably can be provided in sufficient quantities to meet essential requirements. Although the construction of ocean-going craft in East Germany depends to some extent upon supplies from the West (about one-third of all materials used in East German shipbuilding comes from West Germany 11/), deep-sea transport requirements are being met largely by Soviet and Polish ships. As long as Bloc tonnage is available, therefore, dependence on the West for shipbuilding supplies will not constitute a major factor of vulnerability.

2. Direct Contributions of Water Transport Equipment to the Economic Potential for War of the USSR.

a. Inventories.

East Germany has no merchant ships of over 1,000 gross registered tons, with the exception of one vessel of 1,200 tons. The ocean-going fleet is composed of small cargo ships and fishing vessels. This inventory totals several hundred ships, but the exact number of vessels is unknown.

The inland fleet is still below its prewar tonnage but is nevertheless of considerable size. Although the total size of the fleet is not known, it includes the following vessels controlled by the German East Zone Navigation Administration: 350 tugs, 2,312 dumb barges totaling 1,015,100 gross tons displacement, and 262 self-propelled barges totaling 103,200 tons displacement. 12/ In addition, the Soviet Oder Navigation Company owns the following vessels: 7 tugs, 840 barges totaling 293,040 tons displacement, 70 steam launches totaling 50,000 horsepower, and 34 motor boats totaling 14,650 horsepower. 13/ It is uncertain whether the latter group of vessels can be considered to be in the East German inventory, since the Oder is chiefly a Polish-Czechoslovak waterway at present.

b. Effect of Transfers to the USSR.

There is little likelihood that the USSR will withdraw East German transport equipment. The vessels would be of negligible value to the Soviet Union, and they serve Soviet interests far more effectively in their present employment in East Germany than they could elsewhere in the Orbit.

It is probable that the East German economy could stand moderate losses of vessels and water transport equipment without a major effect upon operations or effective potential. There is, however, very little surplus capacity in the inventory. Transfer of the fishing fleet, moreover, would cut off the country from a major food source.

3. Indirect Contributions.

a. Role of Water Transport in Soviet Trade.

The Soviet Union's trade with East Germany is of greater significance than that with any other Satellite. While East German ocean-going ships play an unimportant role in Soviet trade, a considerable volume of ocean traffic carried by vessels of other Bloc nations passes through East German ports to and from the USSR. Eastbound traffic consists of reparations goods, commercial trade, and the production of Soviet-owned

industry in East Germany. The principal items of ocean traffic to the USSR are machinery, fertilizer, chemicals, cement, and a variety of industrial products. Imports by sea from the USSR consist primarily of grain and raw materials for domestic fabrication for Soviet account.

Inland water traffic also is of consequence in Soviet-East German trade and consists mainly of the same products as are transported by sea. Cargoes of certain raw materials and industrial products, including lumber, cement, and other building materials, move across East Germany and Poland to the USSR by inland waterways, while grain from the Ukraine and bulk raw materials, as well as coal from Poland, move to East Germany by this means. German inland water craft, moreover, participate in the movement of transit traffic from the West destined for the USSR and elsewhere in the Orbit.

The potential value of the East German water transport system to the Soviet military position also is believed to be considerable. East-west ocean transport routes using East Germany's Baltic ports would be valuable in logistic support operations, although they would be subject to attack from Western bases. Both the Baltic and the inland routes would provide alternatives for damaged or overloaded rail lines and, if rail transport were interrupted in war, would constitute an important segment of total Soviet military transport capabilities.

b. Role of Water Transport in Trade with the West.

Although East German ocean-going ships are of little importance in trade with the West, traffic between the West and East German ports continues, despite export controls. This traffic is carried mostly in Soviet and Polish vessels. Goods exported from East Germany by sea include potash, salt, lumber, and machinery, which go principally to Western Europe. Imports by sea from the West include iron goods, textiles, machinery, and chemicals, and most of these imports either directly or indirectly serve Soviet interests.

Inland water traffic to and from the West is important to the USSR as well as to the Satellites. The bulk of East Germany's Western imports comes from West Germany, and a considerable part of this traffic moves by waterway. It is known, for example, that East German barges move through the Western Sectors of Berlin under reciprocal agreements at the rate of at least 300,000 tons a month, 1/ although this figure undoubtedly includes much domestic traffic. The goods carried include machinery and other industrial goods legally obtained from the West, as well as a large volume of clandestine imports.

The volume of clandestine water traffic is not known, but such cargoes, which cover a wide range of items in short supply in the East, are believed to exceed in volume and importance those carried in legal trade. Water transport is believed, however, to play a secondary role to truck and rail transport in the movement of clandestine traffic. Cargoes reportedly

move by train or truck across West Germany to the West Berlin area and are sent on by barge via the Spree River. Clandestine ocean cargoes go from Hamburg to Rostock, from which they are transshipped by barge, train, or truck.

4. Inverse Contributions.

a. Equipment and Materials.

In order to regain their prewar value to the German economy, East Germany's ocean fleet, inland water craft inventory, and port facilities must be considerably improved. The ocean fleet is still confined to the planning stage, while the barge fleet remains below prewar levels. It is extremely unlikely, however, that East Germany will receive any of its water transport equipment requirements from the USSR, although some vessels may be received from the Satellites. The USSR produces few ocean-going cargo or passenger ships, and what tonnage is constructed is kept in the Soviet fleet. East Germany is now building barges, fishing boats, and small cargo craft, but from 90 to 95 percent of the ships built are delivered to the USSR under reparations and commercial agreements. East German requirements for port facilities and waterway aids will probably be met, if at all, from either the West or the other Satellites, rather than from the USSR.

b. Manpower.

East Germany makes no manpower requirements upon the Soviet Union. On the contrary, East German water transport would be greatly aided by the return of the large number of shipping and shipbuilding technicians who have been sent to the USSR.

c. Soviet Control.

Soviet control over East German water transport has been established for political reasons and sometimes operates at the expense of efficiency.

5. Probable Developments.

It is likely that there will be a continuing improvement in East German water transport through 1952. The ocean-going fleet may come into being with a few small ships of the coaster type. The inland barge and tug fleet will be increased slightly, as will the total ton-kilometer performance of the inland fleet. The cargo-handling facilities probably will be appreciably improved, and cargo-handling capacity might be expanded by from 10 to 15 percent or even more, if current expansion plans are fully carried out. One obstacle to development of the system will be shortages of materials, particularly with respect to items ordinarily obtained from the West.

D. Air Transport.

1. Direct Contributions of Air Transport to the Economic Potential for War of the USSR.

Although present air transport operations into East Germany are of no economic consequence, existing airfields could provide immediate and adequate facilities for large-scale transport operations.

a. General Description of the Network.

East Germany has no organized commercial air transport services. All its 51 airfields are controlled by the Soviet Air Force, which maintains air transport bases at Aaltenburg and Staaken. The only airfield available for civil transport aircraft is Schoenefeld, in East Berlin.

As part of an extensive Soviet program of reconstruction and improvement at former German air installations, which has been underway for several years, runways at six major airfields are currently being extended. The latest survey of East German airfields 1/ lists seven as having runways of 7,000 feet or over, capable of handling large transport and bomber aircraft. Zerbst, with a strip of 10,200 feet, is probably the most important air base in the European Satellites. Thirteen other airfields have runways of approximately 6,000 feet, and 25 smaller fields are in the 2,000-foot class.

b. Traffic.

Nonmilitary air transportation into East Germany 2/ is limited to aircraft of the USSR's Aeroflot, Poland's LOT, and Czechoslovakia's CSA. The extent of this traffic is not great.

Foreign Air Routes in East Germany

Airline	Route	Frequency
Aeroflot	Moscow-Minsk-Warsaw-Berlin	Daily except Sunday
	Moscow-Minsk-Berlin	Weekly
	Moscow-Kaliningrad-Berlin	Daily including Sunday
CSA	Prague-Berlin	Weekly
LOT	Warsaw-Berlin-Brussels-Paris	Twice Weekly
	Warsaw-Berlin-Paris	Weekly

c. Equipment.

The East German airfield network is the best equipped in the Satellites and provides the most extensive and up-to-date facilities for night-flying and all-weather operations. Eighteen airfields have equipment of this nature ranging from adequate to superior. In addition, 15 airfields have equipment permitting limited operations at night and in poor weather. Improvements already underway or projected at five of these fields, when completed, will furnish adequate runway, boundary, and obstruction lighting. Navigational aids at 21 airfields provide adequate service, while 8 additional fields have minimum facilities. A continuing program of improvements will increase the number of airfields in both of these categories.

Repair facilities are well-dispersed, with 28 installations providing field maintenance and 3 bases equipped for depot repair. No major repairs to civil aircraft, however, are undertaken at East German airfields, such work being performed in the country owning the aircraft.

Extensive facilities for storage and stockpiling of aviation fuels are available at the seven most important bases. Some provision is made for fuel storage at almost all East German airfields. At six auxiliary airfields, however, no fuel supplies are available.

d. Capacity.

East Germany has the largest number of good airfields in the Satellite countries. These are generally characterized by high-quality construction and equipment permitting utilization on a 24-hour basis. The capacity of the East German airfield network has been greatly increased since 1945 through a coordinated program of building and runway construction which has raised from 9 to 20 the number of airfields with runways of 6,000 feet or more. The airfield system, therefore, could at any time be readily adapted to large-scale transport operations.

e. Vulnerability.

East German airfields are so distributed as to provide great flexibility for the Soviet Air Force. In the event of sabotage or air attack on certain fields, alternative facilities would be available for temporary use.

2. Direct Contributions of Air Transport Equipment to the Economic Potential for War of the USSR.

East Germany has no air transport fleet and makes no direct contribution of air transport equipment to the Soviet economic potential for war.

3. Probable Developments.

It is unlikely that the USSR will permit East Germany to organize air transport services.

VIII. Current Allocation of Economic Resources.

1. Investment and Production in Industry.

The Satellite pattern of emphasis on industrial development is apparent in plans for East Germany. The Five Year Plan (1951-55) contemplates an average annual investment in industry of DM 3.6 billion, an increase of 38 percent over 1936 levels. The planned level of investment is more significant in view of the fact that East Germany already is highly industrialized.

Investment and production are largest in the engineering industry, particularly in heavy machinery. Reconstruction of 24 machinery manufacturing plants crucial to the success of the Plan is scheduled to take place by 1953.

In 1950, Soviet takings amounted to about 30 percent of the East German national product.

2. Agricultural Development.

Agricultural development has a much lower priority than does industry in the East German scheme of economic planning. Although agricultural production is scheduled to rise, the main economic effort is to increase industrial production.

3. Civilian Consumption.

Civilian consumption in East Germany is still below the 1936 level despite postwar increases in living standards. The allocation of textiles, food, and other consumer items, however, demonstrates that civilian consumption is given a relatively low priority. Plans for the production of consumer goods do not envision basic increases in living levels before the end of 1952.

4. Contributions of the Economy to the War Capabilities of the USSR.

a. Current Shipments of Manufactured Goods and Industrial Raw Materials.

The Soviet Union receives directly from East Germany approximately $2 billion worth of uncompensated goods and services a year. Uncompensated deliveries include direct support of a Soviet military occupation force of approximately 300,000 troops. More important, however, are the shipments of industrial goods to the USSR. SAG plants account for 44 percent of these shipments; public-owned factories, 39 percent; and privately owned firms, the remaining 17 percent.

The chief items shipped under the reparations program include equipment for electrical installations and railroads; mining, metallurgical, and metalworking equipment; and ships and marine equipment. Industrial raw materials do not bulk large in East German deliveries to the Soviet Union. Uranium is the one raw material of importance obtained by the USSR, East Germany supplying 45 percent of the total available to the Soviet Bloc.

East Germany's commercial exports to the USSR were valued at an estimated $369 million in 1950 and were composed of the same types of commodities as those delivered as reparations.

b. Probable Shipments of Manufactures and Materials in 1952.

It is probable that exports from East Germany to the Soviet Union will remain about the same in quantity and composition through 1952. The East German economic program is primarily designed to reduce dependence upon non-Bloc countries by increasing the volume and range of industrial output. By the end of the Five Year Plan period, it is probable that the composition of exports to the Soviet Union will have changed because heavy industry will have achieved full-scale production. An important current development is the manufacture by East German industry of substantial quantities of armament components for shipment to the USSR, including parts for tanks, submarines, and aircraft.

c. Other Contributions.

East Germany, along with Czechoslovakia, is assuming an important position in the development of the Satellite area as an industrial complex. It is providing industrial equipment and materials required for development of the other Satellites and will provide more in the future. This relationship is reflected in the recent large increase in trade between East Germany and the other Satellites.

IX. Estimated Degree of Vulnerability to Western Economic Warfare.

1. Major Imports.

Thirty-three percent of East German imports, by value, in 1950 were from the USSR; 43 percent, from the other Satellites; 16 percent, from West Germany; and 8 percent, from other Western European countries and the rest of the world. Although important items are imported from Belgium, Sweden, Switzerland, and the Netherlands, it is estimated that they are not absolutely essential to the East German economy.

East Germany's legal imports from West Germany were valued at about $75 million in both 1949 and 1950, but, as a proportion of total imports, they declined from 26 to 16 percent. Clandestine imports from the same area amount to possibly three times the legal imports. These clandestine imports are believed to be composed largely of iron and steel products, bearings, and machine tools. Attainment of planned goals will continue to require imports from West Germany of commodities which East Germany either cannot yet manufacture or cannot obtain in sufficient quantity from within the Bloc.

2. Degree of Vulnerability of Major Sectors of the Economy.

East Germany is vulnerable to Western economic warfare in two ways. First, the maintenance of present production levels depends upon obtaining metalworking machinery and replacement parts from the West. Second, the achievement of increases in output, as outlined in the Five Year Plan, likewise depends upon the procurement of imports from the West.

Heavy industry in East Germany is directly vulnerable to Western economic warfare because of its reliance on West Germany for imports of component parts, particular types of specialized machine tools, basic steel products, and high-grade alloys. The chemical industries are still highly dependent upon Western sources for caustics, sulphur, and pyrites. East Germany must import caustics from the West because of the shortage in the entire Soviet Bloc. Most of these imports came from Sweden and the Netherlands. An inadequate supply of caustic soda would affect such industries as rayon and cellulose, soap, dyestuffs and intermediates, and other heavy chemical industries. East Germany possibly would be self-sufficient in sulphur and pyrites if reparations shipments to the Soviet Union were discontinued. Shortages caused by continuing reparations shipments, however, have forced many plants to curtail operations, and the Soviet Bloc has not been able to supply the sulphur and pyrites necessary to make up the difference.

The expansion of production in accordance with the Five Year Plan is vulnerable to measures of economic warfare affecting electric power, coal,

and manpower. Electric power is short despite the existence of a highly integrated and efficient network. Round-the-clock and multishift operations have been instituted for maximum utilization of present capacity. Without imports of parts and new equipment from Western countries, however, it will be difficult for East Germany to increase either total operating capacity or actual power production.

Directly related to the electric power problem is that of coal, which is virtually the sole energy source used in power generation. East Germany faces a bituminous coal shortage, which it is attempting to offset by extensive use of brown coal. No sector of the economy has more than a 2 weeks' supply of coal on hand, and in most instances reserves are sufficient for less than 1 week. The machinery and equipment now used are old and are in constant need of repair, and considerable effort is being expended on the development of a mining equipment industry. Efforts to increase production through use of more labor are not effective in brown coal mining operations, which utilize heavy excavating equipment. Additional labor is not much more effective in stepping up the output of bituminous coal, because the narrow, steep shafts will not permit simultaneous employment of many miners. Furthermore, some of the tools and equipment are made of soft steels and in some cases are hardly useful even for hand mining.

Manpower in East Germany presents a unique problem. On the one hand, population transfers and materials shortages have created an unemployment problem. On the other hand, given sufficient materials and facilities, there probably will be a manpower shortage as the Five Year Plan gains momentum because of the excess of deaths and defections over births. In addition, there is a specific shortage of technical and skilled personnel. Although efforts have been made to overcome this lack through training programs, defections to West Germany, if they continue at the current rate, possibly will offset any gains. Thus there are two vulnerabilities in the manpower situation: (1) the discontent and unrest which arise from unemployment, which can be enhanced by a Western economic warfare program designed to perpetuate present shortages of equipment and materials, and (2) continued and possibly increased defection to the West, particularly of technical and skilled personnel.

Transportation is not critically vulnerable to Western measures of economic warfare. Most shortages of transport equipment and supplies which now exist result from the heavy reparations burden on the transportation equipment industry and not from limited domestic production.

Agriculture does not represent a vulnerability, because the Soviet Bloc is able to make up any East German agricultural deficit.

3. Compensating Measures to Offset Western Economic Warfare.

The possibility that the effects of Western export restrictions could be offset through an increase of intra-Bloc trade is not great. In 1950 a major effort was made to reduce all trade with non-Bloc sources to an absolute minimum, thus limiting further adjustment through this medium. There are, of course, some steps which could be taken, such as the alleviation of a coal shortage by the diversion of Polish coal now sent to Western Europe. Such adjustments, however, probably would not solve all the problems created by large-scale Western economic warfare.

The most important adjustment possible would be a reduction by the Soviet Union of its uncompensated takings from East Germany. Such action would release to domestic industry machinery and materials necessary to achieve the Five Year Plan goals. There also is room for internal adjustment in the East German economy. Difficulties of such adjustment, however, are evidenced by the continuing unemployment problem, which further shortages of equipment and supplies would accentuate.

Operations in the most critical sectors of the economy, however, probably could be maintained despite Western economic warfare measures. The consumer goods industries have some capacity which could be diverted to heavy industry. Production in less important industries could be cut back to make more supplies available. Except for those items imported from West Germany, the use of substitutes cannot be developed much further, since the entire industrial development of Germany in the 1930's and during the war was directed toward self-sufficiency.

I. Indications of Preparations for War.

The basic emphasis on heavy industry in the current Five Year Plan in East Germany involves an expansion of those industries capable of contributing directly or indirectly to arms production. The types and quantities of producers' goods called for by the Plan are similar to those of 1944, the year of peak production during the war.

There are, however, few indications of immediate preparations for war. There is no evidence of a mobilization of manpower or transport facilities on a wartime basis or of a dispersal of industries. Some indications do exist, however, which point to a preparation for war, such as the stockpiling of foods, including grain and meat. These stockpiles are scheduled for further expansion. Stockpiles of petroleum products almost completely fill the available storage space of about 1 million metric tons. A stockpile of rubber also is being accumulated. The USSR is preserving the underground factories built by the Germans. The production of war materiel has increased. Although no completed weapons are believed to be produced, component parts for small arms and heavy weapons, including tanks, railroad guns, submarines, and aircraft, as well as explosives and ammunition, are made. Port and shipping facilities and the airfield network, which is under complete Soviet military control, are being expanded.

APPENDIX A

RECAPITULATION OF LIMITATIONS, DEFICIENCIES, AND REQUIREMENTS OF INTELLIGENCE

Sections III, VIII, IX, and X do not have material to be included in this Appendix.

I. Trends in the Structure of the Economy.

Information gaps uncovered in this study include the following:

1. Up-to-date organizational details of the planning bodies (especially on intermediate levels), together with detailed descriptions of their functions and methods.

2. Information on the intricacies of East German statistical systems. US HICOG reported some information on this subject, but it was incomplete, while CIA/OSO reports have contained little if anything on the subject.

3. Information on the chain of command in the various economic ministries. Changes in these ministries occur frequently, and timely reporting would be helpful. Poor reporting is most noticeable in the coverage of intermediate-level agencies.

4. Information on the attempts to create artisan and handicraft cooperatives. Vague reports of such action have been hinted at for some time, but specific details are lacking.

5. Information on the "Center of Industrial Requirements," located at Rostock. Detailed descriptions of this center's function, the manner of implementing its program, its relation to the State Planning Commission, its methods of operation, and its operating personnel would be helpful in assessing its importance.

6. Information on Berlin's unique status in East Germany. It appears that special plans are drawn up for Berlin industry and that Berlin is regarded as distinct from East Germany by the USSR. Information bearing on this distinction would be helpful.

II. Capacity of Human Resources for Economic Development.

The East German censuses in 1946 and 1950 and other vital statistics provide population estimates. Future information concerning vital statistics and migration will be necessary to keep population estimates up-to-date and to permit estimates of possible changes in the labor force. The employment statistics available do not provide sufficient details of industrial distribution. More

information will be necessary for the study of the recruitment and training of young people and women. The uncertainty of the part allotted the Soviet Sector of Berlin in the Five Year Plan is a major gap in information. Further information concerning productivity and the progress and content of training programs also would be desirable.

IV. Foreign Trade and Finance.

Additional information which would shed further light on the commodity composition of trade as compared with specific goals for various commodities is fragmentary, and much of these fragments are in German. The tasks of translation, tabulation, and comparison alone would require 3 or 4 additional weeks of full-time work. This information would be valuable, but it is not believed that it would change the basic picture presented in this report.

Over-all information on East German foreign trade is becoming increasingly scarce. In 1949, SO published detailed reports on East Germany's foreign trade by country and commodity for 6 months, 10 months, and the complete year. No such reports have been available for 1950. Monthly reports summarizing imports and exports (contracts in the case of the USSR) are available for the months of January through September 1950. No such report for any later date is available. Since then, reports have been received showing the debits and credits in trade balance accounts, with the status of each account as of the end of the month. Such reports are available for the months from November 1950 through January 1951, and, although these give no information as to the commodity composition of trade, they at least indicate the level of imports and exports and the balance in East German trade accounts with various countries. No comparable report has been received covering any month since January 1951, however, and it is not known whether or not such information will be available.

Since such information is essential for an accurate picture of East German foreign trade. every effort should be made to obtain data, of the type formerly received, on actual imports and exports, by commodity as well as by country. Attempts should also be made in West Germany to obtain further details on German interzonal trade, both overt and covert. Other Western countries should make available data concerning their trade with East Germany. While some countries began publishing such statistics in 1951, France and the US still do not follow this practice. The UK started publishing the total volume of trade with East Germany in January 1951 but without breakdowns by commodities. In particular, details are needed concerning strategic commodities which are known to be going to East Germany.

Much remains to be done in exploiting all the available information on uncompensated deliveries. There exists a large amount of information relating to East German uncompensated deliveries in the form of reparations, to SAG production, and to the investment plan. Much of that material is in German and has not been translated. Time limitations did not permit full analyses of the investment plan, and only the categories connected with reparations and SAG operations were examined. Further study on this subject should be made, and all the available information should be assembled.

The probable error in the estimate of the value of East German uncompensated deliveries from 1948 to 1952 may be between 25 and 35 percent because of difficulties in determining current production costs in East Germany and the price structure of the products delivered to the USSR.

V. Agriculture.

Abundant prewar German statistics and other published sources of information on East Germany are available in Washington, but much work remains to be done to clarify details. Knowledge of this material is essential as a background for an analysis of the relationships among production, domestic requirements, and surpluses or deficits and for an appraisal of their effects on the economic potential of the country and of the Soviet Bloc.

The chief gaps of current information are in the fields of import, export, and regional trade. Captured German documents, SO reports, defector reports, and foreign news items, although indispensable sources of information, usually provide only incomplete information. The appraisals made by the Office of Foreign Agricultural Relations of the State Department and by the Department of Commerce are useful but sometimes inadequate.

VI. Industrial Capacity and Levels of Production.

A. Ferrous Metals.

Information from East Germany was quite comprehensive until 1950 but has been inadequate since that time. Material is needed on the following:

1. Output of pig iron, raw steel, and rolled products in 1950.
2. Estimated production in 1951-52.
3. Progress of expansion of individual existing plants and of new plants under construction.
4. Requirements for raw materials.
5. Consumption of raw materials.
6. Import and export trade in raw materials and rolled products.

B. Nonferrous Metals.

1. Copper.

Information is lacking on the following:

a. Domestic requirements.
b. Stockpiles.
c. Imports planned in 1951 and imports in 1950, with countries of origin.

d. Annual production, grade of ore, and mining methods and conditions at the Sangerhausen mine.
e. Recent plant expansion.
f. Production capacities.

2. Lead and Zinc.

Information is lacking on the following:

a. Domestic requirements.
b. Stockpiles.
c. Imports planned in 1951 and imports in 1950, with countries of origin.
d. Rated capacity of the new zinc smelters at Freiberg.
e. Zinc mines and production.
f. Recent plant expansion.
g. Production capacities.
h. Ore reserves of lead and zinc.

3. Aluminum.

Information is lacking on the following:

a. Requirements and consumption pattern.
b. Availability of technical personnel.
c. Plant capacities.
d. Plans for rehabilitation of aluminum plants other than Bitterfeld.

C. Coal.

The following information is requested:

1. Total production and output of individual mines in 1950 and plans for 1951.
2. Data on the distribution of bituminous coal, brown coal briquettes, and brown coal coke to the major categories of consumers in 1950 and plans for 1951.
3. Data on imports and exports, by countries, of coal and coke during 1949 and 1950 and the 1951 trade plan.
4. Information on machinery and equipment requirements in the coal industry.

D. Petroleum.

Further information is needed on the following:

1. Stockpiles by location, product, and quantity.
2. Quantity, type, and destination of exports.

3. Shifts in production schedules.
4. Consumption by consumer, quantity, and product, including changes in planned allocations.
5. Expansion of refineries.
6. Dismantling or shifting of equipment.
7. Plant security measures.
8. Construction and expansion of storage depots.
9. Indications and causes of shortages of petroleum products and raw materials.

E. Electric Power.

Information on the electric power industry of East Germany has been plentiful as compared with the reporting on other Satellites. The absence of the usual wide gaps in data concerning the condition of the equipment, consumption of electric power, and input requirements permits a fairly accurate measure of the net contribution of the industry to the economic potential of the Soviet Bloc.

SO reporting has been skillful and concise. Official German documents translated by FDD have given considerable accurate information. The lack of time to exploit all the information available to CIA has been the most important factor limiting the completeness of research.

F. Chemicals.

1. Caustic Soda.

Although intelligence coverage of chemical plants in East Germany was good up to mid-1950, information available to this office after that time has been decreasing. Details on plant equipment installations and current capacities are desired, as are total production figures for the various heavy chemicals produced in 1950. Reports of this nature previously were available from G-2, but little information has been received from this source lately.

2. Sulphur and Pyrites.

Little reliable information on East German production of and trade in sulphur and pyrites is available. The existing world shortage of sulphur and the anticipated shortage in pyrites make procurement of such information increasingly important, since the Satellites are in large part dependent on the West for supplies of these materials.

3. Rubber.

The major deficiency in information on the East German rubber industry is in data on foreign trade, especially on shipments of synthetic rubber as reparations and as exports to the USSR and the Satellite countries.

Data on production of rubber chemicals, types and extent of production, and plant installations and location also are needed. Additional information on individual rubber fabricating plants, especially tire installations, is required.

3. Engineering Industry.

1. General.

Time available for the preparation of this paper was not sufficient for the complete evaluation of the more than 2,200 documents covering 700 main plants in these industries. Only documents in the CIA Library were used. IR was not consulted, since over-all rather than individual plant production figures were wanted.

Many documents related to enclosures, which generally were photographs or typed copies of text in German. There were few FDD translations on this industry, and these usually were abstracts from which statistics were omitted and therefore of little value.

Most enclosures were not in the CIA files and had to be borrowed from SO or G-2. On one request for an SO document, there was 2½ weeks' delay in getting the document.

Many reports relating to production in East Germany are ambiguous, in that they do not clearly state what part of the production is included in the report (1) as to categories of products and (2) as to administrative sections of the industry (VVBL, VVB2, SAG, private).

Some reports did not show up on the intellofax run, and there was delay in obtaining certain documents not in the Library.

12. Aircraft.

The reports used in this paper are not generally reliable, being subject to errors in interpretation and translation. The tendency for sources to tell what information is most likely to be in highest demand at the moment is another weakness, and reports from different sources frequently duplicate each other with only minor paraphrasing. There is a noticeable lack of qualified technical observers, either defectors [redacted] who can obtain the essential information about aircraft parts manufacturing in East Germany. 25X1X7

It is obvious that little care is used in interrogations. For example, the person who wrote one report stated that the defector was stupid, unlearned, "had the shakes," etc., and then prepared several pages of information which would indicate the opposite. In these interrogations there is

generally little emphasis on the aircraft industry, and evidence indicates that the technique of asking leading questions is prevalent among interrogators seeking information on aircraft or aircraft parts manufacturing.

13. Shipbuilding.

The material in this paper was obtained solely from reports in the CIA Library, of which no more than 50 percent could be studied. Because of lack of time, facilities in individual yards were not analyzed in order to exploit more completely the general reports on production and capacity. Nevertheless, since many of the statistics set forth herein were obtained from official ministerial documents of the German Democratic Republic, it is believed that a fairly accurate estimate of East German shipbuilding is presented. A plant-by-plant study is planned which should confirm the conclusions.

H. Uranium.

OSI has a large volume of information on the uranium resources of East Germany, but little of this material is now available in this branch. An accurate picture of the real shortages in this field will be known only when a complete survey of the material in the Special Commodity files and in OSI has been made.

VII. Transportation.

A. Railroads.

The quality and quantity of information received on East Germany's railroads is far superior to that available for any other Satellite. Coverage on facilities, equipment, traffic, and plans is excellent. In some cases the information is almost as comprehensive as that available to Herr Kreikemeyer himself, the DR's Director General.

Although information received on traffic is voluminous, it requires some clarification. It is not always stated whether traffic reported is total Soviet-interest traffic, Soviet military traffic only, East German reparations traffic, East German-Polish traffic, or total traffic. Nor is it always clear whether coverage is on an 8-hour, dawn-till-dark, or 24-hour basis. In some cases it is uncertain whether a given report describes scheduled traffic only or traffic actually observed, including nonscheduled and Soviet military traffic.

B. Highways.

The major deficiency in intelligence information on East German highway transport is the lack of detailed data concerning all aspects of highway traffic. Highway transport is employed by numerous segments of the national economy, such as agriculture, industry, the military, commerce, and government. The total vehicle park, including both motor vehicles and animal-drawn equipment,

is distributed according to the requirements of these various interests for road transport service. In order to estimate accurately the over-all capability and economic vulnerability of East German highway transport, the allocation pattern of vehicles and the nature and quantity of all types of highway traffic movements must be known.

C. Water Transport.

Intelligence on East German water transport is deficient in several respects. Detailed information is lacking on the nature and extent of traffic, legal and clandestine, with the West, as well as with the Bloc. The capacities of inland ports, water routes, and the ocean fleet are not sufficiently known. Data on equipment inventories are inadequate, and more details on the types and tonnages of vessels in each area of operation are needed.

D. Air Transport.

Continued reporting on the condition and use of East German airfields is desired, together with accurate information on the types and quality of airfield equipment installed or planned. Evidence of stepped-up nonmilitary air freight operations between East Germany and the Soviet Bloc would be significant. This should be reported promptly, together with the name of the airline or airlines conducting this traffic and the extent and nature of the freight carried.

APPENDIX B

FOOTNOTES AND SOURCES

Sections V, VIII, IX, and X do not have material to be included in this Appendix.

I. Trends in the Structure of the Economy.

1. State OIR Rpt. 5330.19, 5 Apr 1951.
2. HICOG, Frankfurt Cable 9050, 11 May 1951.
3. HICOG, Eastern Element, Berlin, D.81, 10 Aug 1950.
4. OI/HICOG, R & A Rpt. 4, 15 Apr 1950.
5. State Biographic Sketch 10, 6 Dec 1950.
6. Ibid.
7. OI/HICOG, R & A Report 4, op. cit.
8. HICOG, Frankfurt, D.2653, 15 Feb 1951.

25X1A2g

9. [redacted]
10. HICOG, Berlin, D.665, Encl. I, p.5, 30 Mar 1951 (East German farmer visiting West Berlin Agricultural Exhibit).

25X1A2g

11. [redacted]
12. (Army) 7707 ECIC, Berlin, R-E 139-50, 28 Aug 1950.
13. State Biographic Sketch 10, op. cit.
14. State OIR Rpt. 5230, 24 May 1950.
15. HICOG, Frankfurt, D.2669, 16 Feb 1951.
16. FBIS, 2 May 1951 ("Informationsbuero West," refugee press association).
17. (Army) ID, EUCOM, Rpt. R-E-29-51, 9 Jan 1951.
18. HICOG, Eastern Element, Berlin, D.301, 13 Nov 1950.
19. HICOG, Eastern Element, Berlin, D.507, 1 Feb 1951.
20. HICOG, Berlin, D.665, 30 Mar 1951 (based on survey among East German farmers visiting West Berlin Agricultural Exhibit).
21. HICOG, Frankfurt, D.1445, 1 Nov 1950.
22. HICOG, Eastern Element, Berlin, D.343, 5 Dec 1950.
23. State OIR Rpt. 5230, op. cit.
24. Ibid.
25. Ibid.

25X1A2g

26. [redacted]
27. (Army) ID, EUCOM, Rpt. R-E-139-50, 7 Sep 1950.
28. (Army) ID, EUCOM, Rpt. R-E-109-51, 1 Feb 1951.,
29. State OIR, Rpt. 5202, 7 Aug 1950.
30. OI/HICOG, Frankfurt, D.1157, 21 Jun 1950.
31. HICOG, Eastern Element, Berlin, D.669, 30 Mar 1951.

II. Capacity of Human Resources for Economic Development.

1. 1939 and 1946 Censuses (1951 figures projected by estimating the excess of deaths over births and the net migration).
2. FBIS, 2 Dec 1949.
3. FBIS, 16 Mar 1951.
4. HICOG Berlin 555, 20 Feb 1951.
5. Rounded from the sum of dependent agricultural workers, [redacted] 25X1A2g 27 Jun 1950, and independent agricultural workers, [redacted] CIA 372539, 5 Oct 1949. 25X1A2g
6. Ibid.
7. 1949 figure plus increase in FBIS, 18 Aug 1950.
8. [redacted] 25X1A2g rounded to include independent workers and artisans.
9. From increase in 1951 Plan, HICOG Berlin 485, CIA 561108, 23 Jan 1951.
10. [redacted] 25X1A2g op. cit., (may be an understatement).
11. [redacted] op. cit.
12. [redacted] 25X1A2g CIA 372539, op. cit.
13. FBIS, 20 Apr 1950.
14. FBIS, 19 Jan 1950. 25X1A2g
15. HICOG, Berlin 485, CIA 561108, op. cit.
16. [redacted] 25X1A2g, CIA 316861; and [redacted] among others.
17. Joint Weeka 61, 19 Nov 1949.
18. [redacted] 25X1A2g, CIA 609621, 30 Mar 1951.
19. FBIS, 29 Nov 1950.
20. HICOG, Berlin 1472, 8 Jun 1951.
21. HICOG Berlin 555, op. cit.
22. [redacted] 25X1A2g
23. FBIS, 1 Dec 1949.
24. FBIS, 8 Jun 1949.

III. Living and Working Conditions.

1. OIR-5444 (PV), 22 Jun 1951, "The Economic Situation and Prospects of East Germany," 1951.

IV. Foreign Trade and Finance.

1. HICOG Berlin 26, 24 Jul 1950. 25X1A2g
2. Ibid.
3. Monthly trade reports and contracts for Jan-Sep 1950 [redacted] 25X1A2g

[redacted] payments and receipts for imports and exports for Nov-Dec 1950 in 25X1A2g [redacted] trade statistics published by Austria, Belgium, Denmark, the Netherlands, Norway, Sweden, and Switzerland; West German statistics on interzonal trade, which

provide basis for estimates of East German trade with France, Italy, the US, the UK, and Yugoslavia, which do not publish a breakdown between East and West German trade.

25X1A2g

4. 25X1A2g [redacted] 21 Feb 1950.
5. [redacted] 16 Dec 1949.
25X1A2g 6. Berlin, Desp. 159, 2 Aug 1950.
7. [redacted].
8. Ibid.
9. Hamburg DPA broadcast, 25 Nov 1950.
10. See notes 1, 2, and 3.
11. Ibid.
12. Ibid.
25X1A2g 13. HICOG Berlin, Desp. 123, 5 Sep 1950.
14. [redacted] 1 Sep 1950.
15. Ibid.
16. See notes 1, 2, and 3.
25X1A2g 17. [redacted]
18.
19. Ibid.
20. FBIS, 14 May 1951.
21. Ibid.
25X1A2g 22. CINCUS, AG 380.01, Nov 1949.
23. [redacted]
24.
25X1A2g 25. Army Staff Communication, 23 Jan 1950.
26. [redacted]
27. Chicago Daily News, 2 Nov 1948.
25X1A2g 28. [redacted]
29. 25X1A2g
30. OIR 4792, 15 Nov 1948; [redacted] "Soviet Zone Budget for April through December 1949," State Desp. 744, Berlin, 20 Jun 1949.
25X1A2g 31. [redacted]
32.
25X1A2g 33. [redacted]
34.
35. Ibid.
25X1A2g 36. [redacted]
37.
38.

VI. Industrial Capacity and Levels of Production.

A. Ferrous Metals.

Sources:

25X1A2g

[redacted]

The Economist, 23 Jan 1950.

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25X1A2g

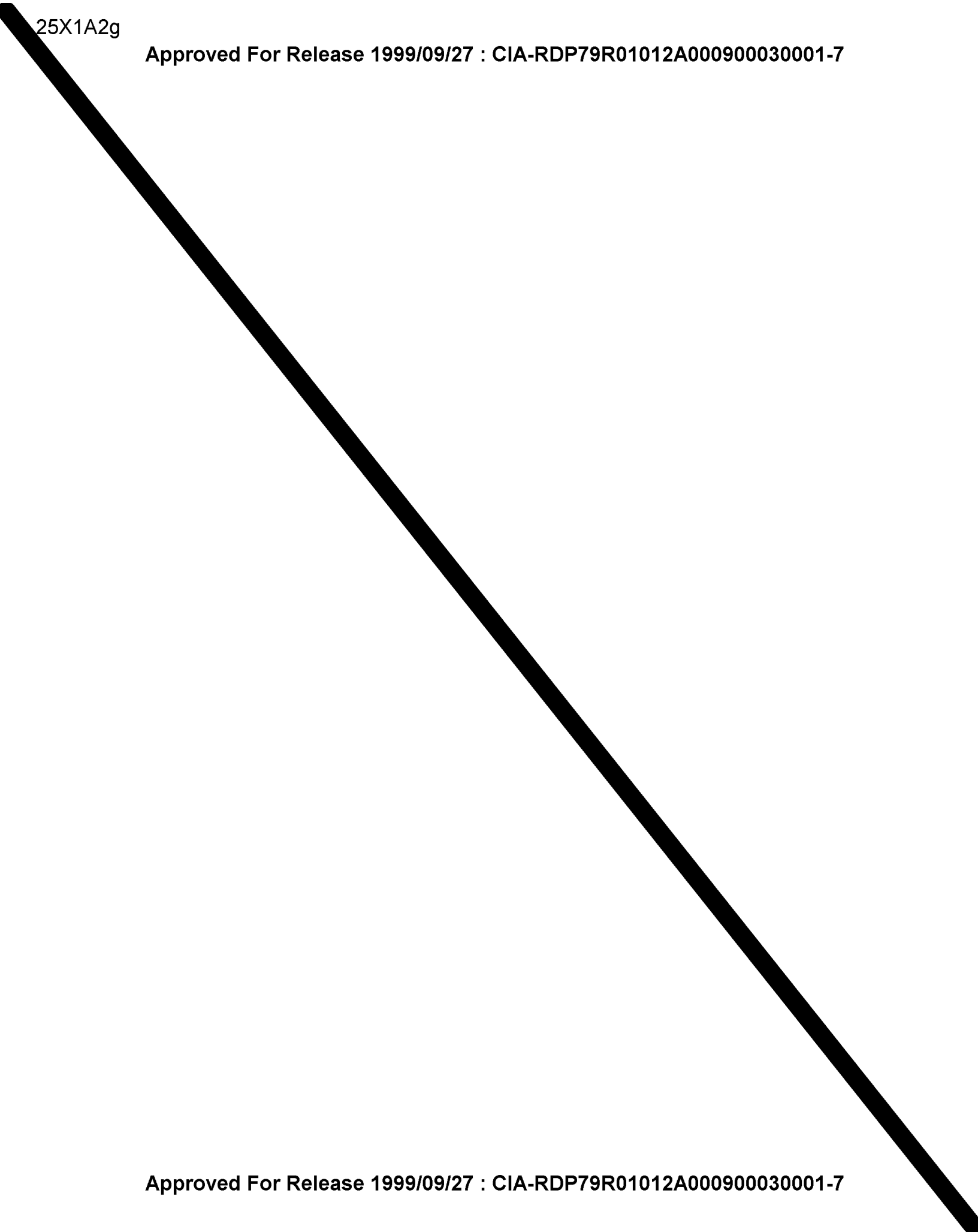
16. [redacted]
17.
18.
19.
20.
21. FDB, U-261/49, op. cit.
25X1A2g 22. [redacted] op. cit.
23. FDB, U-261/49, op. cit.; R-E 277-50, op. cit.
24. HICOG, D 736, 20 Apr 1951.
25X1A2g 25. [redacted].
26. FDB, U-261/49, op. cit.
27. Ibid.
28. [redacted]
29.
25X1A2g 30.
31.
32.

F. Chemicals.

2. Sulphur and Pyrites.

25X1A2g 1. Numerous SO and G-2 reports.
2. [redacted].
3. ID EUCOM, RE 369-40, 27 Oct 1950.
25X1A2g 4. [redacted]
5.
6. ID EUCOM, RE 369-40, op. cit.
7. [redacted]
25X1A2g 8.
9.
10.
11.
12. ID EUCOM, RE-260-50, CIA 529560, 20 Sep 1950.
13. ID EUCOM, RE 369-40, op. cit.
25X1A2g 14. [redacted]
15. ID EUCOM, RE 369-40, op. cit.
16. [redacted]
25X1A2g 17.
18.
19.
20.
21.
22. ID EUCOM, RE 260-50, op. cit.
23. Compiled from official statistics of non-Soviet producing countries and from numerous SO reports on Orbit producing countries.
24. ID EUCOM, [redacted] op. cit.
25X1A2g 25. [redacted]

25X1A2g



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17. CNO 221-C-48, 11 Jun 1948.
18.
25X1A2g 19. [redacted]
20.
21. CNO 285-C-49, 1 Dec 1949.
25X1A2g 22. [redacted]
23. CNO 221-C-48, op. cit.
25X1A2g 24. [redacted]
25. State Dept., Berlin 473, 18 Apr 1949; RT-162-51, 15 Feb 1951.
26. Estimated on available data on exports and planned exports of synthetic rubber, imports and planned imports of natural rubber.
25X1A2g [redacted] 25X1A2g
25X1A2g 27. State Dept., Berlin 473, op. cit.; [redacted], op. cit.
28. [redacted] State Dept., Berlin 17365, 14 Dec 1948.
29. Estimated on the basis of export plan for synthetic rubber going to USSR, Czechoslovakia, and Poland. [redacted], 25X1A2g 8 May 1951.
30. India Rubber World, May 1950. 25X1A2g
31. [redacted]
32. CNO 285-C-49, 1 Dec 1949. 25X1A2g
33. India Rubber World, op. cit.; [redacted]
34. State Dept., Berlin 4285, 5 Apr 1949. 25X1A2g
35. State Dept., Berlin 17365, 14 Dec 1948; [redacted] FDD
25X1A2g 13 Sep 1950; [redacted] 26 Oct 1949.
36. India Rubber World, op. cit.; [redacted] 25X1A2g
25X1A2g 37. State Dept., Berlin 1736, 14 Dec 1948; [redacted] FDD
13 Sep 1950; [redacted] 20 Feb 1950; [redacted] 26 Oct 1949.
38. India Rubber World, op. cit. 25X1A2g
39. Chemical & Engineering News, op. cit., and other sources.
40. CNO 285-C-49, op. cit.

G. Engineering Industry.

1. General. 25X1A2g

1. [redacted] 25X1A2g
2. CIA 378270, Oct 1949; OIR 4792, Nov 1948.
3. [redacted]
4.
5.
6.
7. Ibid.
8. HICOG 260, [redacted] 25X1A2g

9. HICOG 81, Aug 1950.
10. Ibid.; HICOG 260, op. cit.
11. Ibid.
12. [redacted] 25X1A2g
13. Estimated 140 percent of 1950, HICOG 448.
25X1A2g 14. [redacted]
15. TIDC-FEA-Project 14, Jun 1945.
25X1A2g 16. [redacted]
17. OIR 5202, Aug 1950. 25X1A2g
18. OIR 5202, Aug 1950; [redacted]
25X1A2g 19. [redacted]
20. [redacted]
21. HICOG 81, op. cit.; HICOG 448, Jan 1951; HICOG 708, Apr 1951.
25X1A2g 22. [redacted]
23. [redacted]

2. Machine Tools.

1. [redacted] 25X1A2g
2. USSR Radio Broadcast, Vol. III, No. 4.
25X1A2g 3. [redacted]
4. [redacted]

3. Heavy Machinery.

25X1A2g 1. [redacted]
2. [redacted]
3. Ibid.
25X1A2g 4. [redacted] 25X1A2g
5. Section on Ferrous Metals, [redacted] 25X1A2g
6. [redacted]
7. HICOG 744, Apr 1951. 25X1A2g
25X1A2g 8. [redacted]
9. [redacted]
10. [redacted]
11. [redacted]
12. [redacted]

4. Electrotechnical Equipment.

25X1A2g 1. [redacted]
2. [redacted]
3. HICOG 260, Oct 1949.
25X1A2g 4. [redacted]

5. HICOG 81, Aug 1950.
25X1A2g 6. [redacted]
7. HICOG 23, Jul 1949.
8.
25X1A2g 9. [redacted]
10. Ibid.
11. FBIS 24-51, May 1951.

5. Tractors.

25X1A2g
1. [redacted]
2. HICOG 81, Aug 1950.
25X1A2g 3. [redacted]

6. Agricultural Machinery.

25X1A2g [redacted]

7. Railroad Equipment.

25X1A2g
1. [redacted]
2.
3. State A-1711, Dec 1950.
25X1A2g 4. [redacted]
25X1A2g 5. EUCOM ICF 11303, Sep 1950.
6. [redacted]
25X1X7 7.
25X1A2g 8.
9. State A-1711, Dec 1950.
10. [redacted]
11.
12.
25X1A2g 13.
14.
15.
16.

8. Automotive Equipment.

1. [redacted]
2.
3.
25X1A2g 4.
5.
6.
7.

9. Antifriction Bearings.

1. [redacted] 25X1A2g
2.
3.
4. COMNAVFORGER, CIA 520882, Sep 1950.

10. Instruments and Optical Equipment.

25X1A2g

1. [redacted]
2. HICOG 260, Oct 1949.
3. [redacted] 25X1A2g
4. 25X1A2g
5. [redacted]
6. Ibid.
7. Ibid.
8. [redacted] 25X1A2g

12. Aircraft.

25X1X7

Sources: [redacted]

14. Abrasives.

1. IM-344, O/RR, Mar 1951.

15. General Machinery.

25X1A2g [redacted]

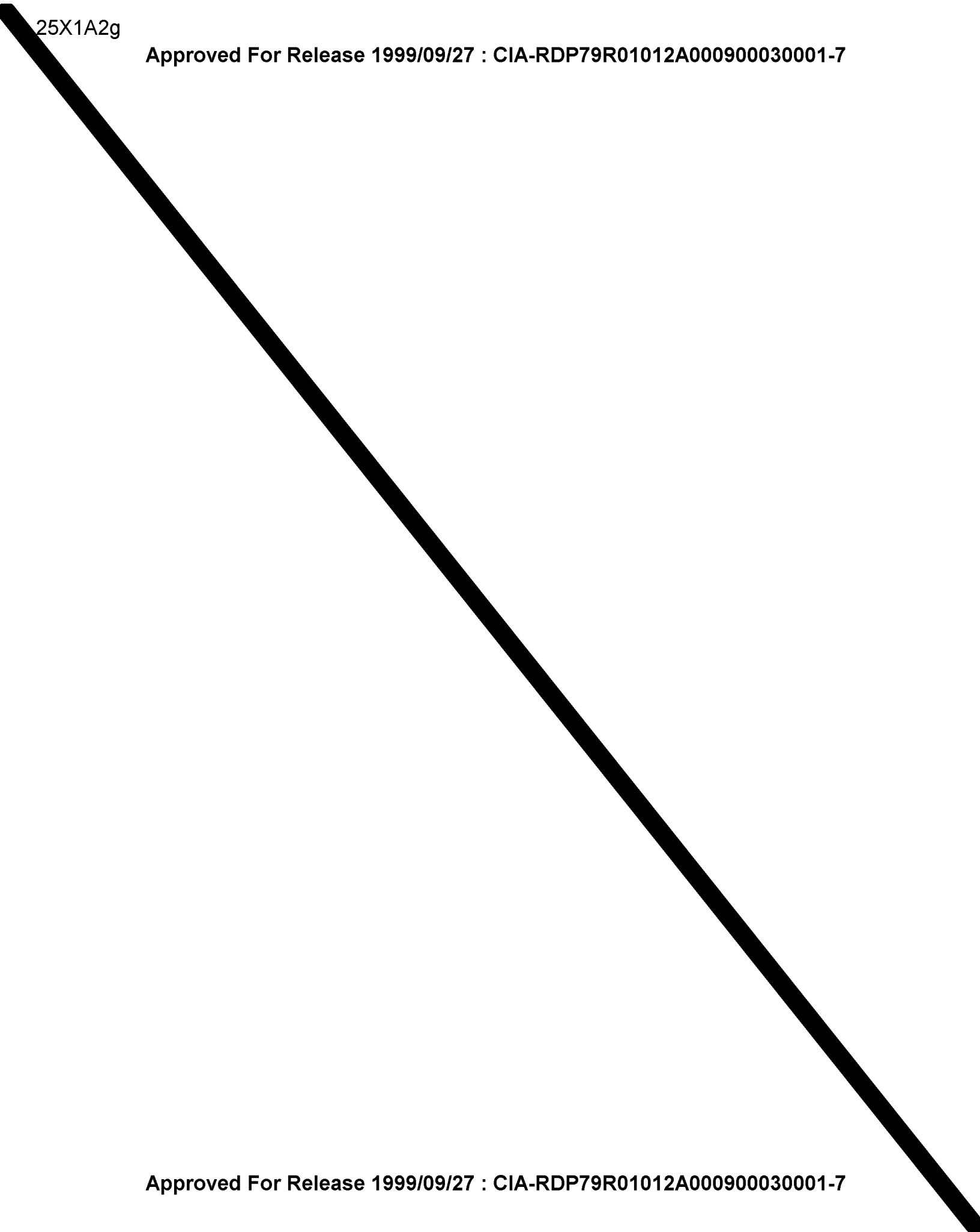
VII. Transportation.

A. Railroads. 25X1A2g

[redacted]

B. Highways.

25X1X7 [redacted]



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12. ONI 63-51, 17 Feb 1951 (Naval Attache Berlin, from various German nationals).
13. Ibid.
14. ECA Cable Series No. 632, 7 Mar 1951.

D. Air Transport.

1. USAF/ONI, "Airfields and Seaplane Stations of the World," Vol. 14, 1 May 1951.

25X1X7 [redacted]