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#### PROVISIONAL INTELLIGENCE REPORT

#### POSTWAR TRENDS IN MANPOWER OF THE USSR AND THE EUROPEAN SATELLITES 1947-57

#### CIA/RR PR-32

#### 27 May 1953

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#### POSTWAR TRENDS IN MANPOWER OF THE USSR AND THE EUROPEAN SATELLITES 1947-57

#### Summary

The present trends of population in the USSR and the European Satellites are expected to produce an increase of about 40 million during the period 1947-57. This increase, together with internal shifts in the utilization of labor during the period, will permit an expansion of the nonagricultural labor force by 22 million, or 47 percent, to a high of almost 70 million workers and employees. Employment in industry, mining, and construction is expected to rise 66 percent. In addition, the labor force will be better staffed as a result of the compulsory education program and the training of skilled engineering, professional, and technical workers, who are increasing at a more rapid rate than the total labor force.

In the USSR the estimated increase in the number of workers and employees from 1947 to 1957 amounts to 14 million, a rise of 43.5 percent during the 10-year period. The Soviet labor force in 1957 will be composed primarily of individuals in the 15- to 60-year age group with a proportion of skilled and technical personnel that should compare favorably with that of the Western European labor force.

The development of the labor force of the European Satellites will follow the same pattern as that of the USSR, reaching a total of 23.7 million in the nonagricultural sector of the economy by 1957.

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#### I. USSR and European Satellites.

#### A. Total Population.

Before World War II the rates of population increase in the USSR and the European Satellites were more rapid than in Western Europe. Although the rate of population growth in the USSR is not rising so rapidly at present, it is still high (15 per 1,000 per year). The rates of postwar population increases in the European Satellites are about equal to or above prewar levels, except in East Germany and Hungary. It is estimated that the population will continue to increase at these rates in the USSR and the European Satellites, producing an aggregate population increase of about 40 million, or 14.3 percent, from 1947 to 1957. (See Table 1\* and Figure 1.\*\*) The estimated population of the USSR and the European Satellites for 1957 will be double the present population of the US. (See also Table 4, Appendix A.\*\*\*)

#### B. Civilian Employment.

#### 1. Agricultural Labor.

A study of rural economies in Eastern Europe made for the League of Nations\*\*\*\* indicated that in about 1930 the nations which are now European Satellites had an excess population\*\*\*\*\* dependent upon agriculture of about 15 million people, or about 4.5 million male agricultural workers. Agricultural workers are still in excess throughout the Soviet Bloc. The policies of the Communists are directed at reducing this overpopulation in agriculture by

\*\*\*\* Wilbert E. Moore, <u>Economic Demography of Eastern and</u> Southern Europe, League of Nations, Geneva, 1945.

**\*\*\*\*\*** Excess population was measured by calculating the number needed for current production if the European average per capita output could be attained. The difference between this requirement and the actual population dependent on agriculture was counted as excess.

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<sup>\*</sup> Table 1 follows on p. 3.

<sup>\*\*</sup> Following p. 2.

<sup>\*\*\*</sup> P. 13, below.



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Table 1

Estimated Total Population and Employment of the USSR and the European Satellites രി 1957 1947, 1952

	/ •	/ "	/4	Increase, 1947-57	1947-57
	1947 9/ (Thousands)	1952 Y	1957 PV (Thousands)	Thousands	Percent
Total Population Agricultural Employment Nonagricultural Employment	278,868 75,080 <sup>47</sup> ,627	298.006 70,008 60,796	318,682 68,143 69,926	39,814 -6,937 22,299	14.3 -9.3 47.0
Industry, Mining, and Construction Skilled	21,108 8,458	30,717 12,262	35,128 15,908	14,020 7,550	66 89 5
and Technical	4_L4 <b>、</b> 4	6,890	J0,666	6,252	3 <b>-</b> 141.6

Methods of estimation are described in Appendix D. d a CONFIDENTIAL

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mechanization and collectivization of farms and transfers of individuals to industry. Between 1947 and 1957, an estimated reduction of 7 million agricultural workers, as shown in Table 1, is likely to be achieved: 5 million in the USSR and 2 million in the European Satellites. The creation of a balance between agriculture and industry in the European Satellites, however, will have barely begun by 1957. It is assumed that a considerable surplus of labor will remain for transfer to industry as agricultural productivity increases.

### 2. Nonagricultural Labor.

The planned\* increase in the nonagricultural labor force during the years 1947-57 is estimated at 22 million, or 47 percent. The increase will result from transfers of appreciable numbers now employed in agriculture, utilization of the natural increase in the working age population, and employment of more women in industrial labor in the European Satellites.

#### 3. Industry, Mining, and Construction.

The increases planned for employment in industry, mining, and construction between 1947 and 1957 (66 percent) are nearly  $1\frac{1}{2}$  times as rapid as the increases in total nonagricultural employment (47 percent). Nonagricultural employment in the USSR and the European Satellites in 1952 is estimated to have been slightly greater than nonagricultural employment in the US, but employment in industry, mining, and construction in these countries\*\* is estimated at nearly 31 million as against 19 million in the US.\*\*\* This difference demonstrates

\* "Planned" is used in this report as follows: figures from 1947 to 1952 represent estimates based on past plans and performance announced; from 1952 to 1957, figures from announced plans are used unless evidence indicates notable failure to achieve goals; if plans do not extend to 1957, mathematical projections are used.

**\*\*** Albania is not included in this total.

\*\*\* The US figure includes only contract construction and is therefore slightly too low to be strictly comparable.

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the lesser emphasis on trade and consumer services that is characteristic of Communist economies.

#### C. Increases in Trained Manpower.

The well-integrated system of vocational training in prewar USSR has been revived and expanded since the war. The European Satellites are rapidly reorganizing their educational systems to conform to this Soviet pattern. The increase in the number of graduates of vocational and technical schools is indicated in Table 1 and Figure 2.\* The estimated rate of increase in skilled workers was almost twice as rapid as that of the total nonagricultural labor force (89 percent as compared with 47 percent). The rate of increase in engineering, professional, and technical personnel was three times as rapid (142 percent).\*\*

The development of all elements of the labor force was more rapid in the first 5 years of the 1947-57 period than that planned for the second 5-year period, since the rapid rate of recovery during the immediate postwar years could not be maintained once the prewar level had been attained. The slowdown occurred during 1948 in most phases of the economy of the USSR but occurred later in some of the Satellites. The change is consistent with the announced changes in the Soviet index of industrial production.

#### II. USSR.

#### A. Total Population.

An announcement by L.P. Beriya on 7 November 1951 stated that in 1950 the annual increase in the population of the USSR was "over

#### \* Following p. 6.

\*\* For the purpose of this report, the output of on-the-job training, apprentice training, and labor reserve schools has been considered the increment to the skilled labor force. The graduates from full 3- and 4-year vocational high schools have been classed as technical workers, and the graduates of higher institutions as professional and engineering personnel.

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3 million." This estimate and other estimates indicate a total increase of over 33 million for the period 1947-57, bringing the total at the end of the period to almost 225 million (see Table 2).\*

#### B. Civilian Employment.

If present trends continue at a slightly slackened rate, the number of workers and employees in the USSR will have increased by 14 million, or 43.5 percent, from 1947 to 1957. The total by 1957 will be 46.2 million, of whom about 43 million will be in the nonagricultural sectors and over 3 million in State agriculture.

The estimated increase of 14 million workers and employees is computed on the basis of the following projected changes: (1) a net increase of 5 million in total employment, (2) a gain of 5 million at the expense of collective farms, and (3) a redistribution of 4 million slave laborers from their present status to nonagricultural employment. This estimate is based on projections of present trends and information indicating that because of the increasing productivity, collective farms will require fewer agricultural laborers.

Employment in industry, mining, and construction is planned to increase during the 10-year period by 6.6 million, or 45 percent, slightly greater than the percentage increase in total workers and employees. The total of 19.1 million workers in this sector by 1957 is about equal to present US employment. Soviet employment was already heavily concentrated in these critical sectors by 1947. In 1952, 43 percent of nonagricultural workers in the USSR were in industry, mining, and construction as compared with 38 percent in the US (see Table 2).\*\*

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<sup>\*</sup> Table 2 follows on p. 7.

<sup>\*\*</sup> The distribution of Soviet workers and employees is broken down in detail in Table 5, Appendix B (p. 15, below), and in Figure 3 (following p. 6).



1947-57



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Table 2

Estimated Population and Employment in the USSR

\_ 1947, 1952, 1957

	Ä	<u>/e 7401</u>		1952 a/	a a second de la seconda d	<u>1957 a/</u>	/	
	Total	Male	Female	Total	Total	Male	Female	Increase 1947-57
Total Population Population, 15 to 60 Years of Age	191.1 109.1	87.9 47.9	103.2 61.8	207.3 207.3	224.5 133.1	105.0 60.3	119.5 72.8	33.4 23.4
Furployed Not Furployed	82.5 27.2	42.0 5.9	40.5 21.3	86.6 30.9	94 °0 39 •1	52.1	14 6.05	2.11 2.11
In School	2.5	1.1	1.4	4	7.5	3.7	3 <b>•</b> 8	5.0
Employed, under 15 and over 59 Years of Age Civilian Employment, All Ages	94.2 2	148.P	16.0 16.0	10.2 96.8	1 3 6 6 7 1 7 6 6	3.8 55.9	1.4 43.3	9 N 9 N
Collective Farmers Workers and Employees	25°0 35°0	22.8 16.6	29.2 15.6	48.0 40.8	47 <b>.</b> 0 146.2	23.6 26.6	23.4 19.4	-5.0 14.0
Industry, Mining, and Construction Skilled	12.5 5.5	N.A. N.A.	N .A. N .A.	17.6 8.3	1.01 1.01	N.A. N.A.	N.A. N.A.	4.6 4
Engineering, Professional, and Technical	3°0	N.A.	N.A.	6.4	7.7	N.A.	N.A.	<b>h</b> •7
Slave Labor	10.01	0 0	ч. Ц.	0 <b>•</b> 0	<b>6</b> .0	л. Г	<b>5</b> •0	0.4-

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Excludes those at school and at work in the same year, those temporarily unemployed, contract employ-

of the MVD and special defense projects, and military employees.

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#### C. Composition of the Labor Force.

The estimated increase in the 15- to 60-year age group for 1947-57 is 23.4 million, 12.4 million of whom will be males. As a result, both the employed group and the nonworking group (primarily students and housewives) will increase. The percentage of the labor force under 15 and over 59 is expected to drop. The estimated net increase of 5 million employed individuals results from an increase of 11.5 million persons in the 15- to 60-year age group and a 6.5-million decrease in the employment of other age groups.

Since the 11.7 million underage and overage workers in 1947 had a productivity considerably below average, the decrease in the employment of these individuals and the increase in employment of the 15- to 60-year age group is expected to improve the quality of the Soviet labor force. Although some of the older workers will remain employed, most of the under-15 age group will, as a result of the compulsory education program, be in school.

D. Increases in Trained Manpower.

The Fifth Five Year Plan (1951-55) provides for the introduction of compulsory 10-year education in the cities. Since, before 1950, the drive for compulsory education through the seventh grade had already enrolled 90 percent of the 11- to 14-year age group, the percentage of those over 15 who can stay in school is expected to rise. The system of compulsory education is expected to raise the quality of the labor force. It has already sharply reduced the number trained in the less efficient labor reserve schools and increased the enrollments in the regular and technical high schools. This shift, in turn, increases the enrollment in higher educational institutions. It is estimated that enrollment of youth over 15 in the regular high schools, technical high schools, and higher institutions will increase from 2.5 million in 1947 to 7.5 million in 1957. The annual rate of graduation at the end of the period is estimated at about 500,000 from technical high schools

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and over 200,000 from higher institutions. This increment will increase the corps of engineers and technicians by 156 percent during the period 1947-57, bringing the number to 7.7 million.

The facilities for training skilled workers, including the training for higher skills of those already employed, are also turning out a sufficient number to increase this group at a faster rate than the increase in total workers and employees. At the end of the period the proportion of technical and skilled employees to the total employees in industry should compare favorably with that in Western Europe.

#### III. European Satellites.

#### A. Total Population.

The total population increase in the European Satellites from 1947 to 1957, as indicated in Table 3, is estimated at 6.4 million, bringing the total to 94.2 million by 1957. The rate of increase of only

#### Table 3

# Estimated Population and Employment in the European Satellites 1947, 1952, 1957

				Millions
	<u>1947</u>	<u>1952</u>	<u>1957</u>	Increase 1947-57
Total Population Civilian Employment	87.8 38.4	90.8 41.9	94.2 44,8	6.4 6.4
Agricultural Employment Nonagricultural Employment		22.0 19.9		-1.9 8.3
Industry, Mining, and Construc- tion Skilled		13.2 3.9		7.5 2.9
Engineering, Professional, and Technical	1.4	1.9	3.0	1.6

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7.3 percent for the 10 years is less than half the rate of increase in the USSR. The rates for the different Satellites are variable, ranging from 0 in the Soviet Zone of Germany to 22 per thousand in Albania.

#### **B.** Civilian Employment.

The European Satellites plan to increase civilian employment by 6.4 million, or over 16 percent, a rate of increase more rapid than that in the USSR. The more rapid rate of increase in employment than in population is an index of the increasing employment of women. The net increase of 6.4 million results from a decrease of 1.9 million in agriculture and an increase of 8.3 million in nonagricultural employment. A large excess of farm labor, however, would still be available if average European agricultural productivity could be reached in the Satellites.

Over 80 percent of the total increase in nonagricultural employment is planned for allocation to industry, mining, and construction -- those sectors of the economy considered most vital by the Communists. The addition of 7.5 million employees in these sectors of the economy will result in a total of 16.1 million by 1957.

East Germany and Czechoslovakia, highly industrialized nations before World War II, plan only modest increases in industry, mining, and construction during the 10-year period. Substantial increases amounting to 85 percent in Poland and 135 percent in Bulgaria are estimated. Very rapid increases of 280 and 310 percent, respectively, are projected for Hungary and Rumania, not only because these countries had a relatively small prewar industrial base but also because they were just beginning postwar recovery in 1947. (See Table 6, Appendix C,\* and Figure 4.\*\*)

\* P. 17, below. \*\* Following p. 10.

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#### C. Increases in Trained Manpower.

The European Satellites are rapidly adopting the system of vocational training which has been evolved in the USSR. Under pressure for more highly trained personnel, they also are accelerating personnel training by shortening the time before graduation. This shortening of the period of education will obviously result in a considerable sacrifice of quality for numbers. Quality also suffers from the purges of faculties and from enrollments that are designed to fill the educational system with loyal Communists. The vocational training system is expected to increase the supply of skilled labor by 100 percent, and engineering, professional, and technical personnel by 123 percent.

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#### APPENDIX A

# ESTIMATED POPULATION OF THE USSR AND THE EUROPEAN SATELLITES 1947, 1952, 1957

·	•		<del></del>	Thousands
Countries	<u>1947 a/</u>	<u>1952 a/</u>	<u>1957 ¤/</u>	Increase 1947-57
USSR Albania Bulgaria Czechoslovakia East Germany Hungary Poland Rumania	191,100 1,160 7,020 12,164 18,800 9,076 23,700 15,848	207,300 1,265 7,247 12,802 18,500 9,367 25,328 16,287	224,500 1,415 7,707 13,387 18,500 9,616 26,847 16,710	33,400 255 687 1,223 -300 540 3,147 862
Total	278,868	298,096	<u>318,682</u>	39,814

Table 4

a. As of 1 January.

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#### APPENDIX B

# DISTRIBUTION OF WORKERS AND EMPLOYEES IN THE USSR 1947, 1952, 1957

#### Table 5

		Ţ	housands
	<u>1947 a/</u>	<u>1952 a/</u>	<u>1957 ¤/</u>
Industry			
Electric Power Petroleum Coal Ferrous Metallurgy Nonferrous Metallurgy Metalworking, Machine Construction Timber Chemical Textile Fish Food Meat and Dairy Paper Other Industry	273 300 280 300 235 3,700 420 132 500 141 725 210 85 2,599	330 307 950 908 385 4,635 469 398 1,014 193 1,224 259 110 3,218	355 342 950 998 435 5,210 516 436 1,084 211 1,344 284 110 3,500
Total Industry	9,900	14,400	<u>15,775</u>
Construction Rail Transport Water Transport Other Transport Education Public Health Trade Public Feeding Credit Dwelling, Communal Economy	2,600 1,750 2,425 2,550 1,300 2,970 970 335 1,140	3,150 2,050 2,525 3,400 1,550 3,160 1,010 355 1,220	3,300 2,225 243 2,800 4,400 1,870 3,580 1,500 415 1,445

a. As of 1 January.

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## Table 5 (Continued)

		<u> </u>	housands
	<u>1947 a/</u>	<u>1952 ¤/</u>	<u>1957 ¤/</u>
State and Public Institutions Art Communications State Agriculture, Forestry Other	2,170 235 570 1,600 1,470	2,210 255 610 3,250 1,420	2,325 315 760 3,410 1,812
Total	32,200	40,800	46,175

a. As of 1 January.

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#### APPENDIX C

### ESTIMATED EMPLOYMENT IN THE USSR AND THE EUROPEAN SATELLITES 1947, 1952, 1957

#### Table 6

		I.	housands
	<u>1947 a/</u>	<u>1952 ª/</u>	<u>1957 ª/</u>
USSR			
Agricultural Nonagricultural Industry, Mining, and Construction Unskilled Skilled Engineering, Professional, and Technical	52,000 32,200 12,500 23,640 5,500 3,060	48,000 40,800 17,750 27,550 8,320 4,930	47,000 46,175 19,075 28,365 10,110 7,700
Albania			
Agricultural Nonagricultural Unskilled Skilled Engineering, Professional, and Technical	480 46 38 4 4	458 111 93 10 8	443 171 130 23 18
Bulgaria			
Agricultural Nonagricultural Industry, Mining, and Construction Unskilled Skilled Engineering, Professional, and Technical	2,700 719 233 472 . 160 87	2,550 917 434 573 210 134	2,500 1,030 550 581 260 189
Czechoslovakia			
Agricultural Nonagricultural Industry, Mining, and Construction	2,200 3,200 2,096	2,000 3,434 2,638	1,900 4,100 3,248

a. As of 1 January.

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Table 6 (Continued)

		T	housands
	1947 <b>a</b> /	<u>1952 ¤/</u>	<u>1957 ¤/</u>
Czechoslovakia (Continued)			
Unskilled Skilled Engineering, Professional, and Technical East Germany and East Berlin	1,972 600 228	2,279 808 347	2,583 1,011 506
Agricultural Nonagricultural Industry, Mining, and Construction Unskilled Skilled Engineering, Professional, and Technical	2,200 5,782 3,000 4,492 885 405	2,124 5,731 4,025 4,133 1,094 504	1,900 6,600 4,415 4,422 1,563 615
Hungary			
Agricultural Nonagricultural Industry, Mining, and Construction Unskilled Skilled Engineering, Professional, and Tecnnical	2,100 1,400 470 881 349 170	1,850 2,250 1,420 1,669 372 209	1,700 2,750 1,800 2,006 474 270
Poland			
Agricultural Nonagricultural Industry, Mining, and Construction Unskilled Skilled Engineering, Professional, and Technical	7,400 3,180 2,075 2,180 700 300	7,300 5,200 3,050 3,669 1,064 467	7,100 5,900 3,840 3,220 1,850 930

a. As of 1 January.

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Table 6 (Continued)

	Thousands		
	<u>1947 a/</u>	<u>1952 a/</u>	<u>1957 ª/</u>
Rumania			
Agricultural Nonagricultural Industry, Mining, and Construction Unskilled Skilled Engineering, Professional, and Technical	6,000 1,100 534 680 260 160	5,850 2,353 1,600 1,691 384 278	5,600 3,200 2,200 2,145 617 438

a. As of 1 January.

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#### APPENDIX D

#### METHODOLOGY

#### 1. Population.

The total population of the USSR and the European Satellites was obtained as the sum of projected sex groups and age groups.

#### a. USSR,

By using 1946 as the base year and using estimated age and sex groups, the population of the USSR was projected in the following manner. For the years 1949-50 a death rate near the middle of the range of possibilities consonant with Beriya's announcement was selected. This rate corresponded closely with the Hungarian rate of 1941; hence Hungarian survival rates were applied to the USSR in those years. Slightly lower survival rates were applied for the years 1947-48. The birth rate for 1949-50 was also selected so that the rate of natural increase corresponded to Beriya's figure. A slightly higher rate was applied in 1947-48 and a slightly lower rate in subsequent years.

b. European Satellites.

Population projections for Bulgaria, Czechoslovakia, Hungary, Poland, and Rumania were prepared by the US Bureau of the Census, using the latest available enumeration as a base and applying estimates of births and deaths from published statistical bulletins and announcements. The population of East Germany was considered constant, as births and deaths are about in balance and migration is unpredictable. The population of Albania was projected from data in the UN Demographic Yearbook, 1951, by applying announced changes in the birth and death rates.

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#### 2. Employment.

In general, employment estimates for the years 1947-57 were prepared by estimating base-year employment for different countries from various sources. These estimates were projected to 1952 by the use of announcements of fulfillment of Plans and other official publications. Projections of changes up to 1957 were made from Plan announcements, as far as those extended, and by mathematical means.

#### 3. Sources of Error.

Thus the three sources of error in the figures are (a) possible errors in the base-year figures varying in magnitude from item to item; (b) possible exaggerations in announced Plan fulfillment; and (c) possible over- or under-fulfillment of announced Plans. The ranges of error for the items listed in Appendix B are detailed in material prepared for use in ORR Project 110-51. It is believed that the range of error in the population projection does not exceed 3 percent. Errors in the detailed industrial breakdown given for the USSR vary from industry to industry but are not believed to exceed 10 percent.

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