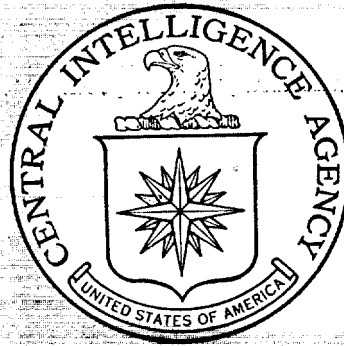


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PROVISIONAL INTELLIGENCE REPORT

THE SIGNIFICANCE
OF RECENT CHANGES IN THE SIZE
OF THE AGRICULTURAL LABOR FORCE
IN THE USSR
1951 - 55



CIA/RR PR-127

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CIA/RR PR-127

(ORR Project 45.549)

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FOREWORD

This report analyzes the significance of permanent and part-time agricultural employment in the USSR for the development of the national economy. The periods covered in the text are the agricultural seasons of 1951 and 1953 through 1955. Revisions of previously published estimates for 1938 and 1951 are explained in Appendix A.

Trends in the distribution of agricultural labor are basic to the report. In addition, the report indicates the significance of the recent expansions which have taken place in agriculture at the same time that pressure is maintained heavily by Soviet planners to continue rapid industrial progress in the cities. These trends have apparently resulted in a short-supply labor market in the USSR as a whole. The forecast is made that under these conditions closer coordination between agricultural and nonagricultural ministries and organizations will be achieved in the allocation of labor and that increased intermingling of agricultural and nonagricultural labor will take place in the form of increased seasonal labor participation.

The methodology of this report starts with the revised estimates of the Soviet agricultural labor force for 1951. These estimates are based on labor input requirements per hectare and per animal in agriculture, adjusted for the influence of mechanization and for estimated inputs in farm administration and other overhead expenditures of labor inputs. These are projected to 1953 on the theory that the amount of labor saved by increased mechanization since 1951 does not exceed 300,000 workers. Increments of workers are then added to the 1953 distribution for the 1954 and 1955 agricultural seasons, on the basis of plan results, official speeches, and estimates of labor required for the recent and planned agricultural expansions as suggested by official Soviet data and official Soviet scientific agricultural reports.

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THE SIGNIFICANCE OF RECENT CHANGES
IN THE SIZE OF THE AGRICULTURAL LABOR FORCE
IN THE USSR*
1951-55

Summary

The number of permanent farm workers (as distinct from part-time farm workers) in Soviet agriculture is estimated to have increased at an average annual rate of about 1 million new workers per year from 1951 through 1954. About 1.5 million new workers probably will be added during 1955. The following tabulation shows the estimated growth of permanent agricultural employment from 1951 through 1955:

Sector	<u>Million Workers</u>	
	<u>1951</u>	<u>1955</u>
Kolkhoz	48.2	49.6
Machine Tractor Station	0.6	2.7
Sovkhoz	2.0	2.8
Total	<u>50.8</u>	<u>55.1</u>

It is further estimated that the participation of workers from village-urban areas in part-time employment in socialized agriculture is increasing. Nearly 4.8 million of these persons participated in socialized agriculture in 1951, and about 7.7 million in 1954.

This growth in Soviet agricultural employment appears to have aggravated problems concerning the distribution of workers throughout the total economy. The assignment of 1 million to 1.5 million of the new workers reaching working age in rural areas to work in agriculture could, of course, be easily accomplished inasmuch as the rural population contributes about 1.4 million new workers to the potential total labor force each year. There has been strong pressure, however, during the period of the Fifth Five Year Plan (1951-55) to increase employment in urban industry at an average annual rate of about 1.3 million a year. Many of these workers undoubtedly come from rural backgrounds.

* The estimates and conclusions contained in this report represent the best judgment of ORR as of 1 September 1955.

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Three new agricultural developments will create difficulties in the distribution of workers, unless the number of new workers required in agriculture can be quickly leveled off. The first of these is the expansion of small grain sowings in the "new lands" to about 30 million hectares by the spring of 1956. A second development is the expansion of corn sowings, principally in the older established agricultural areas, by about 30 million hectares by 1960. More than half the expansion of new grain and about half that of the new corn sowings have been accomplished in 1955. At the same time, the number of hectares planted to labor-consuming crops (such as potatoes and technical crops) and the number of livestock (especially cows and swine, which are also labor-consuming) have increased and will continue to increase. Substitution undoubtedly will be made of grain hectares in the "new lands" for grain hectares in the old. This substitution will make it possible to expand corn cultivation on the small grain lands of the old areas. The net effect by 1960, however, probably will be large increases in field and animal husbandry. The third development is a result of the other two and consists of the construction of new facilities and homes for the additional workers who will be required to carry out these agricultural expansions. Although it is difficult at this time to define the extent of this development, there are definite indications that large numbers of construction workers are expected to be employed in agriculture.

If these plans for increased sowings and accelerated construction are to be implemented in the immediate future, it would seem inevitable that the rural areas would not be, for several years, a source of supply for workers for urban industries. It is possible, furthermore, that at least some of the gains which have been made in urban employment may be diverted to employment in industries which are expanding their operations in serving agriculture. This diversion would be especially significant in the ministries and enterprises concerned with construction, transport, and procurement.

In conjunction with the drying up of the farm labor pools as sources for urban industrial expansion, there is a further development in population growth which may in the near future begin to place more pressure on Soviet planners to solve the problem of manpower management. This is the fact that the annual increments of potentially employable persons entering the 15 to 59 age group will soon be smaller because of the detrimental effects of World War II on the war-year birth rates, infant survival rates, and survival rates in general.

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Apparently Soviet planners have tapped two other sources of labor for civilian employment. The forced labor camps have been called on to release 1 million to 2 million forced laborers (estimated) since the spring of 1953. In August 1955 the military services were instructed to demobilize 640,000 men. Nevertheless, it is doubtful that these increments alone will solve all the prospective problems of manpower management. Unless current levels of labor productivity are improved, or unless substantially greater numbers of employable persons are transferred from military service or from forced labor to the civil labor force, it is likely that manpower shortages will limit the ability of the Soviet economy to continue its current rate of expansion of production.

I. Introduction.

The purpose of this report is to analyze changes occurring in the distribution of workers in the Soviet agricultural labor force which occurred from 1951 through 1955. Previous estimates of the size and distribution of the agricultural labor force in the USSR 1/* for 1938** and 1951 are revised in Appendix A.

This report examines trends in the growth of two broad categories of agricultural workers. The first category consists of kolkhozniki (collective farmers) and workers and employees permanently assigned to agriculture; the second category consists of part-time workers recruited for seasonal labor in agriculture from village and urban areas. The term "permanent workers" has been adopted rather than "full-time workers" and refers to workers permanently assigned to the Machine Tractor Stations (MTS's) and to the sovkhoz (state farm) and kolkhoz (collective farm) staffs. When the term refers to kolkhozniki, it includes youths from 12 to 15 years of age who work seasonally on the kolkhozes.

* For serially numbered source references, see Appendix C.

** All references to Soviet agriculture in 1938 are on the basis of postwar boundaries unless otherwise indicated.

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II. Changes in the Size of the Permanent Agricultural Labor Force.

The data for study of the trends in the size of the permanent agricultural labor force in the USSR in 1951 and 1953-55 are given in Table 1. Two methods were used in developing the estimates.*

Table 1

Estimated Growth of the Permanent Agricultural Labor Force
in the USSR, by Type of Worker a/
1951 and 1953-55 b/

Type of Worker	Thousand Workers			
	1951	1953	1954	1955
Kolkhoz	48,168	48,549	48,649	49,649
Machine Tractor Station	614	2,062	2,362	2,662
Sovkhoz	1,966	2,028	2,628	2,828
Total	<u>50,748</u>	<u>52,639</u>	<u>53,639</u>	<u>55,139</u>

a. The figures given here differ from previous estimates 2/ in two respects. Only the labor contributed by permanent workers in agriculture is considered in this table. (The labor of part-time workers in agriculture is estimated in Table 2, p. 16, below.) Additional information has also made possible a better estimate of MTS labor for 1951, and the improvement is reflected in the other years in this table. Details in methodology and adjustments of data are given in Appendix A.

b. As of the end of the year there are complications in using these data as end-of-the-year figures. Nevertheless, such use probably is better than as mid-year data. Although the numbers of MTS workers and employees are actually annual averages, variation from month to month is negligible. 3/ The numbers of sovkhos workers and employees are also annual averages and probably include a small amount of seasonal labor. (See p. 17, below, on the problem of sovkhos seasonal labor.) The number of kolkhozniki for a given year consists of all kolkhoz members who earned labor-day credits in kolkhoz labor during the year. Although the range of seasonal variation in kolkhoz employment of these workers is very great, many of those who are not working for the kolkhoz at a particular time may be working in socialist agriculture or in other branches of the economy. The annual average of kolkhozniki working on the kolkhoz in 1938 has been estimated to have been about 26.4 million workers, with peak employment occurring in August (about

* Continued on p. 5.

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Table 1

Estimated Growth of the Permanent Agricultural Labor Force
in the USSR, by Type of Worker a/
1951 and 1953-55 b/
(Continued)

34 million) and trough employment in January (about 16.3 million). 4/ During the important agricultural seasons of the year, about 4.7 million kolkhozniki are estimated to have worked in seasonal employment for the Machine Tractor Stations and the sovkhoses in 1938. (See Table 2, p. 16, below, for discussion of seasonal labor). As many as 4 million kolkhozniki may also be employed as part-time workers outside the kolkhozes in construction, fishing, road work, and other enterprises. 5/ As many as 60 to 65 percent of the kolkhozniki probably are women and must spend part of their employable time maintaining their own households. 6/ The low level of employment of kolkhozniki on the kolkhozes in January undoubtedly is related to the fact that kolkhozniki probably must expend great amounts of labor on the problem of the physical maintenance of their homes to survive the inclement Soviet winters. Such work would include wood-cutting and fuel-collection for heating and cooking, struggling with snows and poor roads, maintaining adequate water supply, and similar activities not rewarded with wage credits from the kolkhoz. The kolkhozniki are also occupied with their own family plots, averaging probably from 40 to 50 days per person per year on the cultivation of plots and the care of livestock. 7/ In addition, they must market their private produce. It has been reported that about 500,000 kolkhozniki are daily involved in the marketing of their private agricultural products on the kolkhoz (free) market. 8/ The best methodological procedure, under these conditions, appears to be to use the figures in this table as end-of-the-year data, on the assumption that the workers are full-time workers assigned to agriculture as their major occupation.

For the 1951 and 1953 agricultural seasons, the estimated number of workers was derived by applying the 1938 man-year rates* to labor inputs on the kolkhozes, sovkhoses, and Machine Tractor Stations. For the 1954 and 1955 agricultural seasons the estimate of the number

* These rates are as follows: kolkhozniki in socialist production, 130.1 man-days per year (revised); MTS workers and employees, 231.1 man-days per year; and sovkhos workers and employees, 288 man-days per year. 9/

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of workers was derived by adding the increments of workers, as given in Soviet reports, cumulatively to the 1953 worker distribution.

A. 1951 to 1953.

As shown in Table 1, the total Soviet agricultural labor force in 1951 numbered 50,748,000 workers. Of this number, 48,168,000 or about 95 percent, were kolkhozniki,* who earned labor-day wage credits**; almost 2 million*** were sovkhos workers and employees; and about 600,000**** were permanent workers and employees of the Machine Tractor Stations.

* This number is slightly higher than the previously published estimate of 48,080,000. 10/ See pp. 28-29, below, for discussion of the revision.

** The "labor-day," or trudoden (singular), is a unit value credit for work done on the kolkhoz. 11/ It is related to norm-fulfillment in work operations. In planning the year's work, MTS and kolkhoz officials, on the advice of officials in rayon and oblast offices, establish a standard amount of work to be done per shift as the norm. 12/ Thus, for fulfilling the daily norm in plowing, the tractor driver of the Stalinets-80 tractor receives 7 trudodni credits. 13/ In its wider application the trudoden is used to establish a scale of values for different types of work operations for variously qualified workers. It obscures money wage values and permits easy bureaucratic determination of labor value. It also is used as an accounting device for the distribution of the kolkhoz net production among its workers after deductions from the gross production have been made, such as obligatory deliveries to the state, payments to the Machine Tractor Stations for machine work, and contributions to the indivisible funds (for investment) of the kolkhozes. 14/ Losses in production due to adversities of weather, to mismanagement, or to lack of kolkhoznik interest in kolkhoz production are intended to fall most heavily on the kolkhozniki rather than on the state, the Machine Tractor Station, or the kolkhoz.

*** It was not necessary to revise this figure. See Table 4, p. 28, below.

**** The previously published estimate was almost 1 million permanent workers and employees of the Machine Tractor Stations. See Table 4, p. 28, below.

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By the end of 1953 the total number of permanent workers in Soviet agriculture was 52,639,000, an apparent increase of almost 2 million workers.* The permanent workers on the kolkhoz staff in 1953 numbered 48,549,000, an increase of slightly less than 400,000. The number of sovkhos workers and employees remained at about 2 million, showing only a slight increase. The greatest growth occurred among the MTS employees. These workers more than tripled in number, increasing by about 1.4 million from the end of 1951 to the end of 1953.

The most significant increase in the number of MTS workers took place as a result of a decree by the September 1953 Plenum of the Communist Party of the USSR. 17/ Large numbers of kolkhoznik machine operators (who formerly worked seasonally for the Machine Tractor Stations), numerous agricultural specialists who were administrators in the higher agricultural organs, and other workers and employees from industry and other branches of the economy were ordered transferred to the MTS staff as permanent MTS workers and employees. These transfers around the end of 1953 included (1) 1,250,000 kolkhozniki who were added to the permanent MTS staffs, 18/ (2) 104,700 agronomists and zootechnicians who were formerly employed in oblast directorates and rayon offices of the Ministry of Agriculture and were recently sent to work on the kolkhozes,** (3) about 23,000 ITR personnel (engineer-technical workers

* Recent Soviet statements suggest that the contribution of the Machine Tractor Stations to the mechanization of Soviet agriculture has been of such magnitude that 21.9 million fewer permanent agricultural workers were needed in 1953 than at the beginning of collectivization. 15/ If 1928 is taken as the "beginning of collectivization," and if all types of agricultural workers are counted (including 1.7 million in state agriculture, 1 million on the kolkhozes, and 71.8 million private peasants), a total of about 74.5 million farm workers is obtained. 16/ If the 21.9 million workers allegedly "saved" are subtracted from this figure, 52.6 million farm workers will remain, or approximately the same number as estimated above.

** At the September 1953 Plenum it was reported that there were about 350,000 agricultural specialists in the agricultural organizations. 19/ Since the Plenum, there have been government-wide attempts to reduce the number of administrative employees and direct them into productive work. By this method the Party hopes to increase labor productivity in various branches of the national economy. 20/ In this report the 104,700 agronomists and zootechnicians are carried on the MTS staff, as the practice, as Soviet reports indicate, was the rule. Since the

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with middle or higher educational training) sent from industry to the Machine Tractor Stations to manage the stations and the station workshops and repair activities, 22/ and (4) about 50,000 mechanizers (mechanics and machine operators) from industry to work in the Machine Tractor Stations. 23/ Other internal reorganizations included the addition of about 200,000 Komsomol* members as managers of kolkhoz livestock fermy,** the sending of about 50,000 party workers to work in village centers to oversee MTS operations, 25/ and the delegation of trade union groups to local areas to increase trade union membership in agriculture. 26/

If the September 1953 Plenum and the resultant redistribution of workers had not occurred, it is estimated that the kolkhoz staff would have totaled 49,699,000 kolkhozniki earning labor days, the MTS staff would have included 634,000 workers and employees, and the sovkhoz staff would have included 2,028,000 workers and employees. Total agricultural employment would have been 52,361,000 permanent workers. The transfers, however, reduced the kolkhoz staff to 48,549,000 kolkhozniki and increased the MTS staff to 2,062,000 permanent workers, although apparently not affecting sovkhoz employment. At the September Plenum in 1953 it was reported that the number of sovkhozes was 4,700, 27/ or 160 more than at the beginning of 1950. 28/ The total number of permanent workers was increased to 52,639,000 permanent agricultural workers, as shown in Table 1.***

B. 1954 and 1955.

The annual rate of increase of about 1 million full-time farm workers which apparently occurred from 1951 to 1953 is estimated in Table 1*** to have continued through 1954, bringing the total number up to 53.6 million full-time agricultural workers at the end of the

September Plenum, however, these specialists are hired by oblast administrations, with authority commensurate with that of MTS directors. They may now be regarded as being part of the kolkhoz staff. 21/

* (Vsesoyuznyy Leninskiy) Kommunisticheskiy Soyuz Molodezhi -- (All-Union Lenin) Communist League of Youth.

** A ferma (singular) is a livestock section or enterprise to which a small brigade of workers is attached. Each kolkhoz is expected to have at least four of these enterprises. 24/

*** P. 4, above.

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year. This estimated increase would seem conservative in view of the sizable increases in sown hectares and in livestock herds which also occurred during 1954. Plan results 29/ show that the seeding of summer cereal crops expanded 7.2 million hectares during 1954; of winter grain crops, 1.2 million hectares; and of other more heavily labor-consuming crops, about 3.6 million hectares (including cotton, sugar beets, oil crops, potatoes, vegetables and cucurbits, silage crops, and feed roots). The number of hectares in perennial grasses declined* to accommodate the expansion of grain hectares, principally in the older agricultural areas of the USSR -- only 3.6 million grain hectares were sown in the "new lands" of Kazakhstan and Siberia. 30/ The total expansion in winter and summer crops under harvest during 1954 was apparently 8.9 million hectares. 31/ In addition, the total number of cattle increased (1 October 1953 to 1 October 1954) 1.9 million head, including 1.5 million cows; of swine, 3.4 million head; and of sheep, 2.6 million head.

The increase of 1 million new workers required for these agricultural expansions would seem to be a conservative estimate in view of a recent report 32/ which states that the workload of plowland in low man-land ratio areas, such as Kazakhstan and Altayskiy Kray, may be in the vicinity of 13 to 15 hectares per able-bodied kolkhoznik, compared with a workload in high man-land ratio areas of 2 to 3 hectares per kolkhoznik prevailing in the Ukraine and in Belorussia. Although the terms of this comparison may be lacking (in definition as to length of time worked per kolkhoznik), such a comparison suggests that at least 1 million new workers were required in 1954.

It is estimated that 90 percent of this increase went into state agriculture. Plan fulfillment reports for midyear 1954 33/ and for the end of the year 34/ indicate that as many as 900,000 new workers and employees may have entered state agriculture during 1954. The addition of these to the state agricultural labor force thus increased the total from 4.1 million in 1953 to almost 5 million in 1954.

On the basis of the rate of work operations achieved by MTS workers in 1953, it is estimated that 300,000 workers and employees were added to the MTS staffs. It is probable that in 1953 the MTS

* The area seeded to annual grasses increased in 1954. Annual grasses may be sown on land which otherwise might be fallow in preparation for winter seeding.

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workers averaged about 245 soft-plowing hectares per man,* inasmuch as the Machine Tractor Stations accomplished 75 million soft-plowing hectares of additional work in 1954 above the 1953 level in kolkhoz agriculture. 40/ About 300,000 new MTS workers would have been required for this work. The number of workers on the MTS permanent staff thus increased to 2,362,000 workers and employees at the end of 1954.**

The remainder (600,000) of the total increment of new workers and employees added to state agriculture during 1954 apparently was incorporated into the sovkhos staffs. The permanent sovkhos staff thus increased from 2,028,000 in 1953 to 2,628,000 at the end of 1954. The remaining 100,000 new workers of the total 1 million increment to Soviet agriculture as a whole apparently constituted kolkhozniki permanently employed in kolkhoz agriculture. Their estimated number thus increased from slightly over 48.5 million in 1953 to over 48.6 million in 1954, as shown in Table 1.***

This distribution of 400,000 permanent workers added to work in kolkhoz production and of 600,000 to work in sovkhos agriculture is plausible only if a large increase in part-time workers in kolkhoz agriculture occurred during 1954. Under the assumption indicated below, that two-thirds of the new sown hectares in Soviet agriculture

* To determine this rate, the starting point was 1951, when 382.5 million hectares in soft plowing were done by the Machine Tractor Stations in kolkhoz production. 35/ The norm is the fuel required for one hectare of soft plowing on old-plowed land by MTS tractors. 36/ All types of work are evaluated primarily in terms of the cost of fuel for covering the ground. Thus 3.3 hectares of seeding is equivalent in cost to 1 hectare of plowing on old land. One hectare of seeding thus equals 0.3 hectares of soft plowing. 37/ If the planned increase in work done by the Machine Tractor Stations was accomplished in 1952, 11 percent over 1951, the Machine Tractor Stations would in 1952 have achieved about 421 million hectares of soft plowing work. 38/ In 1953 the Machine Tractor Stations accomplished 17 percent above the 1952 level, 39/ or a total of about 490 million hectares of soft plowing. Since there were about 2 million workers doing MTS work in 1953, they averaged about 245 hectares of soft plowing per man.

** Current reports still refer to the MTS staff as comprising about 2 million workers (rabotniki). 41/ This number may not include the 120,000 agronomists and zootechnicians working on the kolkhozes during 1954. 42/ From the context of the statements it also appears likely that the authors may not be citing estimates applicable to current conditions.

*** P. 4, above.

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added during 1954 were added to the kolkhozes,* it is estimated that 1.2 million kolkhozniki in man-year equivalents would have been required to perform the work necessary for the total increase in kolkhoz sown hectares. This estimate assumes that no MTS workers had been added.

The addition of the 300,000 MTS workers partially fills the total requirements of labor in kolkhoz agriculture, because each MTS worker is probably the equivalent of 1.8 kolkhozniki in work done per year on the kolkhoz. Nevertheless, their addition and the addition of 100,000 kolkhozniki still does not fill total labor requirements on the kolkhoz. To complete these total labor needs, it is estimated that about 2.9 million village-urban workers were required for part-time employment in kolkhoz production during the peak seasons in 1954.** By comparison, only about 600,000 workers were added to the part-time labor force on the sovkhozes.***

The press probably has been more concerned with sensational developments in the sovkhozes in the reclaimed areas than with changes affecting the Machine Tractor Stations. The plans are to construct 425 new grain sovkhozes (averaging about 20,000 to 25,000 hectares ^{43/}) in the "new lands" ^{44/} during the 1954-55 agricultural seasons. About 125 of these were built in the reclaimed areas during 1954, as compared with about 75 new Machine Tractor Stations for the USSR as a whole. ^{45/} One report envisages an increase of several thousand new Machine Tractor Stations during the coming years of agricultural development. ^{46/}

Probably as important as developments in the sovkhozes of the "new lands" in 1954 were two basic changes in productive activity in the old areas. The first consisted of shifting 154 sovkhozes in the Ministry of State Farms of the USSR and 7 sovkhozes in the Ministry of the Food Industry of the USSR to the production of vegetables and potatoes. It was emphasized also that other sovkhozes were to increase the production of these crops, technical crops, and meat and dairy products. By 1 November 1954, sovkhozes had delivered 50 percent more potatoes and 70 percent more vegetables than in 1953. ^{47/} Sovkhozes of the Ministry of State Farms of the USSR had delivered to the state 2,170,000 more centners**** of milk, 460,000 more centners

* See p. 12, below.

** See Appendix A for the methodology used for these estimates.

*** See Table 2, p. 16, below, for analysis of part-time employment in Soviet agriculture.

**** One centner equals 220.46 pounds, 100 kilograms, or one-tenth of 1 metric ton.

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of meat, and 80,000 more centners of wool than in 1953. 48/ Absolute increases in, or shifts to, production of these crops and products undoubtedly resulted in the recruitment of additional labor (from kolkhozes) required for their cultivation and care.

The second shift was from perennials to grain production. Party criticism in February of 1954 indicated that the area of fodder crops, especially of perennials, in sovkhozes in 1953 totaled 44 percent of the total sown area. 49/ Particular criticism was directed at stud farms of the Ministry of State Farms, where only 275,000 hectares out of 5.4 million hectares were in grain production. 50/ Over 4 million hectares of this land were located in rich farm lands of the black-soil area above the Caspian Sea, the North Caucasus, the Volga, and the Ukraine and in Siberia and Kazakhstan. 51/ If it is assumed that one-third of the 8.4 million new sown grain hectares added in the USSR in 1954 and one-third of the 3.6 million new hectares in technical crops, potatoes and vegetables, and silage and feed roots* were added to sovkhoz cultivation, then the estimate of 600,000 new workers and employees required for sovkhoz agriculture would seem plausible.

The increment of new workers to Soviet agriculture during the 1955 agricultural season is estimated at 1.5 million.** This increase is in two categories. The first consists of estimated requirements of 1 million new workers needed to sow and work the 20 million hectares of "new lands" planned for 1955. 52/ This estimate assumes a workload per worker of 20 hectares rather than the present workload in Kazakhstan and Siberia of 13 to 15 hectares, but it is believed that manpower shortages and the rise of larger mechanized equipment will account for the increase.*** This estimate is supported by a report published in the fall of 1954 by a US newspaper correspondent who analyzes Soviet newspaper statements that the "new lands" would require about 1 million new workers by the spring of 1955. 53/

The second increase consists of minimum estimated requirements of about 500,000 new workers for cultivating the planned total area in sown corn during 1955 of about 16 million hectares. 54/ This area would be about 12.5 million hectares above the 1954 level of sown corn. 55/

* See the discussion on p. 9, above.

** See Table 1, p. 4, above.

*** See p. 11, above.

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This estimate of the additional labor required may be low. A recent Soviet report indicates that manpower requirements, under current levels of mechanization, for 1 hectare of harvested corn are 2.6 times as heavy* as for 1 hectare of spring grain. 57/ Furthermore, the USSR has overfulfilled its planned goal for 1955 by seeding a total of 17.9 million hectares to corn. 58/ This may have been accomplished more because of fear of official retaliation for failure than because of the special bonuses offered for achieving plan goals by areas. 59/

If Soviet officials expect to harvest corn at or near maturity, it seems certain that they will encounter difficulties in the coordination of agricultural operations and in the distribution of manpower. Under these conditions, about half the corn may be planted on land which ordinarily would lie fallow during the summer before the seeding of winter wheat 60/ (in the old agricultural areas). The other half may replace poor-yielding spring grains or be sown on the better meadows or grass lands. The corn planted on the summer fallow would be harvested at a time when the harvesting of small grains and the seeding of winter grains might still be under way. About half the corn harvested then would constitute an addition to the total crop area under harvest.

If, however, a large percentage of the corn is not allowed to approach maturity and is not cut for silage or for grain but is cut early for green feed during the dry summer when pastures are poor, then the drain on manpower may not be as heavy as might at first be indicated.

It is on the basis of this latter possibility that the minimum estimate of 500,000 new workers for corn cultivation has been adopted. The estimated total labor force employed full-time in Soviet agriculture thus increases from about 53.6 million in 1954 to about 55.1 million in 1955.

It is estimated that of the 1.5 million new workers being added to agriculture in 1955, about 1 million will consist of rural youth maturing into permanent work in kolkhoz agriculture -- the total number of kolkhozniki earning labor-days is thus expected to rise from 48.6 million in 1954 to about 49.6 million in 1955. It is possible that about half of these will be young resettlers, mostly unmarried, migrating from the Ukraine and other western Soviet areas to kolkhozes in the "new lands."

* A recent CIA publication suggests that, on the basis of US experience, manpower requirements for corn per unit area may be about four times as heavy as for grain. 56/

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While labor savings in the older established areas -- the Ukraine, Belorussia, and the black-soil rayons above the Caspian Sea -- have been and will be achieved by increased increments of machinery during 1955, it is probable that labor requirements will still remain high in these high man-land ratio areas 61/ and that these labor savings will not constitute a substantial offset to the additional requirements for the new corn hectares added to cultivation. 62/ Indeed, it is more likely that the absolute level of labor inputs may be raised in these areas.

It is estimated that 500,000 of the new additions will be assigned permanently to work in state agriculture. MTS and sovkhos activity will undoubtedly increase during 1955. At least 165 new Machine Tractor Stations are being built, 63/ and about 300 new sovkhoses are being constructed on the "new lands." 64/ At least as many new graduates of 1-year schools of mechanization probably will be assigned to state agriculture as in 1954 -- 343,000. 65/ These additions increase the number of workers and employees in state agriculture from about 5 million in 1954 to about 5.5 million in 1955. As in 1954, about 300,000 probably will be added to the MTS staffs. With most of the labor-consuming changes effected in sovkhoses in 1954, it is estimated that only about 200,000 will be added to the sovkhos staffs. The number of MTS workers will thus increase from about 2.4 million workers and employees in 1954 to about 2.7 million in 1955; in the sovkhoses the number of workers is expected to rise from about 2.6 million in 1954 to about 2.8 million in 1955.

In summary, the number of agricultural workers permanently employed in Soviet agriculture is estimated to be increasing at the rate of 1 million workers per year from 1951 through 1954, and during 1955 the number is expected to increase by 1.5 million more.

III. Changes in the Size of the Part-Time Agricultural Labor Force.

About 56 percent of the total Soviet labor force in 1954 was permanently assigned to agriculture as an occupation.* It is certain, however, on the basis of fragmentary prewar and postwar data, that an even greater proportion of the total labor force engages in permanent and part-time agricultural activities. This section presents

* See Table 3, p. 20, below.

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analyses of two types of part-time employment which indicate the scope and character of this participation. The first consists of workers hired from village and urban sources in kolkhoz and sovkhos agriculture; the second, of the participation of the total Soviet labor force in private plot agriculture.

A. Part-Time Employment of Village-Urban Workers.

The estimated size and scope of the participation of village-urban workers in part-time work in socialist agriculture in 1938, 1951, and 1953 are given in Table 2.* The methodology, further explained in Appendix A, consists of applying prewar rates of man-days worked per year per worker and developing estimates from prewar and postwar statistical relationships between types of workers. The analysis must be regarded as provisional. The data are not firm. Nevertheless, the recent expansion of grain sowings in the newly reclaimed grain lands of Kazakhstan and Siberia and the likelihood of highly mechanized operations in these areas have given support to the theory that agricultural work there may be accomplished with a relatively small permanent labor force, supplemented in peak seasons by a relatively large seasonal labor force. This section provides the background view of part-time participation of village-urban labor through 1954 and before the full expansion of part-time work in these areas expected by 1960. Only 3.6 million hectares of "new lands" were sown during 1954, as compared with the planned 1956 goal of 28 million to 30 million hectares. 66/

Village-urban workers consist of workers hired, principally in the summer seasons, for periods of 1 or 2 months at the most. 67/ In the great majority of cases they consist of youths free from school, older people, artisans, cooperative workers, local government personnel, and some factory and plant hands made available by Soviet authority for temporary aid to farm organizations in emergency seasons. 68/ The press is currently dotted with reports of the participation of these workers in kolkhoz and sovkhos work. In the summer of 1954, for example, it was reported that 150,000 persons in Altayskiy Kray 69/ went out from the villages and urban areas to assist in the harvest.**

* Table 2 follows on p. 16.

** In 1937, about 43 percent of the labor inputs expended by hired kolkhoz workers was expended in field work; about 12 percent in construction; about 15 percent in subsidiary enterprises (feed and flour mills, blacksmith shops, brick kilns, and other kolkhoz enterprises); and the rest (30 percent) in other agricultural activities. 70/
(Text continued on p. 17.)

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Table 2

Estimated Changes in the Participation of Village-Urban Workers
in Part-Time Work in Socialist Agriculture
in the USSR, by Type of Farm a/
1938, b/ 1951, and 1953-54

Thousand Workers				
<u>Type of Farm</u>	<u>1938</u>	<u>1951</u>	<u>1953</u>	<u>1954</u>
Kolkhoz <u>c/</u>	2,228	2,822	2,912	5,076
Sovkhoz <u>d/</u>	1,495	1,931	1,993	2,586
Total	<u>3,723</u>	<u>4,753</u>	<u>4,905</u>	<u>7,662</u>

a. The number of workers estimated in this table is derived from a distribution of labor inputs expended in seasonal work in Soviet agriculture, as shown in Table 5, p. 31, below. This table considers only workers or persons normally occupied outside of agriculture in part-time employment in agriculture. There does occur part-time employment within agriculture also, by the kolkhozniki in MTS and sovkhos work. It is estimated that 2.4 million kolkhozniki worked for the Machine Tractor Stations and about 2.3 million for the sovkhoses in 1938, 2.9 million for the Machine Tractor Stations and 2.9 million for the sovkhoses in 1951, 1.8 million for the Machine Tractor Stations and 3 million for the sovkhoses in 1953, and 2.1 million for the Machine Tractor Stations and 3.9 million for the sovkhoses in 1954. The total number of kolkhozniki working in part-time work in state agriculture as a whole is estimated as 4.7 million in 1938, 5.8 million in 1951, 4.7 million in 1953, and 6 million in 1954. The derivation of these estimates is given in Table 5 and in Appendix A.

b. Postwar boundaries.

c. The postwar estimates of the numbers of village-urban workers in part-time agricultural work on the kolkhozes are based on 1938 data. The workers for 1938, according to Soviet calculations, worked an average of about 33.85 man-days per worker per year on the kolkhozes. 71/ This rate was applied to the man-day inputs for these workers indicated in Table 5 for 1951 and 1953. The procedure for estimating the number of these workers on the kolkhozes for 1954 is explained in Appendix A. It should be noted, however, that the increment of these part-time workers on the kolkhozes during 1954 is a

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Table 2

Estimated Changes in the Participation of Village-Urban Workers
in Part-Time Work in Socialist Agriculture
in the USSR, by Type of Farm a/
1938, b/ 1951, and 1953-54
(Continued)

much larger increase than occurred on the sovkhoses. This is due primarily to the fact that the increment of permanent MTS workers during 1954 was estimated as only half as large as the increment of permanent sovkhos workers -- 300,000 as compared with 600,000. d. The number of village-urban workers employed part-time on the sovkhoses in 1938, 1951, and 1953 is derived by using a prewar estimate that "temporary" workers on the sovkhos constituted about 40 percent of total "temporary-seasonal" sovkhos employment. 72/ In this report "temporary" sovkhos employment is treated as village-urban workers, and "seasonal employment" as kolkhozniki. This percentage was then applied to the number of kolkhozniki working for the sovkhoses for each year (see footnote a, above) to derive total "temporary-seasonal" labor for the sovkhoses. From this number the number of village-urban workers was derived by subtraction. For 1954 the number of these workers was derived by using the proportion of permanent sovkhos workers in total sovkhos employment (including village-urban workers) estimated for 1953. Thus the number of permanent sovkhos workers in 1953 was given as 2,028,000 (see Table 1, p. 4, above), which is about 28.9 percent of total sovkhos employment. This percentage, when applied to 2,628,000, the number of permanent workers on the sovkhoses in 1954, yields total sovkhos employment from which the number of village-urban part-time workers may be derived by subtraction.

The data in Table 2 exhibit three basic trends in the part-time participation of village-urban workers in agriculture. First, their participation increased by about 1 million workers, or about 128 percent, between 1938 and 1951. This rate of increase is similar for both kolkhozes and sovkhoses. The total increase may, in part, have compensated for a decline of about 2.7 million permanent workers in Soviet agriculture between these two dates. It is estimated that the total permanent agricultural labor force comprised about

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53,463,000 kolkhozniki, MTS workers, sovkhos workers, and private peasant workers in 1938,* as compared with about 50,748,000 workers in 1951.**

The number of village-urban workers employed in agriculture apparently was stabilized between 1951 and 1953, increasing only by about 150,000 workers. Marked changes occurred from 1953 through 1954, however. In the first place, the distribution of part-time workers between the kolkhozes and the sovkhos changed. Where previously the percentage of these workers employed on the kolkhozes fluctuated near 60 percent, in 1954 it had risen to over 66 percent. Also, the total increase in participation comprised about 2.8 million workers, or an increase of about 56 percent, from 1953 through 1954. The data in Table 2 show that the total number of village-urban workers increased from about 3.7 million workers in 1938 to about 4.9 million in 1953. By 1954 the total number had risen to about 7.7 million village-urban workers in part-time agricultural employment. During these same periods those working in kolkhoz production increased from about 2.2 million in 1938 to 2.9 million in 1953 and 5.1 million in 1954. On the sovkhos about 1.5 million village-urban workers were employed part-time in 1938, as compared with 2 million in 1953 and 2.6 million in 1954.

These increases correspond with the increase of 1 million permanent workers in Soviet agriculture from 1953 to 1954, 90 percent of which occurred in state agriculture, and with the participation of 1,250,000 kolkhozniki (mostly males) in the status of permanent MTS staff workers and employees as a result of the September Plenum of 1953. 73/

The addition of 8.9 million sown hectares to Soviet agriculture and the reclamation of 17.5 million hectares of "new lands," accompanied by the resultant initiation of new construction activity, thus had an enormous impact on the development of the Soviet agricultural labor force.

It should be indicated, however, that these increases may not be expected to continue on such a scale. Moderate increases may be expected through 1957. Thereafter the magnitude of expected investments in agriculture should reduce the need for large increases in

* See Table 4, p. 28, below.

** See Table 1, p. 4, above.

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labor requirements. Increases in the mechanization of agricultural operations may reduce these requirements eventually to the 1955 level. The greater part of the expected construction should have been erected by 1960. In the "new lands" the installation of new village communities and their required communication, transportation, educational, and health and welfare facilities should by 1960 have been sufficiently accomplished.

B. Labor on Family Plots.

Part-time work on family plots merits attention because of its magnitude. This type of labor is expended by kolkhozniki and workers and employees, each of whom may have from one-fourth to about 1 hectare of land for cultivation and livestock production. ^{74/} It is likely that all of the 41.8 million kolkhozniki ^{75/} in 1938 had family plots, and so did about 10.5 million workers and employees.* By 1953 the number of kolkhozniki with plots increased to about 48.6 million, and of workers and employees, to about 18 million. ^{76/} The kolkhozniki expended about 1.8 billion man-days in 1938 on these plots, as compared with about 1.9 billion in 1953; and the workers and employees increased their inputs from about 350 million man-days in 1938 to about 530 million man-days in 1953.* ^{77/} The total number of workers with plots comprised about 52.3 million persons expending about 2.2 billion man-days in 1938, as compared with about 66.6 million persons expending about 2.4 billion man-days in 1953. Total labor inputs on family plots constituted about 23 percent of total agricultural labor inputs in 1938, as compared with about 25 percent in 1953. ^{78/}

The estimates of part-time employment in agriculture depend, as stated above, on prewar rates and relationships -- their exactitude is questionable. Nevertheless, they are of such a magnitude as to suggest that part-time employment in agriculture apparently involves the participation of large numbers of people in the USSR. The dependence of about 40 percent of all workers and employees in Soviet agriculture in 1953 (18 million of a total 44.8 million, including workers and employees in state agriculture ^{79/}) on individual agriculture for part of their family food indicates that large numbers of families in the suburbs of cities and in worker settlements -- whose bread-winners normally are in urban employment -- are not yet clearly divorced from labor-consuming agricultural work (principally in potatoes, vegetables, and meat and dairy production). The Soviet economy most certainly has not yet surmounted the retarding effects of agricultural underdevelopment.

* See Appendix A.

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IV. Problems of Manpower Allocation.

The above analysis has concentrated on the size and growth of employment in agriculture. Questions arise, however, as to the effects of the growth of the permanent agricultural labor force on changes in total Soviet employment and on changes in the distribution of workers between farm and nonfarm employment. These problems may be developed by comparison of the growth in numbers of various sectors of the labor force and in the number of employable persons 15 to 59 years of age in 1951 and 1953-54, as shown in Table 3.

Table 3

Estimated Growth of the Labor Force in the USSR, by Type of Worker a/
1951 and 1953-54

Year <u>b/</u>	Population 15 to 59 Years of Age <u>c/</u>	Kolkhoz- niki <u>d/</u>	Workers and Employees				Total Labor Force <u>g/</u>
			State Agri- cultural Labor Force <u>d/</u>	Nonagri- cultural Labor Force <u>e/</u>	Total Workers and Employees <u>f/</u>	Total Labor Force <u>g/</u>	
1951 total	120,700	48,168	2,580	38,220	40,800	88,968	
1953 total	125,500	48,549	4,090	40,710	44,800	93,349	
1954 total	127,900	48,649	4,990	42,010	47,000	95,649	
1951-53 increase	4,800	381	1,510	2,490	4,000	4,381	
1953-54 increase	2,400	100	900	1,300	2,200	2,300	
Total increase 1951-54	<u>7,200</u>	<u>481</u>	<u>2,410</u>	<u>3,790</u>	<u>6,200</u>	<u>6,681</u>	

a. Certain employable persons were not included in these data, including those in forced labor and those in the armed services.

b. As of the end of the year.

c. 80/

d. These data are taken from Table 1, p. 4, above.

e. Derived by subtracting the number of state agricultural workers from the total number of workers and employees.

f. Supplied from official Soviet sources. 81/

g. Includes kolkhozniki and total workers and employees.

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Numbers of employable persons in the armed forces and in forced labor are excluded from the data. The figures are end-of-the-year data.

The table shows that about 2.9 million workers (over 40 percent) of the total of about 6.7 million workers added from the end of 1951 to the end of 1954 were assigned permanently to agricultural employment. State agriculture received about 84 percent of the total increase in farm workers. The average annual rate of increase in agriculture over the 3-year period is about 1 million workers, as compared with about 1.3 million workers per year for nonagricultural sectors. The average increase for the total labor force is 2.2 million workers per year over the 3-year period.

It seems clear that this rate for the total labor force is a high rate of increase and is near the limit of new workers available by population growth. According to recent estimates, 82/ between the end of 1949 and the end of 1954, about 12 million employable persons 15 to 59 years of age were added to the Soviet population, at the average annual rate of increase of 2.4 million persons over the 5-year span. While this rate is higher than the rate for new employment, it is also clear that the rate of participation of persons 15 to 59 years of age in work is only about 80 percent (between 95 to 100 percent for males and about 60 percent for females 83/). The rate of increase in employment, therefore, probably is somewhat higher than the rate of increase for employable persons 15 to 59 years of age actually at work.

It is likely that the gap between the estimated total increase in employment between the end of 1951 and the end of 1954 and the increase in persons 15 to 59 years of age actually at work may have been filled from two sources. These sources are (1) the amnesty releases in 1953 of about 1 million to 2 million workers from forced labor 84/ and (2) increases in the number of persons between 12 to 15 years of age at work, especially in agriculture. Many of the amnestied workers were undoubtedly absorbed in the nonagricultural labor force, thus compensating for the incomplete work participation of women. Most of the youths 12 to 15 years of age undoubtedly earned labor-day wage credits in kolkhoz agriculture. While Soviet planners have stressed the retention of more and more youths in educational institutions as far as the tenth grade, 85/ it is still possible for youths to earn labor-day credits in kolkhoz agriculture, at least in the summer period. It is estimated that in the prewar era (1937) about 15 percent of the labor force probably consisted of youths under 16 years of age who earned labor-days. 86/

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That this second source is a possibility is indicated by a recent report on educational practice in Vinnitsa Oblast (in the Ukraine), where during 1955 brigades of students in the fifth to ninth grades were being formed to sow, cultivate, and harvest crops in kolkhoz and sovkhos employment in conjunction with educational training in the classroom. 87/ The theory is expressed that better coordination of practical with theoretical training results in better integration of knowledge and learning.

The increase in the total labor force as indicated in Table 3 thus appears to approach the limit of the availability of persons for new employment during the 1951-54 period (end of each year) -- about 2.4 million persons per year. The rural population probably is capable of providing 1.4 million new workers per year, as compared with 1 million by the urban population. As early as the XVIII Party Congress it was estimated that the rural areas could provide 1.5 million new workers annually for industrial employment. 88/

On the basis of the foregoing analysis, the prospects for a tight labor supply situation for 1955-65 may be developing. The difficulty of expanding all the segments of the labor force at the same time probably will be all the greater during the next decade because the rate of increase in the Soviet population 15 to 59 years of age will be considerably slower (2 million as compared with 2.4 million in the past 5 years 89/). This indicates that important decisions must be made by the top-level planners as to the distribution of the short labor supply. Some of the tightness in the current labor situation may, of course, have been relieved by the achievement of planned reductions in the swollen administrative staffs of various ministries and organizations and the transfer of administrative personnel to direct productive work. 90/ On the basis of planned ruble savings by the transfer, it has been estimated that as many as 1 million administrative persons could have been inducted into productive employment. 91/

V. Capabilities, Vulnerabilities, and Intentions.

The trends in the growth and employment distribution of the agricultural labor force in the USSR are significant for the national economy for several reasons. In the first place, it is probable that increased total labor requirements in agriculture since the September 1953 Plenum of the Communist Party, in conjunction with strong pressure from industry to recruit new workers from farm areas for expanding

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industries, have strained and will continue to strain, in the immediate future, the maturation capacity of the rural population to provide the necessary transfers to industry. This conclusion is supported by the fact that the rate of increase of that portion of the Soviet population which is 15 to 59 years of age will be slower than it has been -- about 2 million per year as compared to 2.4 million in the past 5 years.

The expansion of cultivation of "new lands" by about 30 million sown hectares by 1956, and of about 26 million new hectares in sown corn by 1960, would seem to signify an increase of the total from at least 40 million to 50 million hectares, if allowances are made for substitution of some of the new for old hectares. This trend, in conjunction with emphases on the development of enlarged livestock herds and on increased production of potatoes and vegetables, would seem to indicate increased total labor requirements in agriculture, at least in the immediate future.

An equally burdensome aspect of the problem of meeting labor requirements in the early years of the 1954-60 agricultural construction program may well be the construction of more facilities for the storage of additional grain and for the care and maintenance of increased livestock numbers and the construction of new homes for housing additional families on the new and the old farm organizations involved in the expansion. It has been reported that about 800,000 construction workers are needed in the RSFSR alone to man kolkhoz construction brigades for building facilities, especially livestock and storage facilities in kolkhoz agriculture. 92/ The standard apparently aimed for is about 15 to 20 kolkhoznik workers permanently assigned to one construction brigade per kolkhoz, with other workers temporarily assisting in earth-moving work and in the transportation of materials and parts. 93/ If these workers are not available in terms of skills and qualifications on the kolkhozes, they apparently will be hired. 94/ The figure given for construction workers needed on the kolkhozes, furthermore, does not include the number of construction workers needed by the Machine Tractor Stations and the sovkhoses in the building of new Machine Tractor Stations and sovkhoses or in the improvement of existing facilities. Most MTS and sovkhos workers employed in construction undoubtedly will be trained on the job. 95/ Construction ministries and organizations outside of agriculture probably will be authorized to do much of the building for the Machine Tractor Stations and the sovkhoses, employing some agricultural workers for some of the work. 96/

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It is expected that farm and nonfarm organizations will in the long run be brought into closer coordination in construction work and in the handling of agricultural products. The number of workers recruited from village-urban sources for part-time agricultural work may conceivably increase in the immediate future. This trend may be one important means for coping with the problem of increased labor requirements without substantially increasing the number of workers permanently resident on the farms. Nonfarm organizations apparently will become more responsible for the transportation of farm products from socialized farms (and probably from the family plots), for construction work, and for processing operations (such as grain drying) formerly handled by farmers. 97/ Increased supplies of machinery and electrified facilities on the farms should in the long run reduce the large increases in labor requirements needed in the immediate future in the agricultural building program.

It appears that the Soviet government intends to solve labor problems connected with agriculture in the immediate future as follows: (1) to distribute more urban workers and employees to work in nonfarm organizations associated with agriculture; (2) to coordinate more closely the activities of farm and nonfarm organizations so that much work in agriculture which may require skilled labor can be assumed by the nonfarm work force; and (3) to increase the supply of machinery and electrical installations to farms so as to facilitate the reduction of labor inputs in labor-consuming sectors of agriculture, particularly in cultivated row crops and in livestock production.

It seems possible that these intentions can be realized, at least partially, by 1960. But the demand for labor in all sectors of the economy at the same time in the current situation seems to be straining the maturation capacity of the population. The sprinkling of articles appearing in the press since January 1955 on the necessity for increasing labor productivity and for reducing the size of swollen administrative staffs, together with the recent action of the Communist Party in setting up a new committee attached to the Soviet of Ministers to treat problems of labor and wages, 98/ would seem to indicate that the problem of distributing workers among the various branches of the national economy may be receiving serious attention by Soviet planners. The discovery of ways to increase output per man is certainly an important means for reducing manpower requirements and for relieving the current strains which present requirements seem to make on the national economy. Soviet planners seem displeased over current trends in labor productivity, which in industry apparently have increased at

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a declining rate, 99/ and which in agriculture are currently at or only slightly above 1938 levels.* 100/

It is quite possible that the announcements in the summer of 1955 of Soviet intentions to demobilize 640,000 men from the Soviet armed forces may in part be as much linked to manpower needs of the economy as a whole as to the need for propaganda indicating Soviet peaceful intentions following the Geneva Conference in August 1955. 101/ Midyear plan fulfillment reports indicate an increase of only 1 million workers and employees from midyear 1954 to midyear 1955. 102/ This increment is to be compared with the increase of 4 million added by 1 July 1954. 103/

Of this 4 million, 2.3 million workers and employees were added to state agriculture, so that the total increment of workers and employees to nonagricultural employment was 1.7 million by 1 July 1954. The increment of 1 million by 1 July 1955 includes workers and employees in both agricultural and nonagricultural employment. It seems clearly possible that the increment to nonagricultural employment in 1955 probably did not exceed, at the maximum, one-third the size of the increment by 1 July 1954.

* See Table 1, p. 4, above, and Table 5, p. 31, below.

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APPENDIX A

METHODOLOGY

1. Revised Estimates of the Permanent Agricultural Labor Force for 1938 and 1951.

A recent study of the development of the Soviet agricultural labor force between 1926 and 1941 104/ makes it clear that three revisions of previously published CIA estimates 105/ of the permanent agricultural labor force are necessary. These three changes pertain to the numbers of kolkhozniki and of MTS workers and employees in 1938. Furthermore, because the derivation of 1951 estimates depends on the 1938 data, the 1951 estimates should also be adjusted.

The revised estimates for 1938 and 1951 are given in Table 4.* Also included are estimates for 1953 which constitute the distribution of permanent workers that would have prevailed if the changes effected by the September 1953 Plenum of the Communist Party had not occurred.

The first basic revision affects the number of kolkhozniki earning labor-day credits in 1938. The number adopted by the previous CIA estimate 106/ was given as 41,727,000. 107/ The author of this estimate in a subsequent report indicated that this number had not included an estimated 109,000 kolkhozniki earning labor days in Yakutsk ASSR. 108/ Hence the revised figure is 41,836,000 kolkhozniki, as shown in Table 4.

The same source makes it clear from available reports in the pre-war era that the number of MTS workers permanently employed in 1938 was 509,000 109/ instead of the 817,000 estimated in the previous CIA report. 110/ Apparently the latter report included about 300,000 kolkhozniki who earned both wages and labor-days, while the correct figure includes only those earning wages. 111/ This distinction, however, no longer applies. The majority of the MTS permanent workers and employees now are paid both in wages and in trudodni credits earned, depending on the type of work done. 112/

* Table 4 follows on p. 28.

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Table 4

Estimated Distribution of the Permanent Agricultural Labor Force
in the USSR, by Sector
1938 and 1951 (Revised) and 1953 (Unadjusted) a/

Type of Worker	Thousand Permanent Workers		
	Revised Estimates		Unadjusted Estimate <u>b/</u>
	1938	1951	1953
Socialist agriculture			
Kolkhoz	41,836	48,168	49,699
Machine Tractor Station	509	614	634
Sovkhoz	1,518	1,966	2,028
Total socialist agriculture	<u>43,863</u>	<u>50,748</u>	<u>52,361</u>
Private peasant agriculture	9,600	<u>c/</u>	<u>c/</u>
Total permanent agriculture	<u>53,463</u>	<u>50,748</u>	<u>52,361</u>

a. As of the end of each year.

b. These 1953 estimates have not been adjusted for the changes effected by the September 1953 Plenum. See Table 1, p. 4, above, for adjusted estimates for 1953.

c. It is probable that the number of private farmers in the USSR during and after 1951 is negligible. 113/

The 1951 estimates of the MTS permanent labor force in this report rest on estimated labor inputs required in MTS machine work on the kolkhozes, 114/ adjusted downward on the basis of the reductions in MTS inputs as revised for 1938. The man-year equivalent annual rate of 231.1 man-days worked per year per MTS worker in 1938 115/ was applied to these adjusted labor inputs for 1951 to determine the number of MTS workers in 1951.

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Estimation of the number of kolkhozniki in 1951 involved a third revision necessary for 1938. This is based on the fact, not accounted for in the previous CIA estimates, that the kolkhozes in 1938 hired an estimated 2,228,000 part-time workers for an average of about 34 man-days per man per year. 116/ The labor inputs of these workers had previously been assigned to the kolkhozniki. Total labor inputs on the kolkhozes included, therefore, the inputs of the MTS workers and of the part-time workers. The adjustments resulting from the three revisions required that labor inputs assigned to kolkhozniki in 1938 had to be both increased to compensate for the reduced labor inputs of a smaller MTS labor force and reduced to compensate for the inputs expended by hired part-time workers on the kolkhozes.

Since total inputs in socialized agriculture did not require revision for 1938, being estimated on the basis of input requirements per hectare and per head of animals as adjusted for inputs in mechanized operations and in administrative work, the final result of the three revisions was to produce a new man-equivalent rate for 1938 of 130.1 man-days worked per kolkhozniki per year instead of the former rate of 130.54 man-days. 117/ The schedule of man-day inputs previously published for 1951 118/ was then adjusted for all three revisions, and the 1938 man-equivalent rate for kolkhozniki was applied to obtain the estimated number of kolkhozniki for 1951 of 48,168,000, as shown in Table 4. This number is slightly larger than the previous estimate of 48,080,000. 119/

The distribution of permanent agricultural workers for 1953 as given in Table 4 (unadjusted for changes following the September 1953 Plenum) was obtained by two steps. First, the percentage distribution of the total labor inputs per sector which were required in 1951 was multiplied by the total inputs which were required in 1953 agriculture. 120/ The total labor inputs per sector for 1953 was then divided by the man-year-equivalent rates. These rates are summarized on p. 5, above.

2. Estimation of the Part-Time Labor Force in Agriculture.

The participation of the Soviet labor force in part-time agricultural employment is given in Table 5* and Table 6.** Table 5 gives the revised distribution of man-day inputs by various types of part-time workers in socialist and individual agriculture, and Table 6 gives the estimated distribution of workers in part-time

* Table 5 follows on p. 31.

** Table 6 follows on p. 32.

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employment. As distinguished from Table 2,* these tables include the part-time work of kolkhozniki in the Machine Tractor Stations and the sovkhoses and of kolkhozniki and workers and employees on the family plots, as well as the part-time work in socialist agriculture of village-urban workers.

Methodology is given in the footnotes to Table 6 and to Table 2.

* P. 16, above.

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Table 6

Estimated Growth of the Part-Time Agricultural Labor Force
in the USSR, by Sector and by Type of Worker
1938, a/ 1951, and 1953-54

Type of Worker	Thousand Part-Time Workers			
	1938	1951	1953	1954
Socialist agriculture				
Kolkhozniki				
Machine Tractor Station <u>b/</u>	2,408	2,905	1,750	2,092
Sovkhoz <u>c/</u>	2,242	2,897	2,990	3,879
Total kolkhozniki	4,650	5,802	4,740	5,971
Village-urban workers				
Kolkhoz <u>d/</u>	2,228	2,822	2,913	5,076
Sovkhoz <u>d/</u>	1,495	1,931	1,993	2,586
Total village-urban workers	3,723	4,753	4,906	7,662
Total socialist agriculture	<u>8,373</u>	<u>10,555</u>	<u>9,646</u>	<u>13,633</u>
Individual agriculture (private plots)				
Kolkhozniki <u>e/</u>	41,836	48,168	48,549	48,649
Workers and employees <u>f/</u>	10,507	17,500	18,000	<u>g/</u>
Total individual agriculture	<u>52,343</u>	<u>65,668</u>	<u>66,549</u>	<u>g/</u>
Total part-time agricultural workers	<u>g/</u>	<u>g/</u>	<u>g/</u>	<u>g/</u>

a. Postwar boundaries.

b. The estimates of part-time kolkhoznik workers for the Machine Tractor Stations are based on two sources. The first gives a preliminary estimate of tractor drivers, chief combineers, and chauffeurs for 1937, totaling about 926,000 workers. 122/ This number is derived

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Table 5

Revised Estimated Distribution of Man-Day Inputs
in Part-Time Agricultural Labor
in the USSR, by Sector a/
1938, b/ 1951, and 1953

Type of Worker	Thousand Man-Day Inputs		
	1938	1951	1953
Socialist agriculture			
Kolkhozniki			
Machine Tractor Station	235,720	284,523	293,174
Sovkhoz	260,113	336,119	346,943
Total kolkhozniki	495,833	620,642	640,117
Village-urban workers			
Kolkhoz	75,406	95,523	98,559
Sovkhoz	86,704	112,040	115,601
Total village-urban workers	162,110	207,563	214,160
Total socialist agriculture	<u>657,943</u>	<u>828,205</u>	<u>854,277</u>
Individual agriculture (private plots)			
Kolkhozniki	1,814,855	1,844,570	1,903,197
Workers and employees	349,880	512,639	528,933
Total individual agriculture	<u>2,164,735</u>	<u>2,357,209</u>	<u>2,432,130</u>
Total part-time agricultural employment	<u>2,822,678</u>	<u>3,185,414</u>	<u>3,286,407</u>

a. This distribution is based on CIA estimates previously published 121/ and on the revisions indicated in this appendix, pp. 28-29, above.

b. Postwar boundaries.

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Table 6

Estimated Growth of the Part-Time Agricultural Labor Force
in the USSR, by Sector and by Type of Worker
1938; a/ 1951, and 1953-54
(Continued)

from an apparently incomplete Soviet estimate of 1,403,000 MTS workers for 1937, of which it is clear that 477,000 were permanent MTS employees. ^{123/} The other source estimates that another 1,330,000 kolkhozniki worked as combine drivers and as members of combine and tractor brigades. ^{124/} The permanent MTS workers and employees in 1937 constitute 17.45 percent of the total number of workers for the Machine Tractor Stations. This percentage was applied to the estimates of permanent MTS employment as given in Table 5, p. 30, above, to derive total MTS employment for 1938, 1951, and 1953, and then, by subtraction, to derive kolkhoznik part-time MTS employment.

The estimation for 1954 is based on the data for 1953, which accounts for the transfer of 1,250,000 kolkhozniki and 178,000 workers from nonfarm employment to permanent MTS status, thus boosting total permanent MTS employment to 2,062,000 workers and employees, as given in Table 1, p. 4, above. The effect of the transfers was to leave 1,750,000 kolkhozniki in the status of part-time MTS workers as shown in this table. Permanent MTS employment in 1953 thus became 54.06 percent of total MTS employment. This percentage was then applied to permanent MTS employment in 1954 to derive kolkhoznik part-time MTS employment.

c. The estimation of kolkhoznik part-time employment on the sovkhozes is described in the footnotes to Table 2, p. 16, above.

d. The estimation of village-urban worker part-time employment in kolkhoz agriculture for 1938, 1951, and 1953 is described in Table 2 footnotes, p. 16, above. The estimation for 1954 is based on the increase in sown hectares on the kolkhozes and on relationships between labor input rates for different types of workers on the kolkhozes. As indicated above (p. 9), the total increase in sown hectares in the USSR during 1954 was 8.9 million hectares. Estimating 3 million of this increase as occurring on the sovkhozes, the residual left is 5.9 million hectares sown for 1954 on the kolkhozes. About 3.6 million hectares of the total increase occurred in the "new lands" area, of which the sovkhozes planted 880,000 hectares. Hence the total accretion of "new lands" on the kolkhozes was 2,720,000 hectares in 1954. The increase in sown area in the older established parts of kolkhoz

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Table 6

Estimated Growth of the Part-Time Agricultural Labor Force
in the USSR, by Sector and by Type of Worker
1938, a/ 1951, and 1953-54
(Continued)

agriculture would therefore have been about 3.2 million hectares (5.9 minus 2.7). If each kolkhoznik was responsible for about 3 hectares per man on the average in these older areas (see p. 9, above), then there would have been a total need for 1,060,000 kolkhozniki during 1954, if no other workers were added. At 20 hectares per man in the "new lands" area, however, the total kolkhoz increment of "new lands" sown area of 2,720,000 hectares would have required an increase of only 136,000 kolkhozniki during 1954. Total kolkhoznik requirements in the old and new areas together would have been 1.2 million workers.

It is estimated, however, that 300,000 MTS permanent workers were added during 1954. These workers put in about 231 days work per year for the Machine Tractor Stations and the kolkhozes, as compared with the kolkhozniki, who average only about 130.1 man-days work per year. One MTS worker is thus the equivalent of 1.8 kolkhozniki in terms of man-year rates. The 300,000 MTS workers added are the equivalent, therefore, of 533,000 kolkhozniki taking part in kolkhoz production. Subtracting this number from total estimated kolkhoznik requirements gives a requirement of 663,000 kolkhozniki needed to assist the 300,000 MTS workers. Because only 100,000 kolkhozniki have been estimated to have been added permanently to the kolkhoz labor force, it is assumed that the work of the remainder, 563,000, could have been accomplished by village-urban workers during the peak agricultural seasons.

It has been shown that the village-urban workers averaged about 34 days work per person per year on the kolkhoz. Each kolkhoznik is, therefore, the equivalent of 3.843 village-urban workers. About 2.2 million additional village-urban workers would therefore be needed to accomplish the work of the 563,000 required kolkhoznik man-equivalents. The addition of these new village-urban workers to the 1953 part-time kolkhoz labor force, 2.9 million, would thus boost the 1954 number to 5.1 million, as shown in Table 2, p. 16, above.
e. See Table 1 and Table 4 (pp. 4 and 28, respectively, above) for these estimates of the number of kolkhozniki permanently assigned to kolkhoz production. It is assumed that all kolkhozniki earning labor-days belong to families having garden plots.

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Table 6

Estimated Growth of the Part-Time Agricultural Labor Force
in the USSR, by Sector and by Type of Worker
1938, a/ 1951, and 1953-54
(Continued)

f. The numbers of workers and employees with garden plots for 1951 and 1953 are taken from Soviet sources. ^{125/} The estimated number for 1938 is based on a derived man-year equivalent rate of days worked by these workers on their plots. The derivation is based on 1951 relationships. As derived from Table 5, p. 31, above, and this table, the kolkhozniki averaged about 38.3 man-days per year in plot labor, while the workers and employees averaged about 29.3 man-days per year in 1951. The former therefore expended about 30.7 percent more labor on the plots per man. By application of this percentage to the kolkhoznik labor input rate on plots for 1938, about 43.4 man-days annually, an estimate of 33.3 man-days per worker or employee is derived for 1938 on plots. Division of the total labor inputs expended by workers and employees on plots in 1938 (see Table 5) gives an estimate of 10,507,000 workers and employees with plots in 1938 for the postwar Soviet boundaries.

g. The data are either not available or impossible to derive due to the duplication of workers in the various categories of workers.

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APPENDIX B

GAPS IN INTELLIGENCE

Soviet statistics in the sphere of agricultural labor are deficient in many respects. In the first place, there is a considerable lack of information on labor inputs for various types of agricultural work, both for the USSR as a whole and for the various administrative areas of the USSR. It is possible that organized data on labor inputs have not been fully developed in Soviet statistical accounting. It does not seem likely that a master set of organized schedules of labor inputs is used by Soviet writers and officials as a basis for authoritative statements about agricultural labor.

Studies before the war were made on a limited basis. The most extensive Soviet government study published for 1937 covered only 10 republics, krays, and oblasts in the prewar boundaries of the USSR. 126/ Other studies which have been made are of limited scope and usually deal with exemplary farm organizations or with exemplary rayons or oblasts. Many of these refer to postwar organizations and areas at different points in time. This type of gap in intelligence apparently can be covered only by careful estimations derived from published Soviet data.

It seems likely, however, that information can be found on the coordination of Soviet work efforts in the annual farm cycle of work for various types of farming systems -- such information apparently has not been collected systematically thus far. What happens to the cycle of work on a grain farm during the year when the farms are required to plant large increases in hectares to corn, as is apparently occurring at present in the USSR? Does substitution of corn for other grains occur? Is the corn planted on summer fallow? If these practices occur, how do they affect the cycle of labor inputs? Is the labor force burdened or increased as a result of the introduction of more corn?

More information is necessary on the extent to which the kolkhozniki are engaged in work activities on a daily basis throughout the year. How much time is spent on the processing of their personal produce in fulfilling their obligatory deliveries to the state, and how much in processing and marketing their personal produce in free trade? How much of their time is engaged by the requirements of living during the

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winter time, in woodcutting, in the supply of fuel, in snow removal, in transporting produce to town, in providing and caring for their personal stores of food and family materials?

Information should be gathered on the extent and cycle of part-time labor in agricultural work. How many kolkhozniki are engaged in sovkhos and nonfarm activities? How many workers from village and urban sources engage in kolkhoz and sovkhos agricultural activities? Are there increased activities on the part of nonfarm organizations in agricultural construction, transportation, and in the building of farm-to-market roads?

Information is needed on the extent to which the incentive system for kolkhozniki is being improved. To what extent is the trudoden system of crediting wages being displaced by a conventional money system of wages? Are real wages of the individual farmer actually being increased by advances, supplementary payments, and bonuses? What happens at the end of the year, when final accounts are rendered, to the total income of farmers under recent conditions of monetary payments? If there are increases in real wages, how much has been effected by changing practices in the socialized sectors, as compared with income acquired through production for the free market? How much higher are free market prices than state delivery, purchase, and retail prices?

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APPENDIX C

SOURCE REFERENCES

Three types of sources provided the basic data for this report. Warren W. Eason's The Agricultural Labor Force and Population of the USSR: 1926-1941, 1954, U, is fundamental for analysis of permanent employment in prewar Soviet agriculture. N. Aristov's article in Planovoye khozyaystvo, November 1939, U; and Kubanin's articles in Problemy ekonomiki, 1940 and 1941, U, suggest important data for analysis of part-time employment in socialized agriculture.

For postwar employment and population data, reliance was placed heavily on four CIA publications; CIA/RR 39, Agricultural Labor in the USSR, 31 August 1954, S; CIA/RR PR-106, Projected Population of the USSR, 1950-75, 8 April 1955, S; CIA/RR PR-32, Postwar Trends in Manpower of the USSR and the European Satellites, 1947-57, 27 May 1953, C; and CIA/RR PR-16, Goals and Attainments of Education in the USSR, 24 April 1952, C.

The major sources for agricultural labor input requirements on which estimates of postwar agricultural labor force rest were CIA/RR 39, Agricultural Labor in the USSR, 31 August 1954, S, and Naum Jasny, The Socialized Agriculture of the USSR, 1949, U. Both of these, in turn, are dependent on USSR, TsUNKhU, Proizvoditel'nost' i ispol'zovaniye truda v kolkhozakh vo vtoroy pyatiletke (Productivity and Utilization of Labor on Kolkhozes in the Second Five Year Plan), I.V. Sautin, ed, 1939, U, for basic prewar data. In the use of man-land ratios for estimating current manpower requirements, chief reliance was placed on Dergachev's article in Sotsialisticheskoye sel'skoye khozyaystvo, No. 1, January 1955, U. Nemchinov's article in Voprosy ekonomiki, No. 2, February 1955, U, provides data on labor inputs in corn.

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In addition to the contributions of the above works, important data were derived from various Soviet journals [REDACTED] especially [REDACTED] from the latter, for plan results announcements and the speeches of important Soviet officials.

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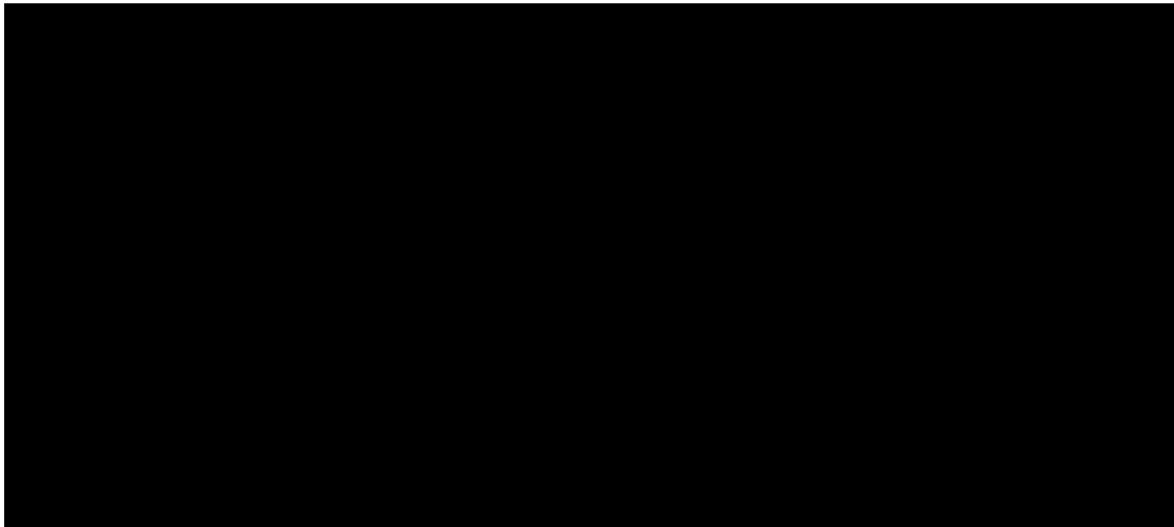
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