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USSR Report

HUMAN RESOURCES

(FOUO 2/82)



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LABOR

UZBEK LABOR PROBLEMS AND PROSPECTS

Moscow ISTORIYA SSSR in Russian No 6, Nov-Dec 81 pp 26-40

[Article by G. A. Shister: "Sources for the Replenishment of Uzbekistan's Working Class During the Stage of Developed Socialism"]

[Text] Among the basic directions in the development of social sciences during the present stage, the 26th CPSU Congress placed research on the processes, which are taking place in the social structure of Soviet society, in one of the first places. The scientific analysis of replenishment sources for the working class occupies an important place in the study of this problem.

A number of works, devoted to labor resource problems and the reproduction of manpower in which this subject is touched upon, were published in Uzbekistan during the Sixties and Seventies. However, questions on ways to more rationally use the sources for replenishing the working class in the republic have still not received the necessary treatment.

The goal of analyzing the activity of the republic's party, soviet and economic organs in solving this problem has been assigned in the article. This will permit more attention to be attracted to it and contribute to the dissemination of the experience which has been accumulated in regions having an analogous demographic situation.

* * *

The ratio of working class replenishment sources is determined primarily by the social structure of Soviet society and by those changes which are taking place in it. During the stage of mature socialism, the tendency toward the rapid coming together of classes and social groups and progressive eradication of the differences between them is the leading one. L. I. Brezhnev declared in the report of the CPSU Central Committee to the 26th Congress of the Communist Party of the Soviet Union: "Our goal is the creation of a society in which there will not be a division of people into classes. And it is possible to say definitely: We are gradually but confidently moving toward this great goal."

The movement of the Soviet people towards social uniformity, which is determined by the consistent policy of the party and state concerning the internationalization of

the country's economic, social and political life, is shown also in the growing rapprochement of the nations and nationalities in their social structure. This is reflected primarily in the increase in the proportion of republic working class detachments. In 1959, workers were 39.2 percent³ of the employed population in Uzbekistan; in 1970 -- 45.7 percent; and in 1979 (based on Central Statistical Directorate data) -- 52.9 percent.

Working class replenishment sources are identical for all the country, but their ratio and use are conditioned a great deal by a republic's specialization within the all-union division of labor. This specialization is planned by the union government depending on natural conditions and material and labor resources. They are determined by the settlement conditions which took shape historically, by the nature of migration processes, by national traditions, etc. The fact that the development of industry took place and is taking place where there is a significant predominance in the population of rural area inhabitants who are oriented on working in the agrarian sector of the economy and in the branches associated with it, is a peculiarity of the Central Asian region, including Uzbekistan. Large natural increases and an extremely low outflow of representatives of the indigenous nationalities beyond the limits of their republic, which is conditioned by ethnic features and national traditions, are typical of this region.

The working class itself is the main source for replenishing it. K. Marx wrote that "the most progressive workers are fully aware that the future of their class and consequently of mankind entirely depends on the upbringing of the rising generation"⁴. The Communist Party is displaying tireless concern for the replenishment of the leading class in socialist society with its sons and daughters.

As the works of Soviet sociologists show, the children of worker families provided a large part of the working class replacements during the Sixties and Seventies. Thus, in the Leningrad machine building industry, they reached 56 percent of all those questioned⁵; in the Moscow region -- 77 percent; in Bashkiriya -- 58.1; and in Uzbekistan, 51.3 percent (1971) in the Chirchikskiy Electrochemical Combine, the Tashkent Electronic Equipment Plant, and in the "Tashtekstil'mash" Plant.

The mentioned conformity to law has an objective nature. However, a subjective factor plays a large role in it. A great deal of work is being done in Uzbekistan under the leadership of the party organization to increase the portion of hereditary workers in the overall number of industrial personnel. Party, trade union and Komsomol organizations are indoctrinating the rising generation in revolutionary and work traditions. Museums and rooms of fame, in which rich material on worker houses is presented, are being established in enterprises. Documents on workers, whose fathers took part in carrying out the socialist revolution in Uzbekistan, are on exhibit in the Museum of Military and Work Glory in the Plant imeni Oktyabr'skaya revolyutsiya.

Among the famous worker houses of the republic, one cannot fail to mention the Os'kin family (Tashkentskoye Aviation Production Association) whose ancestors, - Mikhail Nikolayevich, and his wife, Klaydiya Vasil'yevna gave 60 years to their native plant and brought five children to it; the Nuritdinov family of metallurgists who are

working in the rolling workshop of the Uzbek Metallurgical Plant imeni V. I. Lenin for the third decade, -- the senior member of the family -- Said, a Hero of Socialist Labor -- for more than 30 years; the Val'kov family who have worked in one of the machine building plants of Uzbekistan's capital in toto for more than 100 years; and the Ikramovs from the Namanganskiy [avrov] Cloth Combine imeni 25th CPSU Congress, the "oldest" worker dynasty in the republic -- the total length of its work activity is more than 250 years.¹⁰

Investigations which have been conducted by us in a number of Uzbekistan's enterprises, testify that many of their workers are second and even third generations of worker dynasties. In the Chirchikskiy Electrochemical Combine, the parents or close relatives of 18 percent of those questioned in 1961 and of 23 percent in 1971 had worked there. In the "Tashtekstil'mash" Plant, the parents of 23 percent of the workers had worked in the plant according to a 1971 investigation (some had worked there from the day of its founding or had been evacuated with the plant during the Great Patriotic War).

It is necessary to point out that statistics do not give exhaustive information on working class replenishment sources; however, information from specific sociological research in the republic's industrial enterprises confirms the conclusion that the role of the working class as a source for forming its own replacements is growing in Uzbekistan just as throughout the entire country, and, consequently,¹¹ the absolute number and proportion of hereditary workers are increasing.

The kolkhoz peasantry continued to be one of the major sources for replenishing the working class during the Sixties and Seventies. However, as is pointed out in the literature, its share gradually decreased on the whole throughout the country.¹² By the Seventies, the opportunities for drawing kolkhoz workers into the ranks of the working class had practically been exhausted in many areas of the country in connection with the rapid urbanization rates. Whereas the USSR rural population decreased by 3.1 million individuals during the period between the 1959 and 1970 All-Union Population Census, it decreased by 6.9 million individuals between 1970 and 1979. In nine years, the overall number of rural people decreased by 6.5 points¹³ at a time when the urban population share increased from 56 to 62 percent.

The mentioned tendency does not operate with equal force in all regions of the country. Based on the degree of decrease criterion, the most urbanized republics of the Soviet Union now are: The Estonian SSR (70 percent), the RSFSR (69 percent), the Latvian SSR (68 percent), the Armenian SSR (66 percent), The Ukrainian SSR (61 percent), the Lithuanian SSR (61 percent), the Belorussian SSR (55 percent) and the Kazakh SSR (54 percent).

However, in the republics of the Central Asian region where -- with the exception of Tajikistan -- the proportion of the rural population also had a tendency to decrease, the absolute number of the rural population grew in Kirghizia by 18 percent, in Uzbekistan by 21 percent, and in Turkmenia by 28 percent during the period between the 1970 and 1979 census.¹⁴ The highest growth in rural population was observed in Tajikistan (36 percent) during this period.¹⁵

Thus, in contrast to a number of the country's central rayons, the rural population, including the kolkhoz peasantry, has large potential opportunities available in Uzbekistan, just as in the other Central Asian republics, not only for its own reproduction but also for replenishing the working class.

When evaluating the labor resources of Uzbekistan and the opportunities for redistributing a portion of the able-bodied population from agricultural production to industry, planning organs proceed from the fact that the population is distributed extremely unevenly over the republic's territory. In this connection, some rayons and oblasts have experienced a shortage in manpower; others -- a surplus in it. On 1 January 1980, the population density in Uzbekistan reached 35.2 individuals per one square kilometer. However, whereas it was equal only to 5.6 individuals in the Karakalpakskaya ASSR, 9.0 in Bukharskaya Oblast, 25.7 in Dzhizakskaya Oblast, and 40.7 in Kashkadar'inskaya Oblast; it was 328.5 individuals in Andizhanskaya Oblast, 244.1 in Ferganskaya Oblast, 233.6 in Khorezmskaya Oblast, and 143.0 in Namanganskaya Oblast.¹⁶ The population density continues to grow in a number of overpopulated oblasts. From 1970 to 1980 alone, it increased by 76.4 individuals in Andizhanskaya Oblast, by 56.5 in Ferganskaya Oblast, and by 35.8 in Namanganskaya Oblast.

In these oblasts, the size of sown areas for each worker employed in agriculture is decreasing more and more sharply. This is having a negative effect on the opportunities for using existing labor resources on the kolkhozes, and consequently, on increasing labor productivity.

Estimates of the UzSSR State Committee for Labor show that scientific and technical progress and the growth of labor productivity, which has been achieved based on it, are leading -- especially in agriculture -- to the freeing of workers and making the redistribution of a portion of the labor resources in branch and territorial sections possible and at the same time necessary.¹⁷ In 1970, 29 percent of the total number of Uzbekistan's able-bodied kolkhoz workers could have been freed. During subsequent years, the percent of workers kept above the required number became even higher on the republic's cotton growing kolkhozes.

The study of the nature of migration processes and the distribution and use of labor resources in Uzbekistan leads many researchers to conclude that the needs of industry for working cadres cannot be satisfied by the move of the republic's surplus rural population to the cities. In carrying out the CPSU's policy to equalize the economic levels of the republics and in considering the specifics of migration, the low mobility of the rural -- especially the indigenous -- population and the high prosperity of a number of rural regions in labor resources, the Communist Party of Uzbekistan is carrying out a broad system of measures to industrialize the republic's small and medium cities and rural rayons. In doing this, the party proceeds from the fact that the siting of industrial installations in agrarian type rayons and the drawing of the rural population into the ranks of the working class will contribute to changing the people's way of life and their social and psychological constitution.

The creation of industrial installations in small and medium cities and in rural areas does not always mean the construction there of new independent enterprises;

as a rule, they are branches of plants, factories and large industrial associations or their shops which produce parts. The economic effectiveness of the creation of these installations does not evoke any doubts. Their opening does not require large capital investments. The plants themselves, when they have transferred the output of individual units and components to the branches, receive an opportunity to concentrate their efforts on the more important tasks. In addition, the creation of these small enterprises is not connected with the move of workers, large scale housing construction, etc. F. Engels wrote: in order that "... people, who have been ousted from agriculture, not be left without work or forced to crowd into cities, it is necessary to employ them in industrial work in the village itself."¹⁸

The policy of improving the planning of siting productive forces and the construction of industrial installations in small cities and urban settlements was reflected in the decisions of the 16th (1961), 17th (1966) and 18th (1971) Congresses of the Uzbek Communist Party.

Speaking at the 19th Congress of the Communist Party of Uzbekistan (1976), Sh. R. Rashidov pointed out that, within the system of measures which have been carried out by the Uzbek Communist Party for the development of productive forces, the equalizing of the economic development level of the oblasts and the industrialization of rural rayons and small cities have had large social significance. It is necessary to follow this line in the future. The erection of enterprises in the village will permit a working class to be formed there and productive forces to be developed in a more planned and rational manner.¹⁹

It is necessary to point out that the work performed in Uzbekistan to industrialize agrarian rayons and small cities contributes to the policy of limiting the growth of large cities and to the development of the economic structure of prospective small and medium cities.

Akhangaran is one of the new industrial centers which arose during the years of the 8th and 9th Five-Year Plans in Uzbekistan. A cement combine, a ferro-concrete item plant, the "Santekhlit" Plant, and the "Stroyplastmass" Combine were built here. The urban settlement grew with new housing and social and personal services enterprises. Akhangaran became a rayon center in 1971, and was converted to a city of oblast subordination in 1976.²⁰

The development path of another city in Tashkentskaya Oblast, Narimanov -- the former Bektemir, is similar. Its industrial appearance took shape during the years of the 9th Five-Year Plan. A total of 50 industrial enterprises and construction, motor transport and other organizations and establishments were operating here in 1976. The number of enterprises doubled in comparison with 1970; and the volume of products produced, which number more than 20 types of different industrial items (metal structure, reinforced concrete, etc.) tripled. Housing assets (less individual houses) exceeded 100,000 square meters; and schools, pre-school establishments, hospitals, dispensaries, etc. are being built.²¹

In accordance with "The Basic Directions for the Development of the USSR National Economy for 1976-1980" which was adopted by the 25th CPSU Congress, even more

substantial changes for the better in the siting of productive forces in Uzbekistan took place during the 10th Five-Year Plan. As was pointed out during the 20th Congress of the Communist Party of Uzbekistan (1981), the Central Committee of the Communist Party and the government of the republic did not disregard a single valuable initiative aimed at giving a new and vital impulse to small cities, settlements and rayon centers. During the 10th Five-Year Plan, 290 branches and workshops, in which almost 30,000 people were employed, were created in Uzbekistan. ²²

Significant successes have been achieved in Andizhanskaya Oblast. During the years of the 10th Five-Year Plan, 60 enterprises, branches and workshops were put into operation in various rayons of the oblast. The commissioning of the first section of the Andizhanskiy Cotton Combine a year ahead of schedule was a great victory for the oblast's working class' party organization. Five of its branches, two of which were put into operation by the opening day of the 26th CPSU Congress, are being erected in the oblast. ²³

There were, all told, three industrial enterprises on the territory of unploughed Dzhizakskaya Oblast in the early 1960's. They became more than 60 during the 10th Five-Year Plan. Alkaline battery plants; a carpet combine; a lead-cement mine; a factory for obtaining wollastonite concentrate; and food industry, cotton processing, construction industry, transport, and communications enterprises were built at the new technological level. ²⁴ Similar examples can be cited for other oblasts.

Positive changes for the better in the distribution of industrial production personnel occurred as a result of the carrying out of the party's policy on improving the siting of productive forces in the republic.

Before the beginning of the Seventies, the main mass of industrial workers was concentrated in the larger industrial centers. Thus, in 1970, 54% of all its industrial production personnel were concentrated in Tashkentaskaya Oblast (including Tashkent), where 21 percent of the UzSSR population lived. At the time, industrial production personnel were only 7.5 percent of the total number in Syrdar'inskaya, Kashkadar'inskaya, Surkhandar'inskaya, and Khorezmskaya Oblasts which had a 22.6 percent share of Uzbekistan's population. ²⁵

On 1 January 1978, 23.5 percent of the republic's entire population (+ [sic] 2.5 points in comparison with 1970) lived in Tashkentaskaya Oblast (including the city of Tashkent); however, the proportion of industrial production personnel had decreased by 6.2 points and stood at 47.8 percent. ²⁶ During this same time, in the four compared oblasts (although the number of people here decreased from 22.6 to 20.4 percent), the proportion of industrial production personnel grew by 2.1 points and reached 9.6 percent. ²⁷

During the Sixties and Seventies, the proportion of workers and employees in industry located in rural areas almost doubled thanks to the successful work of Uzbekistan's party organization in industrializing agrarian rayons and in drawing rural inhabitants into industry:

Table 1. Dynamics of the Proportion of Uzbekistan's Workers and Employees During the Period 1960 - 1970

	1960	1970	1975	1977
In urban settlements	92.6	87.8	87.5	86.7
In rural areas	7.4	12.2	12.5	13.3

Despite the fact that the number of industrial workers is growing from year to year due to the flow of rural inhabitants, this manpower reserve is not only not decreasing but, on the contrary, is increasing in connection with the high natural increase. Based on forecasts for 1990, the number of people in the republic will reach 22 million individuals. This will require even greater efforts to increase the number of work sites and expand the training of qualified personnel.²⁸

A resolution of the 20th Congress of the Communist Party of Uzbekistan points out the special importance of creating branches of enterprises in small cities and rural areas.²⁹ It is planned to open 450-500 of them, including on kolkhozes and sovkhazes, during the 11th Five-Year Plan.³⁰

However, it would be a mistake to think that the striving for a more rational siting of industrial enterprises is not running into serious problems. One cannot fail to note that the textile combines which have been constructed in Andizhan and Namangan have not worked at full capacity for a long time because of a shortage of manpower -- at a time when there are considerable reserves of able-bodied people in these cities. The opening of even small installations and workshop branches requires the creation of an infrastructure servicing production -- the construction of schools, children's institutions and medical facilities, the organization of transport and communications, etc. The solution of these tasks does not always keep step with the erection of the industrial installations.³¹

The training of qualified personnel is also an important and complicated problem. In contrast to many of the country's central rayons where kolkhozes are experiencing a critical shortage of manpower in connection with the flow of rural youth to the cities, the redistribution of kolkhoz youth to industry and other branches of the national economy has taken place at slow tempos in Uzbekistan. For example, in 1968, 36 percent of the total number of able-bodied youth and juveniles stayed to work on the kolkhozes and in 1970 -- 43 percent. This exceeded the number of young people who went to factories and plants 1.9-fold. It is necessary to point out that 68 percent of the juveniles up to 18 years of age who arrived on the kolkhozes had a secondary education (complete or incomplete).

The situation changed during subsequent years. In 1974-1975, of those who finished the eighth and tenth grades in general educational schools, 60.2 percent of those sent to the national economy were employed in agriculture. Graduates of rural school eighth and tenth grades formed the main mass (97 percent).

The replenishment of the republic's kolkhozes and sovkhazes with youth having a secondary education undoubtedly increases the cultural and technical level of

agricultural workers; however, agricultural production is not in a condition at the present time to provide all this mass of young men and girls with work which corresponds to the level of their training. This is not always taken into consideration by public organizations. Cases are not infrequent where in places with a large surplus in the rural population and a low migratory mobility, they call upon the pupils to advance with an initiative of the type "as an entire class -- to the native kolkhoz",³² although there is not enough work for the existing workers on that kolkhoz. These tendencies are also found in Uzbekistan. Thus, as a positive example of the pupils' purposeful professional orientation, the press told about the initiative of the Komsomol graduates in one of the schools of Pastdargomskiy Rayon of Samarkandskaya Oblast who stayed as an entire class to work on their native kolkhoz,³³ although 125,000 people (93 percent) lived in rural areas and only 9,000 (7 percent) in cities in this rayon.³⁴ In 1977, more than 12,000 young men and women of Samarkandskaya Oblast in answer to an initiative of their peers -- graduates of schools in Kostromskaya Oblast -- stayed to work in agricultural production.³⁵ Meanwhile, in Kostromskaya Oblast with a population density of 13.3 people, the proportion of the rural population was only 37 percent on 1 January 1977 -- at a time when the population density in Samarkandskaya Oblast was five-fold greater (67.5 people) and 70 percent of the entire population lived in rural areas.³⁶

The present conditions of the country's social and economic development require that the indoctrinational work among youth, who live in the thickly populated rural rayons of Uzbekistan, stir up the migratory mobility of the young men and women and contribute to their professional and cultural growth and to an increase in the proportion of industrial workers.

The new policy for developing professional and technical education in the village, which contributes to strengthening migratory processes and social shifts, must play an important role in the solution of this task. The Communist Party of Uzbekistan is orienting party organizations toward the creation of professional training establishments in rural areas for the training not only of agricultural personnel but also of construction and industrial cadres. The following fact testifies to the effectiveness of this way of solving the problem. In 1972, a branch of the Namanganskiy [avrov] Cloth Combine imeni the 25th CPSU Congress with a capacity of more than 400,000 linear meters of [khantalas] and [bekasab] a year was put into operation in Uchkurgan. Long before the opening of the enterprise, the party organization and board of directors were concerned about personnel. Experienced workers were sent to the branch for their training; at the same time, the graduation of a special professional technical institute levy was arranged on a branch basis. A total of 180 young men and girls³⁷ from the Uchkurganskiy Rayon underwent training and received work certificates. These measures ensured the normal and uninterrupted work of the shop from the very beginning.

A complete network of professional technical institutes servicing the rural area has already been created in the republic. The "Navoiyazot" Production Association has opened a GPTU [city professional technical institute] on the Kolkhoz imeni F. Engels in Gizhduvanskiy Rayon of Bukharskaya Oblast; and the oil workers -- in the settlement of Kakaydy in Dzharkurganskiy Rayon of Surkhandar'inskaya Oblast. Personnel are being trained in Leninskiy Rayon of Andizhanskaya Oblast for a branch of the tractor plant. These professional technical institutes are contributing to

the solution of an important social task -- the training of rural youth in urban professions and the shift of surplus manpower from rural areas to ³⁸the cities where the need for qualified specialists is continuously growing.

However, these measures are insufficient to solve the problem completely. According to estimates of the Uzbek SSR Gosplan and the UzSSR Academy of Sciences, only 61.6 percent of all the workers trained in the republic (as opposed to 26.5 percent in 1975) will have a professional technical education. In this connection, The USSR Gosplan has pointed out that "along with the priority development of a network of professional technical institutes in the republics of Central Asia and the Transcaucasus, it is also necessary to send the youth of these republics for training in other regions of the country with the agreement of the interested departments".³⁹ One must send a larger number of youth (especially rural) to the country's all-union leading construction projects where they can acquire a work profession and improve their qualifications.

Of course, the reorientation of a portion of the rural population, especially youth, to industrial types of work must be built on a scientific foundation which is based on the optimum age structure of those employed in agriculture. It is necessary to correlate the solution of this important social problem with the opening up of new lands which is taking place in the republic and with the planned transfer of a portion of the flow of Siberian rivers to the Aral Sea basin.

The training of industrial workers in the village has an important political aspect -- it is actively contributing to a growth in the preparation of workers of local nationality in the republic's working class.

Statistics testify that in Uzbekistan, just as throughout all of Central Asia, the indigenous population forms the larger part of the inhabitants in the rural areas where significant reserves of manpower are concentrated. According to data from the 1970 All-Union Population Census, Uzbeks were 95.5 percent -- in Samarkandskaya; 85.1 percent -- in Kashkadar'inskaya;⁴⁰ 81.4 percent -- in Namanganskaya; and 80.2 percent -- in Andizhanskaya Oblasts.

The construction of industrial installations⁵ in oblasts with surplus labor resources contributes not only to an equalization of the level of industrial development but also to a more intensive drawing of persons of local nationality from predominantly single nationality rural collectives into industry and international worker collectives. This process requires a great deal of attention from party, state and public organizations. Questions, connected with it, have been repeatedly discussed during congresses of the Communist Party of Uzbekistan and plenums of the republic's Communist Party Central Committee. Appropriate decisions have been strictly implemented by oblast, city and rayon party organizations and by the collectives of industrial enterprises. All this has contributed to raising the number and proportion of workers of local nationality.

Based on data from the 1959 and 1970 all-union censuses and from one-time registrations, in Uzbekistan people of the main nationality (Uzbeks)* were 26.7 percent in industry in 1959, 31.2 percent in 1967 and 35.5 percent in 1973. It is important to emphasize that a growth in the number of Uzbeks was also observed during these years in other detachments of industrial workers. The proportion of Uzbeks in construction grew from 30.1 percent to 34.8 percent from 1967 to 1973; in transport -- from 35.8 percent to 41.2 percent, and in communications -- from 35.9 percent to 40.7 percent.

During 1967 - 1973, the proportion of representatives of the main nationality grew at more rapid rates in light industry -- from 44.5 percent to 53.9 percent, in the food industry -- from 34.2 percent to 45 percent, and in the oil industry -- from 34.1 percent to 42.8 percent.⁴² This is explained to a considerable degree by the fact that many of the enterprises in these branches are located in rayons where the Uzbek nationality predominates.

However, in a number of branches of heavy industry which are connected with more modern equipment and production technology, the proportion of the indigenous population was significantly lower than the general republic level.

The Central Committee of the Communist Party of Uzbekistan is directing the activity of the State Committee for Labor, ministries, departments, and party organizations to the formation of national cadres for industry considering an important demographic factor -- the high rates of natural increase among the local nationalities. The 1979 population census showed that the proportion of Uzbeks in the overall republic population increased from 62.1 percent⁴³ to 68.7 percent⁴⁴ during the period 1959 - 1979.

The problem of attracting the representatives of local nationalities to industry was a subject of review at the 6th (1972) Plenum of the Uzbek Communist Party Central Committee which discussed the question "On Further Improving Work With Cadres in Light of the Decisions of the 24th CPSU Congress"⁴⁵.

The training of national cadres in the republic received a new and broader scope after the 25th CPSU Congress which pointed out that "the improvement of the training of local qualified cadres continues to be one of the urgent problems of primary party organizations."⁴⁶

Improving the work to implement the decisions of the 25th CPSU Congress and the 19th Congress of the Communist Party of Uzbekistan could not fail to affect the further growth of the proportion of persons of local nationalities in the industrial detachments of the workers. Whereas the proportion of Uzbeks was 35.5 percent in industry in 1973, it was 38.2 percent in 1977; in construction, -- 34.8 and 35.6 percent respectively; and in transport -- 41.2 and 44.4 percent.⁴⁷ As in previous years, the highest proportion of persons of the main nationality (Uzbeks) was

*Kazakhs, Tajiks, Karakalpaks, Kirghiz and Turkmens are also regarded as local nationalities. Counting them, the percent of industrial workers of local nationality is significantly higher. However, the Central Statistical Directorate singles out from all the workers only persons of the main nationality (Uzbeks) in the one-time registrations.

in the textile (57.5 percent), light (56.0 percent), food (45.4 percent), and oil (43.0 percent) industries. In machine building, it reached 18.3 percent (+ 2-3 points) in comparison with 1973, and in the chemical industry -- 20 percent (+1.7 points). As can be seen, the tendency, noted in the Sixties, also developed steadily during the 9th and 10th Five-Year Plans.

The growth in the number of national cadres by attracting rural inhabitants to production was also a direct result of the new work forms which the collectives of a number of industrial enterprises are using.

In the Tashkentskiy Textile Combine, the proportion of local cadres as part of the workers had not reached 20 percent by the beginning of the Sixties. The situation became worse after the 1966 earthquake and due to the opening of textile combines in the republic's oblast centers. It managed to improve after special bus service between the enterprises and near-by rural rayons with surplus labor resources -- the Kommunisticheskiy, Kalininskiy, Ordzhonikidzevskiy, Srednechirchikskiy, and Tashkentskiy rural rayons-- was organized on the party committee's initiative. This permitted Uzbek girls to be enlisted in the work. Each day, about 500 young girls -- representatives of the local nationalities and yesterday's kolkhoz workers -- took their work positions at weaving, spinning, carding and other textile machines. It is possible to judge the growth of national cadres in the Tashkentskiy Textile Combine from the data in Table 2 which testifies that their proportion in the number of workers in the combine grew more than twofold and the number of Uzbek women -- almost fourfold.

Table 2. Proportion of Persons of Local Nationality in the Number of Workers at the Tashkentskiy Textile Combine*

	1966	1970	1973	1975	1975 [sic]	1979
Total of persons of local nationality	17.1	20.4	29.9	31.9	36.4	40.3
including Uzbeks	14.1	13.4	23.2	24.7	37.2	31.6
Males of local nationality	10.1	11.5	12.5	13.0	14.9	14.4
including Uzbeks	9.4	10.6	11.0	11.5	11.9	12.7
Females of local nationality	7.0	8.4	17.4	18.9	21.5	25.9
including Uzbeks	4.7	6.8	12.2	13.1	15.2	17.9

* The table was compiled based on data from the work and wages section of the Tashkentskiy Textile Combine for 1 January of each year.

True, the personnel problem at the combine has still not been completely solved; a shortage remains. Not all workers have high indicators in labor productivity and good discipline at first. The percent of fluctuation in the enterprises is great. However, the positive prospects for a pendulum migration to draw female kolkhoz workers into the ranks of the working class are undoubted. It is important to point out that the parents of the Uzbek girls regard these social changes positively.

An analysis of the republic's social and economic life shows that the migration of labor resources from the village to the city is in the formation stage. Nevertheless, with each year it exerts a transforming effect on an ever greater number of people. Many rural inhabitants, when they are included in industrial production, rapidly adapt to the new conditions and achieve high indicators in work.

The name of Dil'bar Kul'matova is known today not only in Uzbekistan. She arrived in Tashkent from Akkurgan in 1970 after finishing a secondary school. A year of studies in a professional technical institute -- and Dil'bar became a worker in the Tashkentskiy Textile Combine. The young weaver very soon became one of the combine's best production workers and the initiator of and participant in work initiatives. She began to service 48 weaving machines when the typical norm was 24. Today, Dil'bar is a deputy to the USSR Supreme Soviet, a Leninist Komsomol prize winner, and a Vinogradov sister; she has been awarded the order "Badge of Honor." She combines her work with studies in the Tashkentskiy Institute for the Light and Textile Industries without giving up work. Her three sisters are also working in the combine.

The Mavliyev family of airplane builders, whose parents were agronomists, enjoys widespread fame in the republic.⁴⁸ Rural inhabitants -- the three Yuldashev brothers -- have also founded a dynasty of miners. The oldest one -- Babanazar -- has been awarded⁴⁹ the orders of Lenin and the Labor Red Banner for his many years of heroic work.

The need to expand the training of qualified worker personnel from the local population, especially from the rural youth in the republics⁵⁰ of Central Asia, was emphasized again in the decisions of the 26th CPSU Congress.

Along with the steady growth trend in national cadres within the composition of Uzbekistan's workers, the speeding up of scientific and technical progress and the industrialization and urbanization of the country are accompanied by the internationalization of all public life. The composition of the working class' republic detachments is becoming more and more multinational.

For example, workers of 45 nationalities are working in the Almalykskiy Mining and Metallurgical Combine; of 41 -- in the Tashkentskiy Textile Combine; of 32 -- in the Chirchikskiy Electrochemical Combine; of 30 -- in the Bekabadskiy Cement Plant; and of 27 -- in the Tashkentskiy Plant imeni the October Revolution.⁵¹ Qualified specialists who have arrived from the RSFSR, the Ukraine and Belorussia, are actively contributing to the accelerated development of productive forces and to the formation and improvement of the training of worker cadres.

Some authors justifiably think that it is illegal to call the republic's worker detachments national detachments because this socialist class was formed in the republics from the beginning on an international basis, being an integral component of the USSR working class -- the leading social force of the indestructible unity of the Soviet people. It seems that it is more correct to classify them as republic detachments of the working class (RSFSR workers, Ukrainian SSR workers, etc.)⁵² It is necessary to emphasize that it is the working class which embodies the international unity of the Soviet Union's worker detachments and which is exerting a growing influence on improving the social uniformity of the nations and nationalities which form a single Soviet people.

The able-bodied population, not employed in public production, is an important source and reserve for replenishing the USSR working class, including that of the UzSSR. However, this reserve had basically been exhausted in the country as a whole by the end of the Sixties. Whereas, more than half of the increase in workers in public production (53 percent) had been obtained from 1961 to 1965 by including in it persons engaged in housekeeping or in the private auxiliary economy, there were twice as many fewer in the next five year period (1966-1970).⁵³ Of the 130.5 million working age individuals, those employed in the national economy and students were 120.6 million individuals or 92.4 percent in 1970 as opposed to 82 percent in 1959. The number of persons engaged in housekeeping and the private⁵⁴ economy decreased from 17.9 million in 1959 to 5.9 million individuals in 1970.

When defining the prospects for drawing the able-bodied population into production, the 25th CPSU congress pointed out that the problem of using labor resources during the Eighties⁵⁵ would become even more acute because of the decrease in their natural increase. This proposition was again emphasized during the 26th CPSU Congress. It is sufficient to say that, during the period 1981-1990, the total growth of the working age population will decline to 3.8 percent as opposed to 18 percent in 1971-1980. However, the unfavorable demographic situation, which is taking shape, does not affect a number of republics with high natural increases and the presence of a significant portion of able-bodied people not employed in the national economy. Speaking on 22 September 1978 in Baku on the occasion of the presentation of the Order of Lenin to the city, L. I. Brezhnev pointed out that in Azerbaijan and the other republics of the Caucasus, as well as in Central Asia, a considerable portion of the able-bodied population had still not been drawn into public production.⁵⁶ Basically, this consisted of women who had never worked in the national economy or who had left an enterprise after marriage and who were engaged in raising children and housekeeping or in the private economy.

In the UzSSR, the inadequate drawing of the unemployed able-bodied population into public production is typical not only of rural areas but also of cities. At the end of the Sixties, the proportion of this category of the population was 30 percent in the urban population centers of Tashkentskaya, Andizhanskaya and Bukharskaya Oblasts and more than 40 percent in Syrdar'inskaya Oblast.⁵⁷ At the same time, 92 percent of the non-working people of working age in Tashkent were women; of them, 80 percent had children. A similar situation was also observed in other cities. This is one of the reasons why Uzbekistan, just as other Central Asian republics, considerably lags behind several union republics based on the

proportion of women in the total number of workers and employees. Thus, whereas for the USSR on the whole and for the Latvian SSR, the Estonian SSR, and the Belorussian SSR this indicator in 1970 was equal to 51-53 percent; for⁵⁸ the Uzbek SSR, the Turkmen SSR and the Tajik SSR it ranged from 38 to 41 percent.

The question of drawing women into production is a complicated social problem. It requires the development of scientifically based recommendations for the country's different rayons with a consideration of their specific natures. This problem is especially acute for the Central Asian region where the percent of families with many children is high. This is mainly typical of the indigenous nationalities.

In the Seventies, guided by the decisions of party and soviet organs, the work collectives of individual enterprises began to use new ways and methods to draw women to production. The Kokandskiy Stocking Knitting Combine has experienced a shortage of personnel for a long time. In accordance with a decision of the party and trade union organizations, the shop chiefs and other section and service leaders were sent to the Makhallinskiye committees to attract the housewives to work. Considering that the majority of those not working were mothers with many children, the enterprise made arrangements for their children in pre-school establishments and organized the women's training in work professions. As a result, it turned out that there were rather a lot who desired to work in the combine. Additional city bus routes, especially to remote rayons, were set up with help of the party's gorkom and the gorispolkom, and eating was arranged in the enterprise's dining hall. All this permitted the combine to end the personnel shortage.⁵⁹

When performing the great deal of work to draw women into public production, the Central Committee of the Communist Party of Uzbekistan strengthened control over the performance of political and indoctrinational work among them on the spot. In May 1970, the tasks of Uzbekistan's party organization in further improving the activity of women in the construction of communism were discussed during the 18th Plenum of the Communist Party's Central Committee.⁶⁰ Considering that a significant part of them were not being drawn into public production because of the shortage of pre-school establishments, the Central Committee of the Uzbek Communist Party and the UzSSR Council of Ministers adopted on 2 October 1970 the resolution "On the Condition and Further Development of Public Pre-School Education in the Republic" which planned for the number of places in kindergartens and day nurseries to be brought to 407,800 in 1970 and 735,000 in 1975.⁶¹

The 18th congress⁶² and the 6th Plenum of the Central Committee of the republic's Communist Party,⁶³ the 25th CPSU Congress, and the 19th Congress of the Communist Party of Uzbekistan played an important role in solving the problem.

As a result of the large organizational work, definite positive changes for the better in attracting women to production activity in the various branches of the republic's national economy occurred during the Seventies. Whereas the proportion of women in the total number of workers and employees in Uzbekistan was equal to 40 percent in 1965, it was equal to 43 percent in 1976; when compared to the all-union indicators, the deviation decreased from ten to eight points.

However, this indicator continued to remain relatively low for indigenous nationalities even in branches where female labor is widely used. The providing of industrial enterprises and construction organizations with worker personnel is linked to a definite degree with the drawing of women into the service area. In Uzbekistan the proportion of female workers in such branches of the service area as state trade and public catering was much lower than in the majority of the other republics and the Soviet Union as a whole. In 1970, female workers in the country's trade and public catering system reached 91 percent of the total number employed, but in Uzbekistan -- 57 percent.⁶⁴ This indicator was especially insignificant in such oblasts as Namanganskaya (25.4 percent), Kashkadar'inskaya⁶⁵ (33.4 percent), Andizhanskaya (38.9 percent) and Samarkandskaya (40.9 percent).

It is quite evident that the drawing of women into the trade and public catering organization would permit the freeing of a significant number of men who could fill up the ranks of industrial workers. New tasks in this area have been assigned to the republic by the 26th CPSU Congress and the 20th Congress of the Communist Party of Uzbekistan.

As was pointed out in the report of the CPSU Central Committee to the 26th Congress of the Communist Party of the Soviet Union, "a number of measures to improve working conditions for working women, family relaxation and personal and cultural services were adopted in the 10th Five-Year Plan ...; however, ... a noticeable change has still not occurred."⁶⁶ In connection with this, the congress outlined ways to improve this work further during the 11th Five-Year Plan, pointing out the need to consider carefully the distinctive features of the situation in the different republics and rayons.

The decree of the CPSU Central Committee and the USSR Council of Ministers, "On Measures To Improve State Aid to Families Who Have Children"⁶⁷ will play an important role in the further attraction of women to public production.

An analysis of the basic directions of the activity of party Soviet and economic organs in Uzbekistan permits the conclusion to be drawn that definite positive experience in the rational use of labor resources was acquired in the republic during the Sixties and Seventies. Industrial enterprises were established in the thickly populated rayons of the republic and in rural rayons, the prospects for using a pendulum migration to replenish the ranks of industrial workers with rural area inhabitants were outlined, and efforts were made to attract unemployed able-bodied people, especially women, to industry.

All this contributed to intensifying the integration processes, improving the republic's social structure, and increasing the work activity of all classes and social groups.

At the same time, the available experience requires further development and improvement since Uzbekistan, just as the other Central Asian republics and a number of rayons in the Caucasus, is one of the regions where a considerable proportion of the country's labor resources is concentrated at the present time. The drawing of these reserves into public production, including all-union industry, is one of the most important social and economic tasks assigned by the 26th party congress.

FOOTNOTES

1. "Regional'nyye Problemy Vosproizvodstva Rabochey Sily v Uzbekistane" [Regional Manpower Replacement Problems in Uzbekistan], Tashkent, 1965; G. A. Shister, "Promyshlennyye Rabochiye Uzbekistana (Izmeneniya v Chislennosti i Sostav)-1959 - 1970" [Uzbekistan's Industrial Workers (Changes in Number and Composition), 1959 - 1970], Tashkent, 1975; K. Bedrintsev, N. Nishanov, and A. Trubnikov, "Small Cities in the Replenishment of Uzbekistan's Productive Forces", KOMMUNIST UZBEKISTANA, no 8, 1977; V. V. Mikheyeva, "Trudovyye Resursy Malykh i Srednikh Gorodov Uzbekistana i Perspektivny Ikh Ispol'zovaniya" [The Labor Resources of Uzbekistan's Small and Medium Cities and the Prospects for Their Use], author's essay dissertation for candidate of economic sciences, Tashkent, 1975; O. B. Ata-Mirzayev, "Regional'noye Prognozirovaniya Rasseleniya i Upravleniya Protessom Urbanizatsii" [Regional Forecasting for Settlement and Control of the Urbanization Process], Tashkent, 1979; "Sotsial'nyye Problemy Razvitiya Proizvoditel'nykh Sil Uzbekistana" [Social Problems in the Development of Uzbekistan's Productive Forces], Tashkent, 1980.
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3. "Itogi Vsesoyuznoy Perepisi Naseleniya 1970 Goda" [Results of the 1970 All-Union Population Census], Vol 5, Moscow, 1973, p 29.
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6. M. N. Rutkevich, "Tendentsii Razvitiya Sotsial'noy Struktury Sovetskogo Obshchestva" [The Tendencies in the Development of the Social Structure of Soviet Society], Moscow, 1975, p 38.
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8. UDARNIK (organ of the party committee, trade union committee, Komsomol committee, and board of directors of the Tashkentskiy Aviation Production Association imeni V. P. Chkalov,) 15 January 1969.
9. ANDIZHANSKAYA PRAVDA, 4 September 1979
10. NAMANGANSKAYA PRAVDA, 1 May 1979
11. "Sotsial'noye Razvitiye ..." op. cit., p 26

12. Ibid., p 21
13. "Naseleniye SSSR Po Dannym Perepisi 1979 G." [The Population of the USSR Based on 1979 Census Data], Moscow, 1980, p 3 .
14. Ibid., p 4.
15. Ibid.
16. "Narodnoye Khozyaystvo Uzbekskoy SSR v 1979 G. Statist. Yzhegodnik TSSU Uzbekskoy SSR" [The National Economy of the Uzbek SSR in 1979. Statistical Yearbook of the Uzbek SSR Central Statistical Directorate], Tashkent, 1980, p 6.
17. O. Apostolov, "Urgent Problems in the Professional Orientation of Youth", KOMMUNIST UZBEKISTANA, No 2, 1979, p 43.
18. Cf. Marx and Engels, op. cit., Vol 19, p 345.
19. "XIX S'yezd Kommunisticheskoy Partii Uzbekistana. Stenogr. Otchet" [The 19th Congress of the Communist Party of Uzbekistan. Stenographic Report], Tashkent, 1978, p 40.
20. PRAVDA VOSTOKA, 11 June 1977.
21. Ibid., 14 March 1976.
22. "Report of the Central Committee of the Communist Party of Uzbekistan to the 20th Congress of the Communist Party of Uzbekistan. Report of Sh. R. Rashidov, candidate member of the CPSU Central Committee Politburo and first secretary of the Central Committee of the Communist Party of Uzbekistan", PRAVDA VOSTOKA, 4 February 1981.
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24. Ibid.
25. Calculated based on "Trudovyye Resursy Uzbekistana" [Uzbekistan's Labor Resources], Tashkent, 1970, p 63.
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30. Ibid., 5 February 1981.
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34. Calculated based on "Administrativno - Territorial'noye Deleneye Uzbekskoy SSR [The Administrative Territorial Division of the Uzbek SSR], Tashkent, 1975 p 260.
35. Akhmedov, op. cit., p 60.
36. "Narodnoye Khozyaystvo SSSR za 60 Let. Yubileynyy Statist. Yezhegodnik" [60 Years of the USSR National Economy. Jubilee Statistical Yearbook], Moscow, 1977, pp 50 and 53.
37. PRAVDA VOSTOKA, 2 May 1979.
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44. "Itogi Vsesoyuznoy Perepisi Naseleniya 1979 Goda" [The Results of the All-Union 1979 Population Census], Part 1, Tashkent, 1980.
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56. L. I. Brezhnev, "Leninskim Kursom.Rechi i Stati" [Leninist Course. Speeches and Articles], Vol 7, Moscow 1979, p 472.
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60. PRAVDA VOSTOKA, 22 May 1970.
61. Ibid., 11 October 1970 and 17 February 1972.
62. Ibid., 3 Mar 71.
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64. "Itogi Vsesoyuznoy Perepisi Naseleniya 1970 Goda" ... op. cit. Vol 6, Moscow, 1973, pp 166-236.

65. Shister, op. cit., p 123.
66. L. I. Brezhnev "Ochetnyy Doklad Tsentral'nogo Komiteta KPSS XXVI S'yezdu Kommunisticheskoy Partii v Oblasti Vnutrenney i Vnezhney Politiki" [Report of the CPSU Central Committee to the 26th Congress of the Communist Party of the Soviet Union in the Area of Domestic and Foreign Policy], Moscow, Politizdat, 1981, p 74.
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DEMOGRAPHY

DEVELOPMENT OF CITIES IN OIL, GAS REGIONS IN WEST SIBERIAN PLAIN

Moscow GOROD V SIBIRI in Russian 1980 pp 174-184

[Excerpt from book "Cities in Siberia", Izdatel'stvo "Mysl'"]

[Excerpt] The resolutions of the 25th CPSU Congress in Western Siberia provided for "continuing formation of the largest territorial production complex: the country's main base for oil and gas production...; continuing construction of the Tomsk petrochemical combine; expanding construction of the Tobol'sk petrochemical complex; building gas processing plants, a pipeline system for transporting oil and gas and a Surgut-Nizhnevartovsk railroad; initiating construction of the Surgut-Urengoy railroad".

Of the large group of problems involved in developing cities in the oil and gas regions of the West Siberian plain, we shall consider the key one below: optimal organization of the system of settling under conditions of an unfavorable (and in many regions extreme) natural environment and extremely low level of territorial development. The search for methods of resolving this problem comprised the basic content of scientific and planning work to form a system of cities in the oil and gas regions of the West Siberian plain over the past few years.

The main singularities of the city formation base which determine the formation of settlement systems in these regions are the following: widely scattered working locations within deposits, along pipeline mains, at compressor station locations, industrial bases and other facilities and equipment; the small population associated with each of these working locations; transience of a significant portion of the personnel -- drilling and construction organization workers, whose work locations move around as various deposits are built up and others are undertaken; rapid obsolescence of forecasts and plans for deployment of the city formation base, which is associated with sufficient geological study and systematic updating of all plans for mastering deposits as geological exploration data are refined and deposits are discovered which are more promising or effective in terms of technical-economic indicators.

The transience of city-building personnel presents the main difficulty in forecasting the prospects of development of populated areas in oil and gas regions. The mastery and exploitation of deposits includes several stages which differ in duration: the exploration of a gas deposit usually lasts from

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1 to 3 years, and 2 or 3 years for oil deposits; construction takes between 5 and 8 years, and exploitation lasts no more than 20-50 years. According to the analysis of Lenniipgradostroitel'stvo, the long-term structure of personnel in oil worker cities changes in the following manner as deposits are mastered and exploited (cf. Table 14).

Table 14. Personnel Structure in Oil Worker Cities, Percent (According to V.V. Kadnikov et. al., 1973)

<u>City Formation Branches</u>	<u>City Development Periods Starting With</u> <u>Mastery of Deposits</u>		
	<u>Preparatory</u> <u>(8-10 Years)</u>	<u>Exploitation</u> <u>(30-50 Years)</u>	<u>End of Exploitation</u>
Oil production	35-40	40-45	-
Transport	10-15	20	15
Construction	50	30	20
Replacement branches	-	3-5	55
Other	2-3	5	10

By the time a deposit has been completely or partially worked out, replacement branches must be developed within a city (which is improbable in areas with extreme or unfavorable environmental conditions); otherwise deterioration of its city-formation base is unavoidable. An even greater element of ambiguity is introduced into forecasts by insufficient geological study and frequent changes in the technical-economic evaluation of deposits. Technological branch institutes have accepted the practice of listing the main portion of long-term production to "other deposits", which are presumed to be discovered during subsequent explorations and planning, which sidetracks the choice of optimal schemes for the placement of populated locations. Furthermore, the schemes for mastery of deposits are continually refined.

According to the original long-term forecasts for the development of oil production in Sredniy Priob', the main production of oil was planned for the Surgut and Ust'-Balyksk industrial centers, where there were provisions for the main city formation and transportation, respectively; however, after the Samotlorsk deposit was discovered, the oil production center moved 250 kilometers east of Surgut to the Nizhnevartovsk region. In this connection, the calculated size of the population was cut in half in the general plan for Surgut, which was executed in 1969; the choice of areas for city development was reexamined, and the transportation and engineering communications were clarified. However, as a result of the subsequent discovery of the Fedorovsk and other deposits it became necessary to reexamine the general plan for Surgut, increasing the calculated size of the population.

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Development of the Igrim-Berezovsk industrial region in the original regional planning scheme drawn up in 1968 was foreseen on the basis of the Punginskoye gas deposit, with the mastery of which the construction of the Nizhneobsk timber complex was associated. With the discovery of the Medvezhyeye, Urengoykoye and other deposits, mastery of the Punginskoye deposit was deferred, which made it unrealistic to construct the timbering complex in view of the low level of development of the territory.

Cases of instability of branch forecasts and plans prompted city-building planning and scientific-research organizations (Giprogor, Lenniipgradostroitel'stvo) to come out with special propositions consisting essentially of developing a settlement system which is dynamic in both time and space and which is brought about as the region is developed and which includes a combination of stable and mobile elements. This system must function effectively when the city formation base is unstable.

Provision for functional zoning is required for the entire territory of the West Siberian plain (cf. Figure 4), isolating the following:

- key settlement zones in regions with comfortable climatic conditions, where integrated development of industry is possible (including raw material processing, rear construction bases, production of equipment for oil and gas industry, transportation facilities suitable for conditions in the northern portion of the West Siberian plain, etc.), as well as the creation of major urban settlements;
- stable (permanent) settlement zones along the communications corridors, which have the greatest and stablest city formation potential. It is essential to note that while the main communications directions used to follow navigable rivers, they are now associated to a greater extent with major transportation routes (railroads, highways, pipelines), where optimal conditions exist at waterway intersections for the occurrence of stable urban settlements;
- mobile settlement zones within oil and gas deposit regions with uncomfortable climatic and other environmental conditions where the city formation base is unstable.

Within these zones, it is good practice to plan for the following basic types of populated areas:

- key cities -- the largest urban formations in regions with relatively favorable environmental conditions to the south of the extreme zone (Tyumen', Tobol'sk; possibly Surgut, Nizhnevartovsk);
- base cities -- larger populated points in the North, where industrial, construction and transportation-distribution enterprises are concentrated which service dependent oil and gas regions;

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-- watch settlements -- stationary, well organized populated points at deposits and near line and other structures for shift personnel (watches);

-- mobile settlements -- temporary populated points consisting of standard factory-built structures (movable, containerized, fully transportable, and knock-down modular structures with increased comfort level) for settlements of builders and drillers; these can be put together separately, or as component parts of stationary-type populated areas.

The most important item in finding an optimal settlement system for the regions of the West Siberian plain is to find the most efficient degree of centralization of this system, and to determine the efficiency of using the expeditionary and watch methods of mastery in order to reduce capital investments, to increase the social-cultural support level and to settle the smallest possible number of people under uncomfortable conditions.

Different plans (Feygina, 1972) contain settlement versions for northern regions which differ in principle (cf. Figure 5).

Version 1 (external settlement) provides for locating a base city in a southern support zone under comfortable conditions, carrying shift personnel by air to a central watch village, then using local air and ground transport from the watch villages to the deposits (expeditionary method).

Version 2 (centralized internal settlement) includes:

- sub-version "a", with a base city in northern regions;
- sub-version "b", with two base cities in northern regions (watch method).

Version 3 (internal, relatively dispersed settlement) provides for creating a large number of smaller base cities in the northern zone.

The following are the advantages and disadvantages of these versions:

-- version 1 (external settlement) provides good living comfort for most of the population, sharply reduced expenditures for housing and service construction, which compensate for the cost of shift transportation; the shortcomings include the long time spent by shift personnel away from their families, difficulties of personal acclimation and re-acclimation, and insufficient reliability of regular air transport under the conditions of the North;

-- version 2 ("a" and "b") (centralized internal settlement in one or two base cities in the north) provides for relative concentration of the population and a relatively high service level; the aforementioned shortcomings of the external settlement version are overcome, but the entire population must live under extreme environmental conditions, and the construction cost is high;

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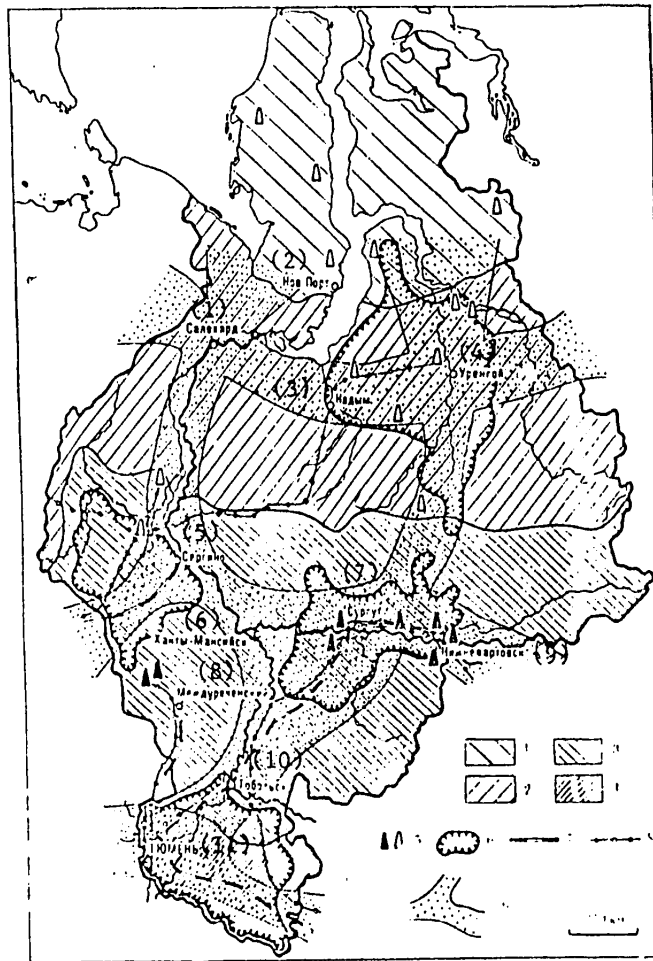


Figure 4. Key, stable and mobile settlement zones within West Siberian plain

Key:

- | | |
|--------------------|---------------------|
| 1. Salekhard | 7. Surgut |
| 2. Nov. Port | 8. Mezhdurechenskiy |
| 3. Nedym. | 9. Nizhnevartosk |
| 4. Urengoy | 10. Tobol'sk |
| 5. Sergino | 11. Tyumen' |
| 6. Khanty-Mansiysk | |

Medical-geographic zones: 1 -- extreme; 2 -- uncomfortable; 3 -- relatively favorable; 4 -- favorable. Industry: 5 -- oil and gas deposits; 6 -- main
 [Caption continued on following page.]

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industrial regions. Communications: 7 -- railroads; 8 -- pipelines.
 Settlement: 9 -- planned axes--support (south) and stable (north) settlement
 strips (settlement primarily mobile in remaining territories in extreme
 and uncomfortable zones)

-- version 3 (internal, relatively dispersed settlement) is least
 successful. It combines all of the shortcomings of version 2 ("a" and "b")
 with the low cultural service level which is unavoidable in creating small
 city formations. Table 15 compares these versions in terms of technical and
 economic indicators.

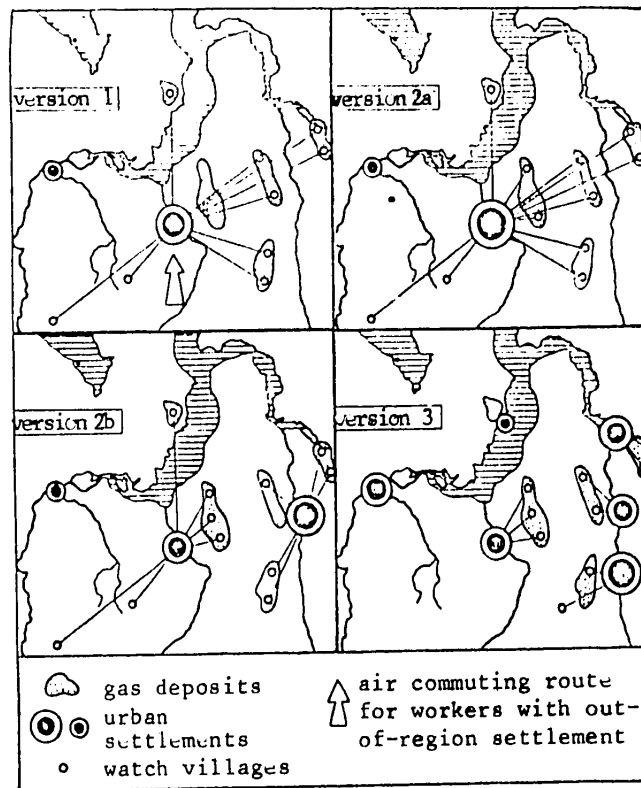


Figure 5. Versions of settlement in northern regions

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Table 15. Comparison of Northern-Region Settlement Versions, Millions of Rubles (According to E.Ya. Feygina, 1972)

<u>Objects of Expenditure</u>	<u>Settlement Versions</u>			
	<u>1</u>	<u>2a</u>	<u>2b</u>	<u>3</u>
Additional capital expenditures				
Cities	-	571.0	555.0	585.0
Watch villages	6.5	4.5	4.5	-
Transport	1.8	-	11.1	18.9
Total	8.3	575.5	570.6	603.9
Additional operating expenses				
Cities	-	43.0	44.0	52.0
Watch villages	0.5	0.3	0.3	-
Transport	10.9	8.9	7.1	-
Additional expenses associated with personnel transience	-	25.0	25.0	25.0
Total	11.4	77.2	76.4	77.0
Reduced expenditures (normative factor 0.12)	12.4	146.2	144.9	150.0
Increased cost over version 1	-	133.8	132.5	137.6

Analogous conclusions are reached from analyzing other possible versions of settlement in the oil and gas regions of Siberia: concentrating the population of the northern zone in two, three or four cities, etc. In all analyses, it is least effective to decentralize the construction of small villages at deposits in oil and gas producing zones using the field-village principle; it is significantly more efficient to construct large base cities, sending watches to the deposits.

To give an idea of the possible expenditures, a special comparison was made of the expenditures involved in the decentralized construction of small villages (without watches) and a base city with watch villages using the example of development of a group of gas deposits in a northern zone.

In the non-watch method, the creation of 20 small populated points numbering between 700 and 30,000 individuals each was provided for settling 100,000 people involved in producing and transporting gas. It was assumed that these populated points can be located at the workload centers and are connected by

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ground transport to nearby working points (fields, compressor stations, etc.) within a 70-80 km radius (1.5 hour travel time).

In the watch method, there were provisions for constructing a single 100,000-resident city within a 90-400 km radius (2- or 3-hour travel time or longer) plus 30 watch villages near the deposits.

The increased cost of domestic and service construction in the decentralized construction of small villages (without watches) is associated with the increased cost of construction due to being scattered over many populated points, and especially because of the money which is unavoidably wasted when it is impossible to use the domestic and service funds of small single-type villages once the deposits have been worked out.

The increased cost of domestic and service construction in the centralized version results from the construction of additional watch villages; however, this increase is relatively small because only about 18% of the population has to commute to the deposits (the others are employees working at base enterprises and in the service area, as well as families); in addition, the watch crews work two shifts, so the amount of living space set aside for them in dormitory-type facilities at the watch villages can be half that required in the base city, and the dormitories themselves can be built to less exacting standards.

Analysis of transportation costs, assuming use of helicopters to the watch villages and ground transport (buses) in the non-watch system, shows that in the watch system these expenses are higher (due to helicopter operation); however, this increase amounts to only a small portion of the total expenses for the version (cf. Table 16).

On the whole, if throw-away expenses upon exhaustion of deposits are disregarded, the watch system is slightly more expensive (due to helicopter operation and watch village expenditure); however, this increase amounts to only 5% of the total. Allowing for throw-away expenditures (which are unavoidable, which is confirmed by all development experience), the increased cost for dispersed construction of small villages without watches amounts to as much as 36%, or over one-third of the total expenses, which allows us to consider this construction as extremely inefficient.

Experience from planning and developing oil and gas regions in the West Siberian plain provides convincing evidence that without purposeful formation in these regions of a system of populated locations, along with the production and social infrastructure, increasing national economic and social losses are unavoidable which are exacerbated by the complexity of the environmental and planning situations.

Planning and analysis which have been done indicate the requirement for forming a settlement structure which flexibly combines stable, mobile, key, base and

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Table 16. Comparison of expenditures using watch and non-watch settlement systems in northern regions (in percent of expenditures for non-watch settlement system, disregarding throw-away expenditures)

<u>Types of Expenditures</u>	<u>Settlement System</u>	
	<u>Non-Watch</u>	<u>Watch</u>
City construction, watch construction, transportation expenses (capital expenditures and operating costs over 15 Years)	100	105
Throw-away expenses in villages with unstable city-formation base	36	-
Total, allowing for throw-away expenditures	136	105

watch villages. The technical-economic and social effectiveness of centralizing the settlement system and concentrating construction as much as possible in a few properly located, relatively large and completely well arranged base cities, is fully confirmed.

In addition to its major advantages, external (expeditionary) settlement also has shortcomings. Extensive use of this method requires appropriate scientific-planning preparation and experimental verification. This settlement version can be implemented gradually, so that the residential base which is built up in northern base locations can subsequently be used to house shift personnel.

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