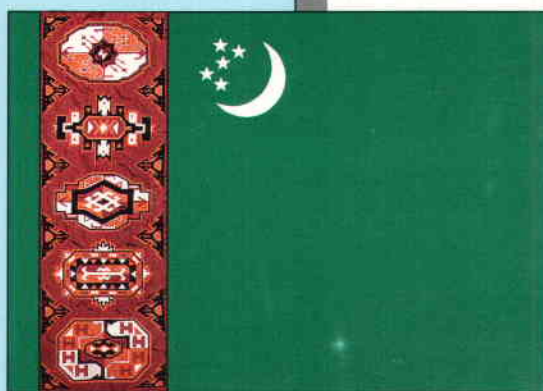


Turkmenistan

An Economic Profile



December 1993

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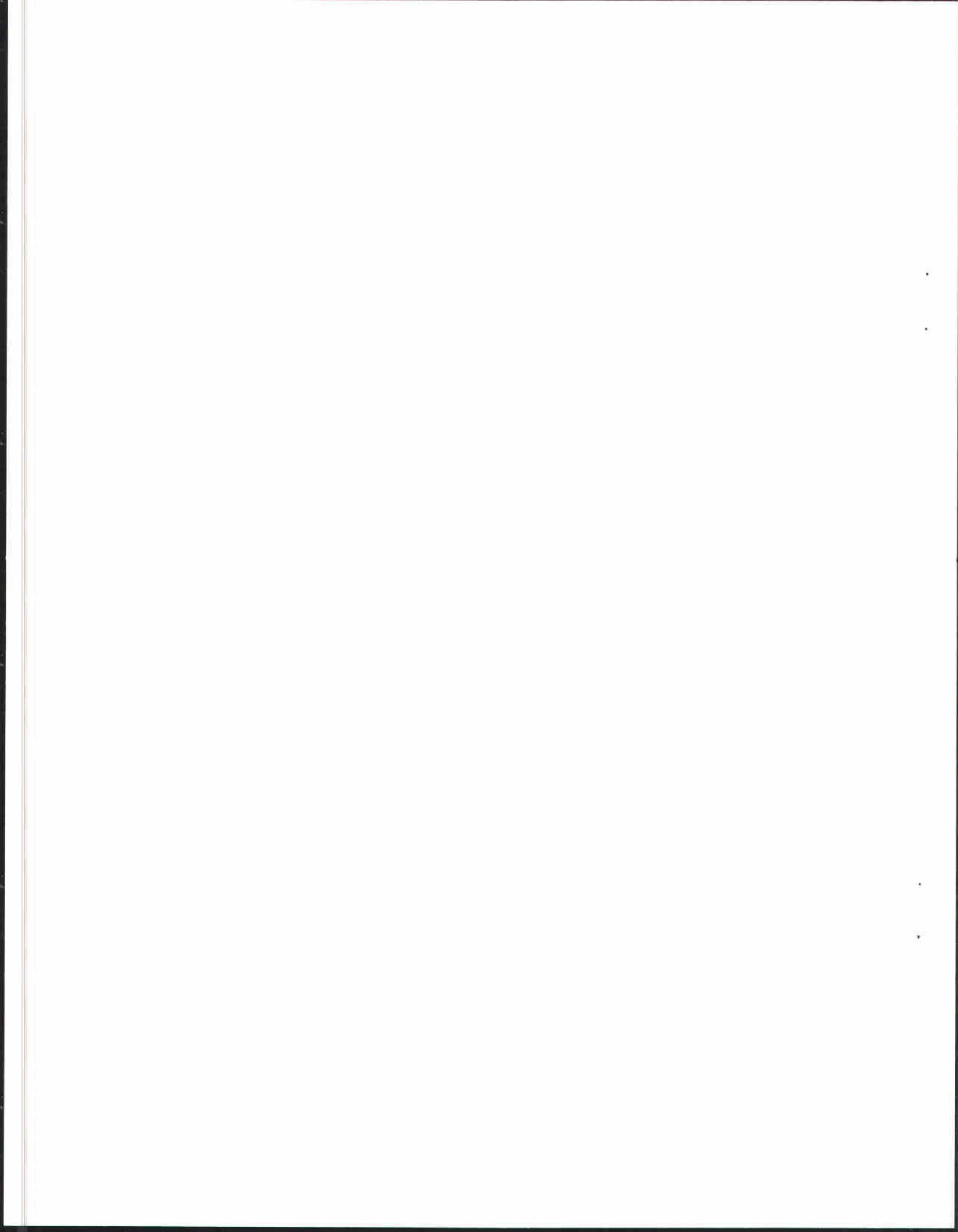
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Turkmenistan: An Economic Profile

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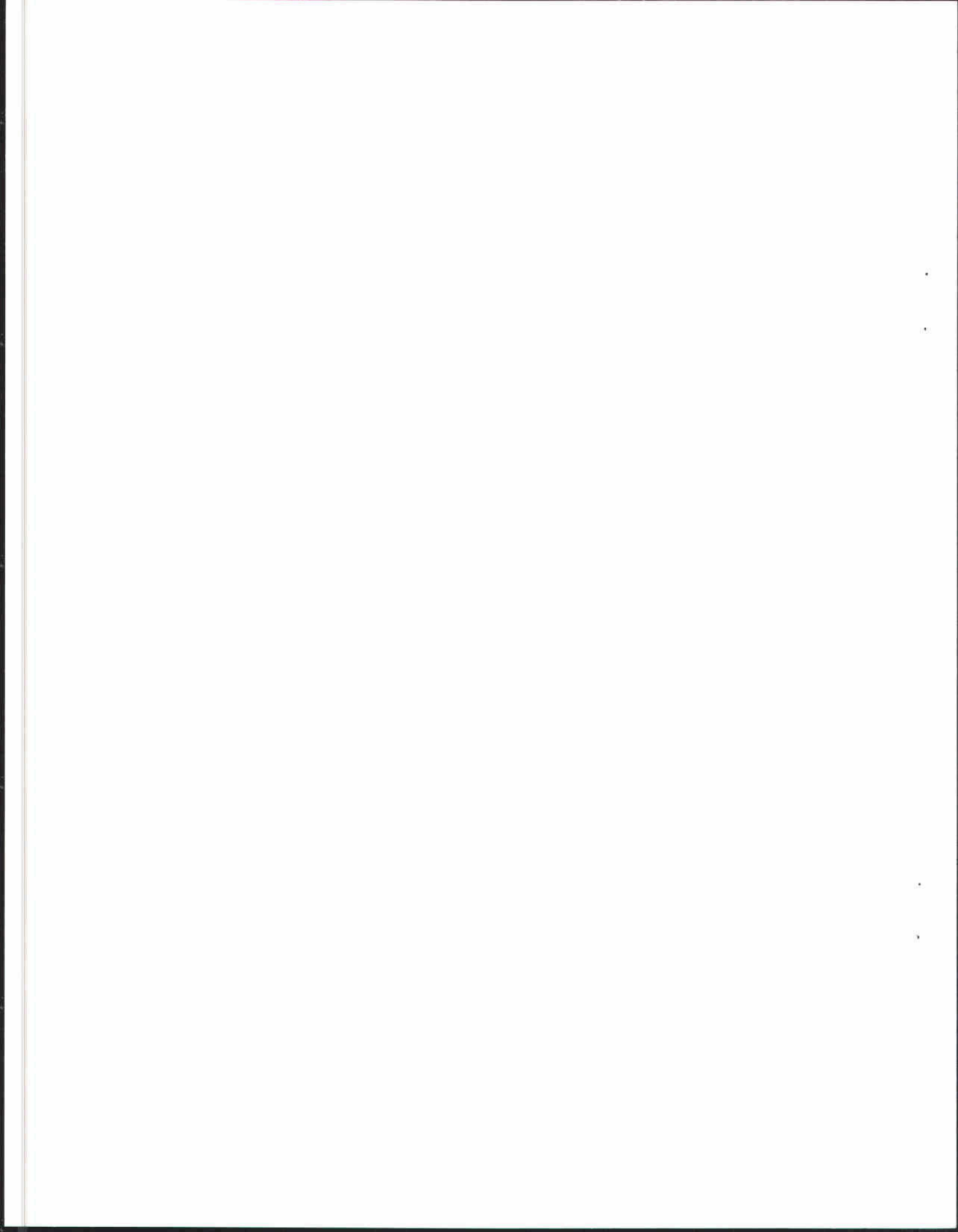
Turkmenistan: An Economic Profile

Preface

This is one of a series of profiles on the republics of the former Soviet Union that are intended to provide basic reference material as a backdrop for assessing future developments in these new states. The profile provides a description of the geography, population, and economy of Turkmenistan and compares its level of development, growth, and social welfare with that in Turkey and Mexico.

International comparisons, particularly for aggregate measures such as GNP, are difficult to make because of differences in definitions and methods used by various countries in compiling statistics. International currency exchange rates are deficient for this purpose because they do not reflect relative purchasing power of different currencies over the whole range of output of goods and services included in GNP. Because of the lack of these parities, alternative measures have been selected. These measures include primarily data for which comparable international statistics were available.

For the most part, official statistics in the public domain were used in compiling the tables and other numerical entries. The annual statistical abstracts for Turkmenistan, *Narodnoye Khozyaystvo Turkmenskoy SSSR*, (*National Economy of Turkmenistan SSR*), 1989 and 1990 were the most important sources of data. Extensive use was also made of *Strany-chleny SNG: Statisticheskiy ezhegodnik* (Statistical Yearbook of the Members of the Commonwealth of Independent States), 1992; *Trud v SSSR* (Labor in the USSR) and the *Perepis' naseleniya, 1989* (Population Census). Reference country comparisons relied on the information found in their yearbooks and in various UN and OECD publications covering national accounts, food consumption, and the like. More detailed data on the profile states are included in the appendix.



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Figure 1
Turkmenistan



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Turkmenistan: An Economic Profile

Geography and Climate

Turkmenistan was the fourth-largest republic in the former USSR. At 488.1 thousand square kilometers, it is slightly larger than California. It is situated almost equidistant between the Atlantic and Pacific Oceans and occupies the southwest corner of what formerly was Soviet Central Asia.¹ The territory of Turkmenistan extends from the shores of the Caspian Sea in the west to the Amu Darya along the border of Uzbekistan in the east. In the north, Turkmenistan is bounded by Kazakhstan and by the Karakalpak Republic of Uzbekistan; to the south, high mountains (including the Kopetdag Gershi) separate it from Iran and Afghanistan. The capital, Ashgabat (Ashkhabad), and Gushgy (Kushka) were, respectively, the former Soviet Union's southernmost capital and southernmost metropolis (see figure 1).

The country's terrain is primarily an extensive flatland, sloping westward toward the Caspian Sea and the Sarygamysh Depression. More than 80 percent of its territory is formed by the Garagum (Karakum [Black Sand]) Desert, which comprises the entire central portion of the country. The desert is bounded by a series of oases watered by the Amu Darya in the north and by rivers (for example, Murgap, Tejen, Atrek) descending from the Kopetdag Gershi and other mountains in the south. The central and western regions have no significant natural waterways, but the Karakum Canal brings water from the Amu Darya west to the Mary Oasis and onward to Ashgabat. Years of intensive cotton agriculture based on irrigated waters from this canal have resulted in the gradual desiccation of agricultural lands and have contributed to the precipitous decline in the level of the Aral Sea. Water cycles have also affected northwest Turkmenistan's lagoonlike appendage of the Caspian Sea, Garabogazkol Aylagy (Zaliv Kara-Bogaz-Gol). The latter became fully enclosed

because of a drop in volume of the sea, but is beginning to rise again as the Caspian returns to previous levels. This may indirectly lessen the problems of diminishing crop yields in the region caused by increased salinity and desiccation. More fresh water will be available to the extent that the underground water table also rises with the Caspian and increased water-surface area produces greater evaporation and rainfall in the region.

Turkmenistan has a dry, continental climate, because of its location in the center of the Eurasian landmass, with relatively hot summers and cold winters. Average January temperatures vary from 25° Fahrenheit (-4° Celsius) in the north to 36° F (2° C) in the south, while mean July temperatures range from 83° F (28° C) in the north to 90° F (32° C) in the south. Summer temperatures can reach as high as 122° F (50° C) in portions of the southeast Garagum. Precipitation also exhibits wide swings. The driest areas, in the northwest, receive only 3.2 inches (80 mm) while the most precipitation, 16 inches (400 mm), occurs on the mountain slopes in the south. However, most areas receive between 4 and 8 inches (100 to 200 mm) per year. The major share of this precipitation occurs during the spring.

Because of the hot, dry climate and the desert and semidesert soils, vegetation is limited in Turkmenistan. The Kopetdag Gershi in the south is characterized by sharp contrasts in plant life. The foothills contain rich, windswept loess soil, while a strip of claylike desert lies at the base of the mountains. Light juniper forests are found from 3,270 to 8,175 feet (1,000 to 2,500 meters). In general, these mountain-steppe regions contain drought-resistant plants that come to life with spring rains. At lower altitudes, vegetation becomes sparser; however, the desert, gray-brown desert, alluvial, and clay soils all can be made agriculturally productive with irrigation.

¹Central Asia refers to the four republics of former Soviet Central Asia—Uzbekistan, Kyrgyzstan, Tajikistan, and Turkmenistan.



Although Turkmenistan is not heavily industrialized, it did contribute important resources to the former Soviet economy. Turkmenistan supplied natural gas and other natural resources and is also an important producer of cotton. As of 1989, Turkmenistan contributed more than one-tenth of the Soviet Union's annual production of natural gas, and, in 1990, Turkmenistan produced one-sixth of the former Soviet Union's cotton output. It also produces other warm-weather crops, such as fruits and semitropical vegetables.

History and Government

Settled since ancient times, the region that now comprises Turkmenistan was conquered by Alexander the Great at the end of the fourth century B.C. The next significant invasion was by Turkic tribes in the sixth century A.D. and by Islamic Arabs in the seventh and eight centuries. In the 13th century, Mongols overran Central Asia, and in the 14th century the territory of Turkmenistan became part of Tamerlane's empire. Turkmenistan was absorbed into the Russian empire in the late 19th century and, following the Bolshevik Revolution in 1917, became a union republic in 1924.

Turkmenistan issued a declaration of sovereignty on 22 August 1990 and, immediately following a referendum where 94.1 percent of the electorate voted in favor, declared independence on 27 October 1991. Turkmenistan announced it was joining the Commonwealth of Independent States on 21 December 1991. In early 1992, President Sapamurad Niyazov, the former Communist Party chief, ran unopposed for reelection (and received 99.5 percent of the vote). Since then, he has restored some Islamic practices and established relations with both Turkey and Iran.

There has been very little civil strife recently in Turkmenistan, but its boundaries with Iran and Afghanistan present potential trouble spots. At times, Turkmenistan leaders have accused Iran of making dubious claims to its territory, although plans in the 1990s are to improve surface transportation and communication between the two areas. The need to determine a scheme for managing and sharing the scarce water resources of the Amu Darya, whose source is controlled upstream by other countries, is also a potential trouble spot for the near future.

In 1939, while under Soviet rule, Turkmenistan was divided into oblasts with the creation of Ashkhabad, Chardzhou, Krasnovodsk, Mary, and Tashauz Oblasts. Since that time, there have been several administrative reorganizations. As of 1992, Turkmenistan consisted of five *welayatlar* (provinces) with 30 rayons and 13 cities.

Turkmenistan's Constitution, adopted by the legislature in May 1992, created four branches of government: an executive branch headed by a strong president; a legislature, the Mejlis; a nominally independent judiciary; and a uniquely Turkmen body known as the Halk Maslahaty, or National Council. The president, who is elected for a five-year term, appoints and dismisses the prime minister and all other members of the cabinet of ministers, as well as judges, although these rulings must be confirmed by the legislature. The Mejlis currently consists of 175 members, although this number will be reduced to 50 by the next elections, which most likely will be held in late 1994. The Halk Maslahaty is an advisory body that also ratifies treaties and constitutional amendments. Its membership includes members of the Mejlis, the President, Prime Minister, Council of Ministers, local government leaders, some representatives of the judiciary and scientific and cultural organizations, and 60 members elected directly to this body.

Local governments have very little independence in Turkmenistan. The president appoints the *hakims*, or governors, of the five *welayatlar* (provinces) and the city of Ashgabat. These *hakims* exercise considerable power. There are locally elected legislative bodies in rural areas of the country, but these appear to have little real power except on minor local issues.

Population and Labor Force

Selected Demographic Characteristics.

Turkmenistan was the fifth-least-populated former Soviet republic with 3.7 million people (1 January 1991). Its population was much smaller than that of Mexico and Turkey. Over the past decade, Turkmenistan's population grew more rapidly than

that of Mexico, largely because of its higher fertility rate. Despite Turkmenistan's higher fertility rate, its population growth rate was no greater than that of Turkey. This was due, in part, to the fact that Turkey's death rate decreased, while Turkmenistan's remained the same. As a result of lower fertility and death rates, there were fewer children and equal to or more senior citizens relative to the able-bodied population (aged 15 to 64) in Mexico and Turkey than in Turkmenistan. Females make up more than one-half of Turkmenistan's population, a somewhat higher share than in Turkey, but nearly equal to that in Mexico. Table 1 presents a selection of key population characteristics.

Turkmenistan's population had a lower life expectancy than the two reference countries. Part of the reason for this can be traced to a higher infant mortality rate. The US Census Bureau's estimated infant mortality for Turkmenistan is 72.5 deaths per 1,000 live births in 1992 compared to 30.2 in Mexico and 55.2 in Turkey.²

Turkmenistan's population is less urbanized than those of both Mexico and Turkey. In addition, Mexico has a greater portion of its total population living in its largest city, Mexico City, than either Turkey or Turkmenistan have living in their largest cities, Istanbul and Ashgabat, respectively.

In 1979, ethnic Turkmens comprised 68.4 percent of the population, and Russians comprised 12.6 percent of the population. Ten years later, owing in part to the higher fertility rates for ethnic Turkmens, their share grew to 72.0 percent, while the Russian share had declined to 9.5 percent.³

² Because of definitional differences, Turkmenistan's infant mortality rate, which is an important indicator of health conditions in any country, cannot be directly compared with other countries' rates. The reported infant mortality rates are understated, in part, because they do not include deaths in the first seven days of life after birth. The official infant mortality rate for Turkmenistan in 1991 was 47.0 deaths per 1,000 live births.

³ Uzbeks (9.0 percent), Kazakhs (2.5 percent), Tatars (1.1 percent), and Ukrainians (1.0 percent) constitute the next largest ethnic groups, with Azeris, Armenians, Balochis, Lezgins, and others comprising the balance of the population.

Table 1
Selected Demographic Statistics, Selected Years

	Turkmenistan		Mexico		Turkey	
	1979	1989	1980	1990	1980	1990
Population						
Total (thousands)	2,765	3,523	66,847	81,141	44,737	57,130
Male	1,359	1,735	33,039	39,879	22,695	28,949
Female	1,406	1,788	33,808	41,262	22,042	28,181
Average annual growth rate (percent)	2.5		2.0		2.5	
Age dependency ratios ^a (per 100 persons, ages 15 to 64)						
Total	85	79	98^b	75	78	71
Young (0-15)	77	73	91 ^b	67	70	63
Old (over 64)	8	7	6 ^b	7	8	8
Percent urban	48	45	66	73	44	61
Total fertility rate ^c (births per woman)	5.3	4.3	4.6	3.5	4.6	3.6
Life expectancy (years)	65	65	67	71	63	69
Largest cities (thousands)	Ashkhabad	401	Mexico City	13,879 ^d	Istanbul	6,407 ^e
	Chardzhou	161	Guadalajara	2,265 ^d	Ankara	3,022 ^e

Note: Because of rounding, components may not add to the totals shown.

^dData are for 1980. It is estimated that the 1991 population of Mexico City was about 20 million, which would make it the largest urban concentration in the world.

^eData are for 1989 and include some neighboring urban areas.

^aAge dependency is the number of people younger or older than the working ages (15 to 64) per 100 working-age persons.

^bBased on 1979 data.

^cTotal fertility rate represents the number of children a woman would bear in her life if she survived to the end of the reproductive ages and was subject over this period to the regime of age-specific fertility rates observed in the given country and year.

The Turkmen language, which belongs to the southwestern group of Turkic languages (and is therefore more closely related to the Azeri language than the other Central Asian languages), was originally written in Arabic script. Beginning in the late 1920s, the Latin alphabet was used, and in 1940 it was replaced with the Cyrillic alphabet. Turkmenistan now plans to restore the Latin script. As in many of the Central Asian republics, a high percentage (99.4 percent) of the titular nationality speaks its native language. Currently, the proportion of Russians in the republic who speak Turkmen is very small (less than 3 percent), but 38.6 percent of all Turkmen speak Russian. The share of Russian speakers in the total population

remained constant at about 38.6 percent between 1979 and 1989, while the share of Turkmen speakers increased by 4 percentage points to 74.7 percent.

According to official government statistics, literacy is nearly universal, and the population is considered to have attained a level of education comparable to the rest of the former Soviet Union. As of the 1989 census, 65.1 percent of the population aged 15 and over had completed secondary school, up from 45.6 percent in 1979. The share with completed higher education rose from 6.4 percent to 8.3 percent in the same time period.

Woman in ethnic Turkmen dress



Labor Force. The distribution of the labor force in Turkmenistan shows some similarities to those in Mexico and Turkey (see table 2). Somewhat over one-fifth of all workers in Turkmenistan and Turkey are employed in the industry and construction sectors compared with one-quarter in Mexico. Turkmenistan's share of agricultural employment was between Mexico's and Turkey's at more than two-fifths.

The size of the labor force as a share of the total population is slightly larger in Turkmenistan (39 percent) than in either Mexico (32 percent) or Turkey (34 percent). The higher share in Turkmenistan stems partly from much higher labor force participation rates, especially among females, that were a consequence of Soviet policies that relied on large annual infusions of labor as a means of stimulating economic growth. In 1989, more than two-fifths of Turkmenistan's state-sector work force was female compared to about one-third in Turkey and Mexico.

Another noteworthy feature of the labor force is that Russians are disproportionately represented in the traditionally higher paying sectors such as industry, transport, and "science" while Turkmen

presence in the traditionally lower paying sectors such as agriculture and education exceeds their population share. This pattern is repeated in most non-Russian republics of the former Soviet Union reflecting, in part, the earlier Soviet policy of dispatching comparatively more skilled Russians to the republics to staff new industrial enterprises (see table 3). However, average relative salaries in many sectors have changed since 1989. Thus, by 1991, employees in the agricultural sector were no longer paid below-average salaries (appendix table A-3).

Structure and Performance of the Economy

Aggregate Measures. Well-documented, aggregate measures, such as Gross Domestic Product (GDP) accounts comparable to those of the West, are not yet available for Turkmenistan. Preliminary estimates suggest, however, that industrial, agricultural, and construction activity probably contribute about three-fourths of total GDP as compared with just over half in Turkey and two-fifths in Mexico (see table 4). Trade and services may account for about one-sixth of Turkmenistan's GDP, compared to over one-third in Turkey and over one-half in Mexico.

Table 2
Distribution of Labor Force
by Sector, 1990

	Turkmenistan	Mexico	Turkey
Total national economy (million people)	1.5	26.1	19.6
Total national economy (percent share)	100.0	100.0	100.0
Industry and construction ^a	20.8	26.4	20.5
Agriculture and forestry	41.9	22.0	47.1
Transportation and communications	6.0	4.3	4.3
Trade and public dining	5.7	12.9	11.3
Credit and insurance, other services, and miscellaneous	26.6	34.4	16.8

Note: Because of rounding, components may not add to the totals shown.

^a Includes mining and quarrying industries.

A preliminary measure of Turkmenistan's domestic product among final uses (consumption, investment, and government services) differs somewhat from reference country patterns (see figure 2). According to these estimates, Turkmenistan devotes a lesser share of its GDP to consumption than does Turkey or Mexico. Moreover, the share of investment in Turkmenistan's GDP was considerably higher than in the reference countries.

Preliminary estimates for Turkmenistan suggest that GDP increased at 2.7 percent annually during the period 1981-88. This was almost 2.5 times the annual growth registered by Mexico (1.1 percent), but substantially below the 5.4 percent achieved by Turkey. Despite the overall expansion of the economy, it appears that the combined productivity of labor and capital stagnated or declined in Turkmenistan during the 1980s as compared with growth rates of 1 and 2 percent, respectively, in the public and private sectors of the Turkish economy.

Industry. Turkmenistan is relatively little industrialized, ranking near the bottom of the former Soviet republics in per capita value of industrial

Table 3 (Percent)
Ethnic Turkmen Share in State-Sector Employment, 1987

Total	59
Industry	53
Agriculture ^a	81
Transportation and communications	48
Construction	54
Trade and public dining	65
Housing—communal economy and other personal services	53
Health, physical culture, and social security	62
Education	67
Culture and art	70
Science and scientific services	48
Government administration	51

^a State farms only.

output. During the 1980s, industrial output grew at an estimated average annual rate of 2.3 percent.⁴ While approximating the rate of growth achieved by Mexico (2.4 percent), it was only one-third the rate posted in Turkey (7 percent). Industrial production in Turkmenistan rose by 4 percent in 1991 but fell 15 percent in 1992.

Turkmenistan is rich in natural resources. The government claims to have 10 trillion cubic meters of proved gas reserves and nearly 700 million metric tons of proved oil reserves. Turkmenistan also has a wide array of mineral resources that are used for the production of chemicals (see figure 3). The third-largest deposits of sulfur in the world are found in the Garagum Desert. There are also deposits of potassium, sodium chloride, sodium sulfate (processed from mirabilite) in the Garabogazkol Aylagy, and salt deposits in the Uly Balkan Gershi.

⁴ Official data record an average annual growth rate for 1981-89 of 3.2 percent, (see figure 3) a rate that is believed to be biased upward because of failure to correct properly for price inflation.

Table 4
Gross Domestic Product
by Sector of Origin, 1989

Percent share
(current prices)

	Turkmenistan	Mexico	Turkey
Total	100.0	100.0	100.0
Industry	20.8	28.6 ^a	32.9 ^a
Agriculture and forestry	39.7	7.6	15.4
Construction	16.6	3.6	4.0
Transportation and communications	5.9	7.6	10.0
Trade and distribution	7.3	27.2	17.2
Services and other	9.7	25.4	20.5

^aIncludes gas and water transmission.

Turkmenistan is self-sufficient in energy and is a sizable net exporter (see table 5). Its energy output is dominated by natural gas, which accounted for over 90 percent of primary energy production in 1990 (see figure 4). In 1991, Turkmenistan's production of gas was 84 billion cubic meters, of which only 9.5 billion cubic meters were consumed internally. Indeed, more than one-tenth of the former Soviet Union foreign exports of gas came from this republic. Despite the fact that the country has a relatively large capacity for processing both domestic and imported oil, that capacity is currently underutilized, and its technology is outdated. Turkmenistan authorities are exploring the possibility of producing liquified natural gas for direct export to Europe as well as constructing a new gas pipeline to Europe via Iran and Turkey or across China to the Pacific.

Although heavily fuel dominated, Turkmenistan's industry otherwise is fairly diversified (see table 6). Its overall structure, however, differs considerably from that in Mexico and Turkey. In the latter, machinery and consumer goods sectors occupy a much larger place than in Turkmenistan. On a per capita basis, Turkmenistan generates three to four times as much electricity as do the reference countries, making it a net exporter to other Central

Figure 2
Gross Domestic Product
by End Use, 1989

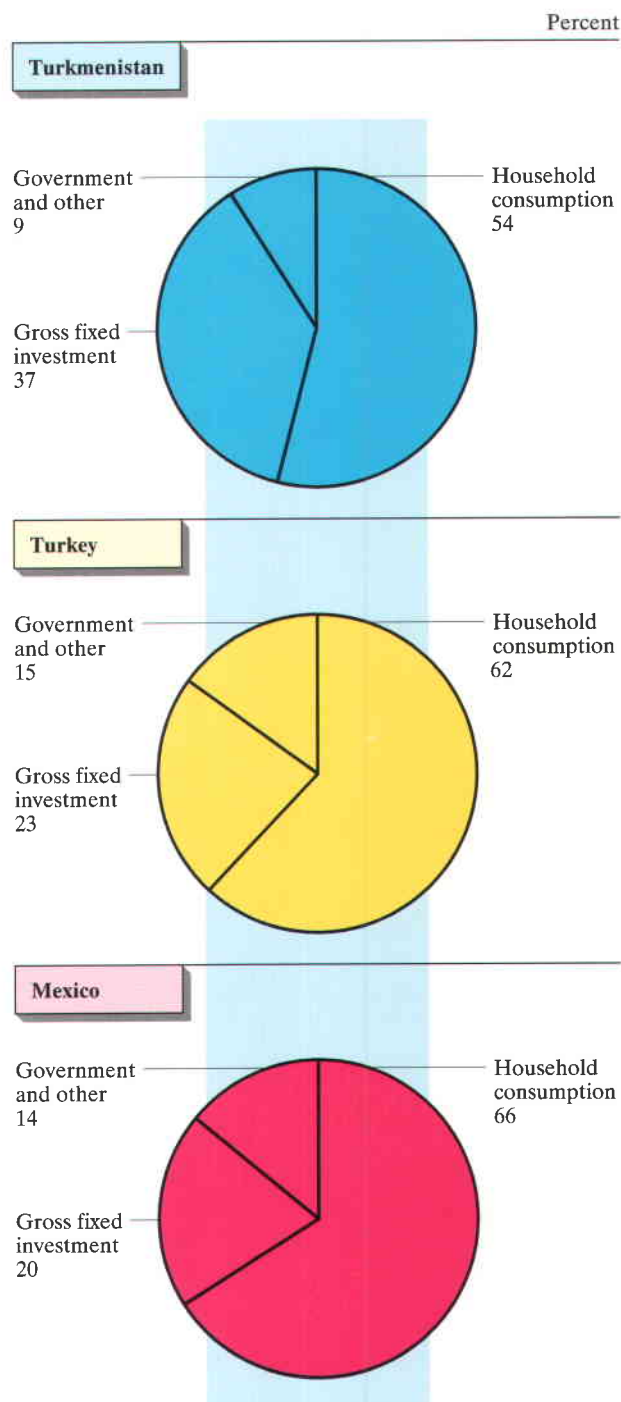


Figure 3
Selected Industrial Activity in Turkmenistan



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Table 5
Turkmenistan: Energy Production,
Consumption, and Exports, 1991

	Production in Natural Units	Thousand Barrels Per Day of Oil Equivalent
Primary energy production		
Total		1,465
Oil (<i>thousand b/d</i>)	108	108
Natural gas (<i>billion cubic meters</i>)	84	1,357
Coal (<i>million tons</i>)	0	0
Electric power (<i>billion kWh</i>)	NEGL	NEGL
Consumption		
Total (percent shares)	100	240
Oil	42	
Gas	55	
Coal	2	
Other ^a	0	
Net Exports^b		1,225

Note: Because of rounding, components may not add to the totals shown.

^a Primary electricity, shale oil, peat.

^b Net exports are calculated by subtracting consumption from production.

Table 6 *Percent share*
Structure of Industrial Output
by Branch^a

	Turkmenistan ^b (1988)	Mexico (1989)	Turkey (1985)
Electric power	8.4	4.6	13.2
Fuels	45.5	9.4	17.2
Chemicals and petrochemicals	7.7	16.4	5.5
Metals	NEGL	5.6	5.9
Machinery	8.7	16.8	13.8
Wood, paper, and pulp	1.2	8.7	5.1
Construction materials	8.9	5.9	3.9
Soft goods	11.4	8.7	11.6
Processed foods	7.6	22.0	14.8
Other branches, n.e.c.	0.6	1.9	9.0

^a Value-added measures were used in this comparison.

^b Shares reflect domestic prices, which in terms of world prices tend to substantially undervalue fuels and metals and overvalue many manufactures.

Asian republics. Its soft goods industry consists mainly of cotton fiber and related products, which is not the case in the other countries (see table 7).

Agriculture. Reflecting a deliberate Moscow-directed policy after World War II, a major change in agricultural activity took place in Turkmenistan. There was a shift from a seminomadic, livestock-oriented agrarian society to a more sedentary culture centered on irrigated crops. As a result of a long growing season and irrigation of nearly all the acreage sown to crops, Turkmenistan is able to obtain relatively high and stable yields per unit of sown acreage. Irrigated cotton occupies roughly one-half of all sowings. This comparative advantage in growing cotton and other crops requiring special conditions leads to Turkmenistan's role as a net exporter of a narrow range of farm products such as cotton, vegetable oil, and fruits and vegetables, while at the same time requiring large imports of grain and other basic foodstuffs. In 1987, net imports of foodstuffs were equivalent to one-third of the value of food products sold in retail channels. In recent years, however, Turkmenistan has promoted more grain production in a bid for self-sufficiency by the mid-1990s.

Until recently, the private sector, contributing roughly one-sixth of farm output, had practically no individual holdings. State and collective farm households were permitted to cultivate private plots of one-half to 1 acre (less than 0.5 hectare) and maintain one to two head of livestock. In addition, nonagricultural households had, and still have, small "garden-size" plots for cultivation. Thus, agriculture remains dominated by 484 state and collective farms, mainly the latter. Turkmenistan's collective farms are organized nominally as "producer cooperatives," whereas state farms are organized along the lines of state-operated industrial enterprises. The data in table 8 suggest the immense size of these enterprises.

In contrast, Turkey has 3.7 million privately operated farming units that produce all farm output. In Mexico, nearly one-half of farmland is owned by

Figure 4
Major Energy Facilities in Turkmenistan



Table 7
Production of Selected Industrial Products, Selected Years

	Turkmenistan				Mexico				Turkey			
	1985	1989	1990	1991	1985	1989	1990	1991	1985	1989	1990	1991
Energy												
Electric power (<i>billion kWh</i>)	11	14.5	14.6	15	96.7	124.0	120.0	NA	33.3	52	56.8	NA
Oil, including gas condensate (<i>million metric tons</i>)	NA	5.8	5.7	5.4	4.8	136.0	131.0	133.0	5.4	2.1	2.9	3.7
Natural gas (<i>billion cubic meters</i>)	83.2	89.9	87.8	84.3	24.1	22.2	23.0	23.1	0.1	0.1	0.2	0.2
Metallurgy												
Crude steel (<i>1,000 metric tons</i>)	2.2	2.1	2.1	1.8	7,400.0	7,800.0	8,800.0	8,000.0	4,900.0	7,800.0	9,300.0	9,300.0
Chemicals												
Mineral fertilizers (<i>million metric tons</i>)	0.1	0.2	0.2	0.2	1.4	1.7	1.9	1.9	1.3	1.3	1.2	1
Sulfuric acid (<i>million metric tons</i>)	0.4	0.8	0.8	0.8	2.2	1.9 ^a	NA	NA	0.5 ^b	0.6 ^b	NA	NA
Synthetic detergents (<i>1,000 metric tons</i>)	27.1	28.9	28	15.9	582.0	700.0	NA	NA	172.0	210.0	210.0	NA
Forestry products												
Sawn timber (<i>1,000 cubic meters</i>)	54.7	65.4	56	44	1,990.02	2,090.0	2,100.0	2,200.0	4,900.0	4,900.0 ^b	NA	NA
Construction materials												
Cement (<i>million metric tons</i>)	1.0	1.1	1.1	0.9	20.3	23.8	24.5	22.9	17.6	23.8	23.9	24.5
Processed foods												
Vegetable oil (<i>1,000 metric tons</i>)	87.7	108.0	104.0	104.0	603.0	626.0	NA	NA	225.1	429.7	NA	NA
Macaroni products (<i>1,000 metric tons</i>)	14.3	17.5	17.7	20.9	144	NA	NA	NA	166.2	198.1	NA	NA
Soft goods												
Fabrics, cotton, wool, silk (<i>million square meters</i>) ^c	51.3	53.6	53.4	49.2	364.0	326.0	335.0	NA	592.0	469.0	471.0	NA
Stocking-hosiery goods (<i>million pairs</i>)	5.4	19.9	18.5	12.7	NA	NA	NA	NA	68.0	98.3	99.4	NA

^a Data are for 1987.

^b Data include output from the steel industry only.

^c Data do not include silk for Turkey and Mexico.

communal or *ejido* farmers, while the rest is distributed across 4.3 million private farms. Until very recently, the holders of communal land did not have property rights. They could pass cultivation rights to direct descendants, but could not sell land, rent it, or use it as collateral for credit. Communal lands could be utilized either individually or collectively. In 1992, these constraints on Mexican farm productivity were lifted permitting the individual communal member to lease or transfer land to other members while providing an environment that could foster private-sector investment in agriculture.

During the 1980s, farm output in Turkmenistan rose by 42 percent, compared with 23 percent in Turkey and 20 percent in Mexico. Overall, when average production of crops and livestock for 1989-90 are valued by US "farm gate" prices (1988), Turkmenistan's farm output was roughly one-sixth of that in both Turkey and Mexico. The dollar value of livestock production as a share of the value of total farm output varied widely ranging from one-seventh in Turkmenistan, to slightly more than one-fifth in Turkey to about three-fifths in Mexico. Production of important commodities in Turkmenistan is given for a series of years in table 9.

As a reflection of its dependence on irrigated agriculture, crop productivity in Turkmenistan compares well with a comparable measure for Turkey while lagging somewhat behind Mexico. When yields of six major crops (average 1988-89) are weighed together, Turkmen and Turkish overall yield indexes are roughly one-quarter below the Mexican level.

In contrast, average milk yield per cow in Turkmenistan is 50 percent above that in Mexico and nearly three times that of Turkey. This superior performance is due to relatively high productivity in the socialized sector. Milk production per cow among private holdings is less than one-half the average for collective and state farms and is 10 percent less than the Mexican level. Dairy operations in countries such as Mexico and Turkey are characterized by small individual household holdings where livestock feeding is limited mostly to

Table 8
Selected Characteristics of
Agricultural Enterprises

	Turkmenistan ^a	Mexico ^b	Turkey ^c
Number of farms	484	4,280,220	3,650,910 ^b
Agricultural land per farm (<i>hectares</i>)	66,990	26	62
Cattle per farm	793	5	4
Hogs per farm	550	2	NEGL
Sheep and goats per farm	7,867	NA	19
Number of workers per farm	868	1.2 ^d	3 ^d

^aState and collective farms only. Data are for 1989.

^bData are for 1988. Private sector only.

^cData are for 1988.

^dData are for 1990 and include workers in forestry and fishing.

Table 9
Turkmenistan: Production of
Major Agricultural Products,
Selected Years

Thousand metric tons
(except where noted)

	1980	1985	1989	1990	1991
Meat	81	86	103	104	100
Milk	306	348	423	436	458
Eggs (<i>million units</i>)	248	275	328	327	300
Wool	13	15	16	16	16
Cotton	1,192	1,287	1,382	1,457	1,433
Vegetables	267	312	414	411	NA
Fruit	144	151	166	216	223
Grain	300	316	379	440	516

poor-quality hay and other forage crops. High-energy (grains) and high-protein (oil seeds) feeds comprise a relatively higher share of feed rations in Turkmenistan's collective and state farms.

Transportation. The limited development of Turkmenistan's industrial economy is reflected in the country's comparatively sparse transport network. For the country as a whole, there is in general less total length of roads and railroads, per unit of area, than in the reference countries (table 10).



Rural village

Road transport provides a major component of Turkmenistan's transport services, carrying 87 percent of freight tonnage and 97 percent of passenger transport in 1990 (appendix tables A-7 and A-8). Although trucks carry the bulk of freight, the transport network is becoming more diversified with the pipeline network increasingly important in the transport of oil and natural gas. Although the railroads are not the dominant means of transport, they link isolated Turkmen cities with the rest of the country and provide access to important products. The main railroad artery is the Trans-Caspian Railroad between Krasnowodsk on the Caspian Sea and the Amu Darya. The main cargos carried by rail include construction materials, oil, and grain.

Investment. Growth of investment in Turkmenistan in the 1980s proceeded at an average annual rate of 5.0 percent, somewhat above the former Soviet Union average. Turkish investment grew somewhat faster (5.4 percent) while investment in Mexico declined during the decade.

Table 10
Land Transport Networks

	Turkmenistan 1990	Mexico 1991	Turkey 1991
Length (kilometers)			
All roads	23,000	292,294	280,953
Paved	18,300	81,961 ^a	44,449
Unpaved	4,700	NA	236,504
Rail	2,120	26,510 ^a	10,393
Density (kilometers per 1,000 square kilometers)			
All roads	47	126	365
Hard surfaced	37	35 ^a	58
Unpaved	10	NA	307
Railroads	4	14 ^a	13

^aData are for 1989.

The structure of investment in Turkmenistan is roughly in keeping with the other republics' emphasis on industry and agriculture (over three-fifths of the total when combined—table 11).

Table 11
Comparative Investment
Allocations by Sector

Percent share

	Turkmenistan 1986-90 average	Turkey 1990
Agriculture	22.8	6.9
Industry	37.5	29.8
Construction	2.1	.. . ^a
Transportation and communications	6.9	22.1
Trade and services	14.5	16.2
Housing	16.2	25.0

^aBelieved to be included under Trade and Services.

Consumer-oriented investment in housing, trade, and services came to about 30 percent. In contrast, Turkey devoted more than one-third of its investment to industry and agriculture and more than two-fifths to housing, trade, and services. Comparable data for Mexico are not available.

Turkmenistan devoted more than 70 percent of all industrial investment to development of the fuels and electric power branches, some 9 percent to chemicals and petrochemicals, and a mere 10 percent to the light and food industries.

Economic Reform

The Government of Turkmenistan has declared the goal of creating a market-oriented economy, but one in which the state will play the directing role. To that end, the country has adopted some of the legislation appropriate to fostering a market economy, but implementation has been very slow. In all major respects, the economy remains government run. Although the tax system has been revamped, the Soviet-era planning, administrative, and financial agencies remain, and industrial enterprises and farms conduct the vast bulk of business on the basis of state orders and resource allocations. The government envisions a program of gradual reform spread over 10 years. It introduced its own currency—the manat—in 1993.

Privatization. Turkmenistan's approach sanctions private economic activity and ownership of property. In 1990-91, laws on property ownership, leasing, joint-stock companies, and entrepreneurship

were adopted. In February 1992, the legislature approved a general privatization law that sanctions the gradual denationalization of much state-owned property using a variety of methods. Up to now, however, only a handful of small trade and service entities have been sold, apparently to foreigners. Thus, more than four-fifths of Turkmenistan's labor force still works, as before independence, in state enterprises and collective farms (table 12).

As of April 1992, there were 1,500 producer cooperatives in Turkmenistan. In early 1993, its President announced a policy of actively encouraging private entrepreneurship, to be supported by establishing a new bank to supply credits. Aside from the traditional private plots, the agricultural sector until recently had only about 100 peasant farms, which operated under leasing arrangements. In February 1993, a law was adopted giving all citizens the right to own plots of land up to 50 hectares. The land must be used for farming and may not be bought or sold. Although the government envisions carrying out this land reform over 10 years, some 5,000 applications for plots were received soon after the opportunity became available.

Inflation and Unemployment. Inflation in Turkmenistan was low in the 1980s owing to pervasive state controls over prices. In contrast, consumer price inflation rates were very high in both Turkey and Mexico: 50 percent annually in Turkey during 1982-90 and 60 percent annually in Mexico during 1981-90. Retail prices rose by 90 percent in Turkmenistan in 1991 as a consequence of the Soviet Government's decontrol of many prices and sharp increases in others. In January 1992, Turkmenistan followed Russia's lead in freeing most prices, although controls remained on many basic items, as well as on energy, and raw materials including agricultural products. As a result, retail prices rose over 800 percent in 1992 and have continued to rise rapidly in 1993.

Unemployment (as opposed to underemployment) was negligible in Turkmenistan during the Soviet era, and no statistics were collected on it.⁵ The

⁵ All republics of the former Soviet Union are in the process of developing such statistics.

Table 12 *Percent*
Turkmenistan: Employment by
Form of Property

	1987	1988	1989	1990
Total	100.0	100.0	100.0	100.0
State	63.8	63.4	62.4	60.1
Collective farm	23.0	22.7	22.3	23.0
Cooperatives	0.1	0.1	1.1	2.1
Private (nonagricultural)	0.1	0.1	0.1	0.1
Private agriculture	13.0	13.7	14.1	14.7

unemployment rate in Turkey was about 7 percent in October 1990 and about 14 to 17 percent in Mexico in 1991. In contrast to the other former Soviet republics, Turkmenistan does not yet have an unemployment compensation program and apparently still does not collect data on unemployment.

Foreign Economic Relations

Foreign trade provides Turkmenistan with supplies of key industrial raw materials, while also affording an outlet for surplus domestic production, notably natural gas and cotton fiber. In 1989, imports accounted for 26 percent of domestic consumption, and exports were equivalent to 22 percent of production.

In 1990, 93 percent of exports and 81 percent of imports, expressed in domestic prices, represented trade with other republics. Russia took over half of Turkmenistan's exports and supplied 44 percent of its imports. Other Central Asian republics accounted for roughly a fifth of both exports and imports. Major exports to other former Soviet Union republics include cotton fiber, natural gas, oil and oil products, food products, chemical products, and small manufactures such as carpets, textiles, leather, and furs. Leading imports include machinery and equipment, metals, chemicals, and a variety of consumer goods, foods, and grain.

Turkmenistan has been actively seeking foreign investment. Its foreign investment law, adopted in mid-1992, provides most of the usual guarantees,

but the country severely restricts foreign purchases of property. In 1992, there were only 23 joint ventures functioning in Turkmenistan; they were small and their contribution to foreign trade was tiny. Negotiations with several countries are under way to construct gas pipelines that bypass the states of the former Soviet Union.

Living Standards and Social Indicators

Personal Income. Most families in Turkmenistan derive the bulk of their income from wages earned in state employment. In line with past Soviet policy, wage differences have been fairly narrow. Above-average wages traditionally have been paid by the state in industry, construction, transportation, and science, while the lowest paid sectors were health, education, and other services (appendix table A-3). In the past, wages paid in government administration were below average, but by 1990 they were substantially above average. Turkmenistan's collective farmers typically have been paid wages below those of state farmers, but the differences have narrowed slightly. When all incomes are taken into account, per capita income of collective farm families fell below those of all state employee families by 20 percent in 1990.

Until recently, little information was available on the distribution of income within the Soviet Union and its republics. Data available for 1990, the last year before inflation accelerated, indicated that nearly one-half of the population in Turkmenistan had per capita incomes below 100 rubles per month, the official poverty line. At the same time, 3.4 percent of the population had incomes over 250 rubles per month:

Average Monthly Income (rubles)	Share of Population* (percent)
Less than 75.1	26.9
75.1 to 100.0	22.3
100.1 to 150.0	29.6
150.1 to 200.0	12.7
200.1 to 250.0	5.1
250.1 to 300.0	2.0
More than 300.0	1.4

* Includes pensioners.

Although unambiguous statistics on income distribution are difficult to obtain for international comparisons, the information available suggests that incomes have been distributed more equally in Turkmenistan than in either Turkey or Mexico. However, the rapid inflation that occurred during 1991-93 probably has widened income differences in Turkmenistan.

In 1989, families of wage and salary workers in Turkmenistan spent just over two-thirds of their after-tax incomes on necessities (food, fuel, clothing, and durables) and nearly one-tenth on services. The service sector in Turkmenistan is greatly underdeveloped by international standards, even when a flourishing underground economy is taken into account.

Food Consumption. The caloric content of the average daily diet in the latter half of the 1980s in Turkmenistan (2,910 calories), as well as in Turkey (3,324 calories) and Mexico (3,048 calories), exceeded both US and internationally recommended dietary allowances.⁶

The share of calories from starchy staples (potatoes and grain products), a rough indicator of dietary quality, was above those in the developed West in all three countries, a reflection largely of their relatively lower levels of per capita income.⁷ The share of calories from starchy staples (55 percent) in the Turkmen diet was above the former Soviet average (42 percent) but considerably below that of Turkey (68 percent). The composition of diets is affected by the fact that the relatively high cost of livestock products in both Turkey and Turkmenistan leads to a heavier reliance on basic starchy staples.

Inventories of Selected Consumer Durables.

Turkmenistan's families are well supplied with consumer durables, although their quality may be low by Western standards. In 1991, nearly all families had television sets, refrigerators, and sewing machines, while 84 percent had washing machines. On the other hand, only 26 percent had cars. The

⁶ Recommended daily caloric allowance for US adults: male, 2,650; female, 1,950.

⁷ As household incomes rise, consumers tend to substitute animal products, vegetables and fruits, vegetable oils, fats, and other "quality" foods for the "inferior" starchy staples.

tabulation below provides ownership rates of selected consumer durables for the three countries:

	<i>Holdings per 1,000 population</i>		
	Turkmenistan 1991	Mexico 1988-89	Turkey 1988-89
Telephones ^a	75	127	120
Televisions ^a	185	120	172
Automobiles ^a	46	102	37

^a Turkmen data are for 1991; Turkish and Mexican data refer to 1988-89.

Because the higher quality of Mexican and Turkish consumer durables results in greater reliability, enhanced operating life, and fewer repairs, numerical measures do not capture the full difference.

Housing. As of the late 1980s, the provision of housing in Turkmenistan was well below that in Turkey. In 1989, the average Turkmen was provided with 10.8 square meters; 11.2 square meters in urban areas and 10.5 square meters in rural areas. By way of contrast, the average Turk had roughly 21 square meters. In 1989, over 70 percent of all Turkmenistan's urban housing was owned by the state, while the remainder was held privately or by housing cooperatives. The share held by the state was less than 10 percent in rural areas. In terms of the availability of housing amenities, Turkmen standards are probably below the levels of the two reference countries, although the lack of data makes a definitive judgment impossible. The tabulation below gives available data:

	<i>Percent share of housing equipped with amenities^a</i>		
	Turkmenistan 1989	Mexico 1990	Turkey ^b 1989
Running water	31	79	99
Hot water	6	NA	NA
Central heating	27	NA	17.3
Sewerage	20	75	95.3
Bathing facilities	18	NA	99

^aEnd of year shown. Figures for Turkmenistan are for urban and rural areas combined. In rural areas only 7 percent of the homes had running water, 0.1 percent had hot water, 0.4 percent had sewerage, 8 percent had central heating, and 0.4 percent had bathing facilities.

^bDoes not include housing outside of municipal boundaries or squatter housing, where amenities are far less available.

Informal consumer goods market



Rents on state-owned apartments in Turkmenistan are low and heavily subsidized. Rents probably cover less than one-fifth of current maintenance costs, and much housing is in poor repair. Despite the low rents, housing conditions have been the subject of much complaint. In 1989, only 9 percent of Turkmen families (compared to 13 percent for the former Soviet Union as a whole) who were on waiting lists for better housing actually upgraded their circumstances. Such shortages have been chronic and persistent despite a sizable program to build new housing in the 1980s. Beginning in 1993, however, the government began to provide households with gas, electricity, and water up to certain limits free of charge.

Pensions, Health, and Welfare. The people of Turkmenistan are covered by a Soviet-style comprehensive system of social security that has been dispensed without direct charge. Old-age, disability, and survivor pensions are provided, along with sickness pay and benefits and family allowances. In keeping with the rapid rise in retail prices during the period 1991-92, the minimum pension and other benefits have been increased substantially. In addition, other recently enacted programs provide

supplementary benefits in the form of monthly payments, one-time subsidies, or durable goods to certain groups, such as invalids and war veterans.

As in Turkmenistan, the populations of Mexico and Turkey are covered by social welfare programs and unemployment compensation schemes. In Turkey, three separate social insurance funds exist: the Government Employees Retirement Fund, the Social Insurance Institution, and Bag-Kur. The Mexican Social Security Institution provides basic sickness, disability, and old-age benefits to all eligible people, while private health insurance and pension programs provide supplemental benefits. Although comparisons on such complex matters are tenuous, it appears that the reference countries' social safety nets are generally not as comprehensive as Turkmenistan's. Roughly two-thirds of the eligible population received monthly old-age benefits in Turkey in 1990, whereas Turkmenistan's net extended to over 90 percent of the eligible population in 1989. In Mexico, the law excludes people in isolated areas of the country, and not all self-employed people have registered

with the Social Security Institution. Finally, Turkey's programs are indexed to inflation; Mexico's benefits are not. Turkmenistan's pensions and other benefits are increased through periodic government decrees.

Following the Soviet model, health care in Turkmenistan has been universally available and provided without direct charge. Private practice has supplemented this system to a small extent, but significant steps toward general privatization of the health care system have not yet been taken. All hospitals and other facilities have traditionally been state owned, and their personnel have been government employees. In addition, some industrial enterprises have their own clinics that provide health care to their employees. Both Mexico and Turkey have mixed health care systems in which the state dispenses some care, while private facilities and insurance programs provide care or provide the means to receive care for the balance of the population.

The quality of medical training and support facilities in Turkmenistan and the two reference countries appears to fall short of the quality standards of the developed West. Because it is extremely difficult to make direct international comparisons on the quality of health care, a less ambiguous procedure compares health-related outcomes between Turkmenistan and the reference countries rather than inputs. In 1989, the life expectancy of the people of Turkmenistan (65 years for both sexes and probably overstated) was less than that in both Turkey (69) and Mexico (71) in 1990. The infant mortality rate in Turkmenistan was the highest of all republics of the former Soviet Union. In 1992, the estimated rate was nearly 72.5 deaths per 1,000 births. Corresponding rates were 30.2 for Mexico and 55.2 for Turkey. For all other age groups, the two leading causes of death in Turkmenistan were circulatory illnesses (number one) and respiratory illnesses (number two). In Mexico, the two leading causes of death were circulatory illnesses and accidents, while in Turkey, the two leading causes of death were circulatory illnesses and cancer.

Other Social Indicators. According to official data, Turkmenistan compares fairly well with the reference countries on some social indicators and less favorably on others (table 13). Turkmenistan has more extensive use of central heating than does Turkey or Mexico. It has many more doctors relative to its population than in Turkey or Mexico, although many physicians in Turkmenistan are engaged in public health and administrative activities that are normally carried out by nonphysicians in other countries. The number of telephones per capita in Turkmenistan is below that in the reference countries. In addition, Turkmenistan's suicide rate is considerably below that of Turkey. On the other hand, Turkmenistan compares less favorably to the reference countries in terms of per capita housing space, availability of running water, infant mortality, life expectancy, and divorce rates.

Pollution. Turkmenistan appears to suffer less severely from pollution than do many other countries that formerly comprised the USSR. The country's low level of industrialization may be the reason for this relatively favorable situation.

The best known environmental problem affecting Turkmenistan is traced to the effect of the rapidly disappearing Aral Sea, located approximately 200 kilometers to the north in Uzbekistan. The sea, which has lost half of its surface area since 1960 (due in large part to massive irrigation projects that draw water from the sea's tributaries), will by some estimates completely evaporate within 30 years.⁸ The damage already done to the ecosystem is significant. The shrinkage of the sea and exposure of its bed has caused a salt and dust problem in surrounding areas. Although direct causality cannot be proved, there have been high levels of illness and substantial outmigration of the population in regions near the sea.

Even though two-thirds of the pollution-control funding is devoted to reducing water pollution, such pollution remains widespread. Just 34 percent

⁸ In Turkmenistan, the area of irrigated lands has increased 2.4 times since the early 1960s.

Table 13
Social Indicators in Turkmenistan, Mexico, and Turkey

1989 data
(unless otherwise stated)

	Turkmenistan	Mexico	Turkey
Consumption measures			
Per capita housing space (<i>square meters per capita</i>)	11.2 ^a	NA	21.0
Running water (<i>percent of urban living space</i>)	77.3	79.0	99.0
Central heat (<i>percent of urban living space</i>)	75.2	NA	17.3
Doctors (<i>per 10,000 persons</i>)	36.2 ^b	10.8 ^c	8.0
Telephones (<i>per 1,000 persons</i>)	75.0 ^b	127.0 ^d	120.0 ^d
People			
Suicides (<i>per 100,000 persons</i>)	7.1	NA	20.9 ^e
Total fertility rate (<i>births per woman</i>) ^d	4.5	3.3	3.4
Infant mortality (<i>per 1,000 births</i>) ^d	72.5	30.2	55.2
Life expectancy (<i>years at birth</i>) ^d			
Males	59.0	69.0	68.0
Females	66.0	76.0	72.0
Net migration (<i>1,000 persons</i>) ^d	-3.0	-1.0	0.0
Divorces (<i>per 1,000 persons</i>) ^f	1.4	0.57	0.45

^aData are for 1990.

^bData are for 1991.

^cData are for 1988.

^dData are estimates for 1992.

^eData are for 1987.

^fCrude divorce rates (based on total population).

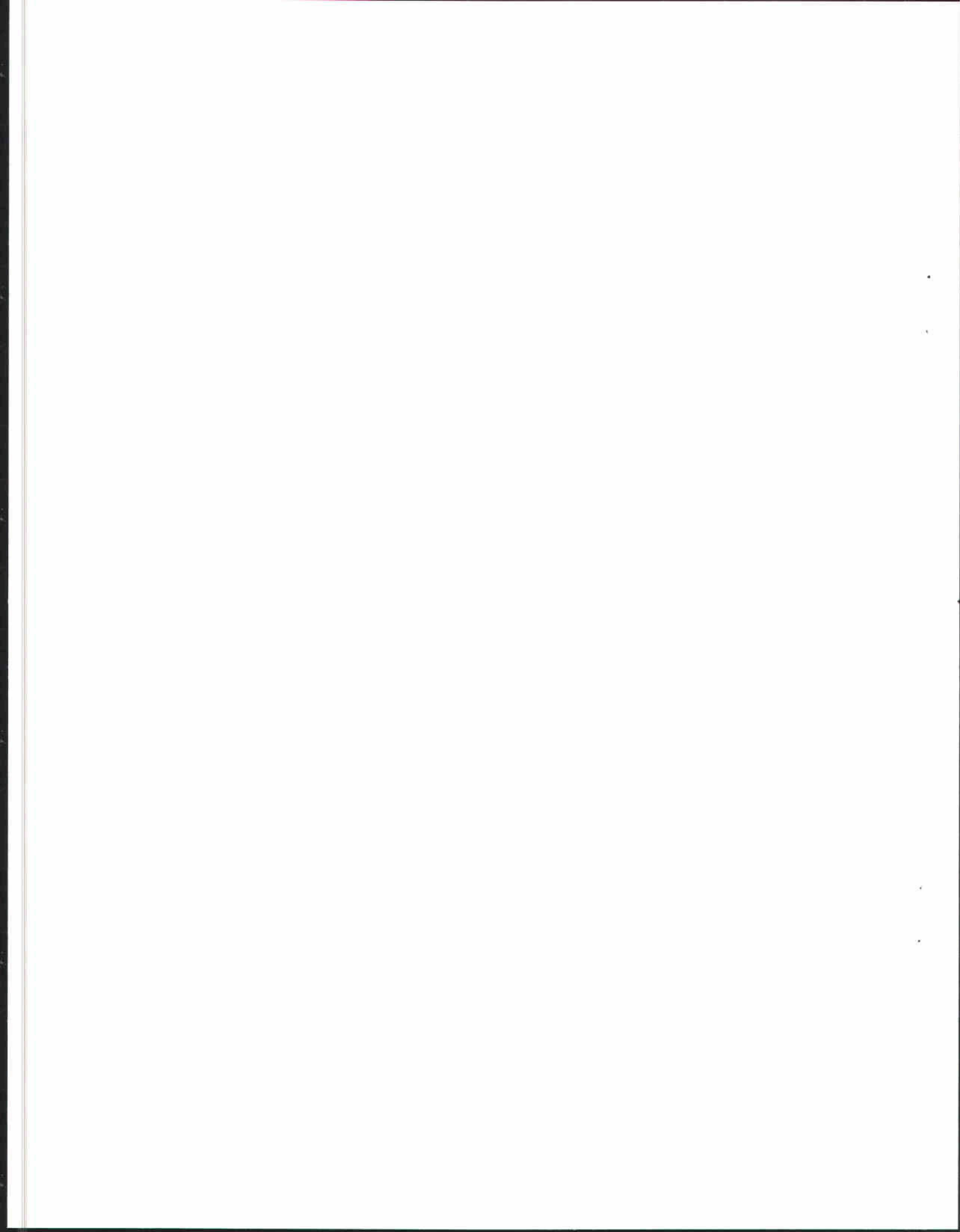
of sewage emissions are processed before dumping. Agriculture-related activity (runoff of fertilizers, pesticides, and other agricultural chemicals) is another major source of water pollution. In Central Asia as a whole, fertilizer use per hectare of arable land is 2.5 to 3 times higher than in Russia.

Industrial pollution also contributes to the problem. The Amu Darya, on the eastern border of Turkmenistan, has concentrations of phenol that are 5 times above accepted health standards and concentrations of oil products that are 80 percent above those standards.

Air pollution is not a major problem for the country as a whole. Air pollution levels are highest in large cities such as Ashgabat and Charjew (Chardzhou) and near industrial centers. Diesel trucks and buses probably are the primary cause of elevated particulate levels in urban areas, because such

traffic generates 91 and 79 percent of the air pollution emissions in the two above-mentioned cities, respectively. Low carbon monoxide concentrations in the two cities, however, suggest minimal impact from passenger automobile traffic.

Turkmenistan's relatively low level of industrialization is reflected in the comparatively minor role of manufacturing as a source of air pollution. This is so despite the fact that less than 40 percent of Turkmenistan's smokestacks are equipped with pollution-control devices (and many of these either are designed only to capture particulates or to operate below design specifications). Finally, it is worth noting that Turkmenistan's per capita spending on pollution control was among the lowest among the former Soviet republics.



Appendix
Selected Economic Statistics

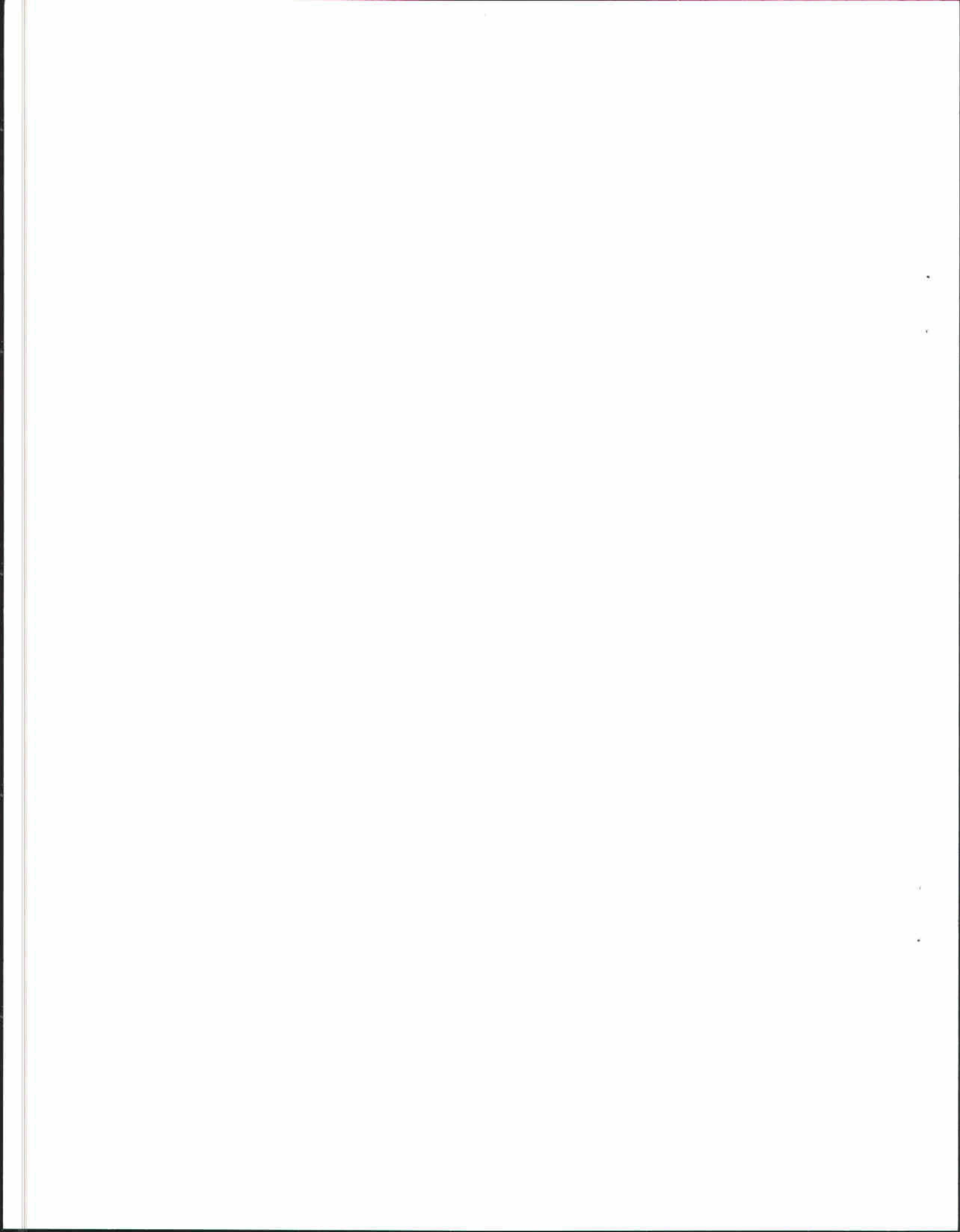


Table A-1
Turkmenistan: Nationality Structure, 1989

Thousands
(unless otherwise noted)

	Total Population		Turkmen		Russian		Uzbek ^a		Kazakh		Tatar ^a		Ukrainian ^a		Azeri ^a		Armenian ^a		Baloch ^a		Lezgin ^a		Other	
	Thousands	Percent	Thousands	Percent	Thousands	Percent	Thousands	Percent	Thousands	Percent	Thousands	Percent	Thousands	Percent	Thousands	Percent	Thousands	Percent	Thousands	Percent	Thousands	Percent	Thousands	Percent
Total	3522.7		2536.5	72.0	333.9	9.5	308.9	8.8	87.8	2.5	34.8	1.0	29.0	0.8	23.8	0.7	24.7	0.7	28.0	0.8	7.8	0.2	107.4	3.0
Ashkhabad city	403.2		205.4	50.9	130.2	32.3	3.8	1.0	2.6	0.6	7.2	1.8	11.0	2.7	10.0	2.5	18.3	4.5	...	...	...	...	14.7	3.6
Mary Oblast	811.8		658.5	81.1	56.5	7.0	...	...	16.4	2.0	8.3	10	7.3	0.9	...	...	...	...	28.0	3.4	...	...	36.8	4.5
Tashauz Oblast	696.6		428.0	61.4	7.3	1.1	219.8	31.6	27.7	4.0	...	...	...	...	...	...	...	...	...	...	...	...	13.7	2.0
Chardzhou Oblast	732.8		551.9	75.3	56.1	7.7	85.3	11.6	8.3	1.1	11.0	1.5	...	...	...	...	...	...	...	...	...	...	20.2	2.8
Republic territories ^c	878.3		692.7	78.9	83.8	9.5	...	...	32.7	3.7	8.3	0.9	10.7	1.2	13.8	1.6	6.4	0.7	...	...	7.8	0.9	22.0	2.5

Note: The above oblast list reflects the organization that existed during the 1989 census. Because of rounding, components may not add to the totals shown.

^aNotable shares of the following nationalities are unaccounted for in this table (given in thousands): Uzbek (8.5), Tatar (4.4), Ukrainian (6.6), Azeri (9.6), Armenian (7.2), Baloch (.3), and Lezgin (2.6).

^bZero, negligible, or data unavailable.

^cIn 1989, the Ahal and Balkan areas were not independent administrative units, rather, their territory was administered directly by Ashkhabad.

Table A-2
Turkmenistan: Births, Deaths, and Natural Growth
of the Population, Selected Years

Per 1,000 persons

	1980	1985	1986	1987	1988	1989	1990	1991
Births	34.3	36.0	36.9	37.2	36.0	35.0	34.2	33.8
Deaths	8.3	8.1	8.4	7.9	7.8	7.7	7.0	7.3
Natural growth	26.0	27.9	28.5	29.3	28.2	27.3	27.2	26.5

Table A-3
Turkmenistan: Average Monthly Wages for Wage and Salary
Workers by Branch of the Economy, Selected Years

Rubles

	1980	1985	1986	1987	1988	1989	1990	1991
All branches	176.2	191.1	193.1	198.4	208.4	221.3	243.7	415.0
Industry	188.8	206.0	208.8	212.6	227.8	241.5	264.9	488.0
Agriculture	164.4	179.6	184.3	192.3	208.8	242.4	274.6	419.0
State farms	164.8	179.7	185.0	195.3	210.2	246.1	NA	NA
Construction	231.6	260.7	263.4	264.4	287.7	291.9	314.9	534.0
Construction-assembly work	226.8	258.3	258.3	254.2	271.5	277.1	NA	NA
Transportation	203.9	214.2	220.3	224.2	236.9	249.9	282.4	494.0
Railroad	193.2	207.4	220.1	235.5	253.4	262.2	NA	NA
Water	199.6	203.7	225.8	215.9	239.1	283.4	NA	NA
Urban-electrical, automobile	207.2	216.5	220.2	221.9	232.9	246.8	NA	NA
Communications	161.6	172.6	172.5	178.8	205.7	223.0	243.1	466.0
Trade and public dining ^a	145.7	153.2	154.0	152.7	153.6	174.4	205.7	348.0
Information-processing services	124.8	134.9	150.1	153.2	160.9	192.6	NA	NA
Housing-communal economy ^b	135.5	150.5	153.4	159.5	170.4	182.4	196.4	327.0
Health, physical, and social services	132.2	134.3	134.8	141.7	143.3	148.8	164.5	324.0
Education	152.8	171.9	170.6	185.9	185.6	185.5	188.5	293.0
Culture	122.0	131.4	128.5	130.4	119.2	129.2	153.2	277.0
Art	134.2	148.5	152.7	150.3	154.5	155.1	182.6	304.0
Science	197.6	219.6	223.9	235.2	265.6	297.6	319.5	475.0
Credit and social insurance	150.5	161.6	167.8	171.2	174.1	195.7	321.0	838.0
Government administrative services	160.3	165.4	169.0	176.1	184.6	213.7	305.8	461.0

^a Includes material-technical supply and sale, and procurement.

^b Includes other nonproductive domestic services.

Table A-4*Percent share***Turkmenistan: The Structure of Gross Industrial Output, Selected Years**

	1980	1985	1986	1987	1988	1989	1990
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Heavy industry	42.5	48.5	48.0	49.0	46.9	45.9	44.6
Fuel-energy	25.5	30.6	29.9	29.8	28.3	28.7	27.5
Machinery	5.7	5.6	5.3	5.5	5.3	5.0	5.1
Chemical-forestry	4.5	5.1	5.5	6.0	5.9	5.6	5.4
Construction materials	5.8	6.3	6.2	6.5	6.4	5.8	5.8
Other industry	1.0	0.9	1.1	1.2	1.0	0.8	0.8
Soft goods	43.9	37.7	39.1	37.6	39.3	39.8	41.0
Processed foods	13.6	13.8	12.9	13.4	13.8	14.3	14.4

Table A-5
Turkmenistan: Production of Selected Industrial
Products, Selected Years

	1980	1985	1989	1990	1991
Energy					
Electric power (<i>billion kWh</i>)	6.7	11.0	14.5	14.6	15.0
Oil, including gas condensate (<i>million metric tons</i>)	8.0	6.0	5.8	5.7	5.4
Natural gas (<i>billion cubic meters</i>)	70.5	83.2	89.9	87.8	84.3
Metallurgy					
Steel (<i>1,000 metric tons</i>)	1.9	2.2	2.1	2.1	1.8
Machinery					
Turbine pumps (<i>units</i>)	686.0	811.0	870.0	NA	NA
Exhaust fans for water-cooling towers (<i>1,000 units</i>)	2.5	2.4	2.0	NA	NA
Electrical wires (<i>1,000 kilometers</i>)	8.6	7.6	8.0	NA	NA
Radio wires (<i>1,000 kilometers</i>)	NA	2.1	8.2	NA	NA
Chemicals					
Mineral fertilizer (<i>1,000 metric tons</i>)	72.0	119.0	182.0	176.0	190.0
Pesticides (<i>metric tons</i>)	NA	211.0	241.0	137.0	95.0
Sulfuric acid (<i>1,000 metric tons</i>)	NA	400.0	799.0	843.0	788.0
Synthetic detergents (<i>1,000 metric tons</i>)	27.4	27.1	28.9	28.0	15.9
Household soap (<i>1,000 metric tons</i>)	8.5	8.3	12.0	NA	NA
Forestry products					
Sawn lumber (<i>1,000 cubic meters</i>)	65.0	54.7	65.4	56.0	44.0
Construction materials					
Cement (<i>million metric tons</i>)	0.8	1.0	1.1	1.1	0.9
Asbestos-cement shingles (<i>million standard units</i>)	47.8	61.9	69.0	66.9	67.0
Construction bricks (<i>million units</i>)	355.9	378.6	527.8	652.0	698.0
Prefabricated reinforced concrete assemblies (<i>million cubic meters</i>)	0.8	1.0	1.1	1.3	1.1
Soft goods					
Cotton fabric (<i>million square meters</i>)	17.4	23.0	28.2	29.0	28.2
Wool fabric (<i>million square meters</i>)	2.2	3.1	2.9	2.9	2.9
Silk fabric (<i>million square meters</i>)	7.8	7.7	9.6	9.5	7.4
Other fabrics (<i>million square meters</i>)	NA	6.4	12.9	12.0	10.7
Stocking-hosiery (<i>million pairs</i>)	3.9	5.4	19.9	18.5	12.7
Knitted goods (<i>million units</i>)	7.8	9.9	11.1	11.6	10.5
Shoes (<i>million pairs</i>)	4.2	4.6	4.8	5.1	4.2
Processed foods					
Meat (<i>1,000 metric tons</i>)	29.4	38.4	44.8	41.1	36.3
Animal fats (<i>1,000 metric tons</i>)	3.3	3.6	4.4	4.5	4.3
Whole milk products (<i>1,000 metric tons</i>)	NA	99.2	126.0	129.0	128.0
Macaroni products (<i>1,000 metric tons</i>)	NA	14.3	17.5	17.7	20.9
Cheese (<i>1,000 metric tons</i>)	0.8	0.8	0.9	1.1	1.2
Vegetable oil (<i>1,000 metric tons</i>)	39.0	87.7	108.0	104.0	104.0
Confectionery goods (<i>1,000 metric tons</i>)	19.2	22.7	32.8	34.9	38.4
Canned foods (<i>million units</i>)	47.0	54.1	79.5	95.0	81.7

Table A-6
Turkmenistan: Capital Investment, by Sector
of the Economy, Selected Years

Percent share

	1976-80	1981-85	1986	1987	1988	1989	1990
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Industry	28.1	38.0	40.6	38.8	40.3	40.3	32.5
Agriculture	29.7	27.3	25.6	24.6	21.4	21.4	20.3
Construction	3.0	2.6	2.6	1.1	2.1	2.1	2.3
Transportation and communications	14.9	7.8	7.2	7.8	6.9	6.9	6.1
Forestry and procurement	0.2	0.3	0.2	0.1	0.1	0.1	1.6
Trade, supply, and sales	3.3	2.4	1.4	0.9	1.3	1.3	6.1
Housing and other ^a	20.8	21.6	22.6	26.9	27.9	27.9	31.1

Note: Because of rounding, components may not add to the totals shown.

^aIncludes communal economy, science, art, education, and health.

Table A-7
Turkmenistan: Freight Tonnage, 1985-91

Million tons

	1985	1986	1987	1988	1989	1990	1991
Total	254	258	257	270	276	276	NA
Rail	31	31	32	33	28	28	37
River	4	5	5	5	5	3	2
Truck ^a	219	222	220	232	234	241	NA

Note: Because of rounding, components may not add to the totals shown.

^aIncludes all carriers. In 1991, common carrier (Motor Transport Ministry) vehicles carried 55 million tons of freight. In 1990, common carrier haulage of 58 million tons accounted for 24 percent of truck tonnage for both common carriers and "sectoral carriers" that are operated by various ministries and factories that are not primarily associated with transport services.

Table A-8
Turkmenistan: Passenger Transport, 1985-91

Million persons

	1985	1986	1987	1988	1989	1990	1991
Total	347	338	336	347	328	319	282
Rail	7	8	8	8	8	8	6
Bus	338	328	326	336	318	309	274
Air	2	2	2	2	2	2	2

Note: Because of rounding, components may not add to the totals shown.

Table A-9
Transport Networks in Turkmenistan, 1985-90

Thousand kilometers

	1985	1986	1987	1988	1989	1990
Railroads	2.12	2.12	2.12	2.12	2.12	2.12
Total Highways	20.8	21.0	21.1	21.4	22.7	23.0
Hard surfaced	16.1	16.7	16.8	17.1	17.8	18.3

Table A-10
Passenger Travel in Turkmenistan, 1985-90

Million passenger-kilometers

	1985	1986	1987	1988	1989	1990
Total	NA	NA	NA	NA	NA	NA
Rail	NA	NA	NA	NA	NA	NA
Bus	3,020	3,159	3,297	3,399	3,510	3,598
Air	2,910	2,966	3,054	3,114	3,253	3,458

Table A-11
Freight Traffic in Turkmenistan, 1985-90

Million ton-kilometers

	1985	1986	1987	1988	1989	1990
Total	NA	NA	NA	NA	NA	NA
Rail	NA	NA	NA	NA	NA	NA
Truck	4,376	4,461	4,408	4,570	4,738	4,793
Air	294	299	307	311	324	NA

Table A-12
Turkmenistan: Trade in Domestic Prices in 1990

Million rubles

	Interrepublic Trade		International Trade		Total Foreign Trade	
	Export	Import	Export	Import	Export	Import
Total	2,469	2,923.1	171.9	685.3	2,640.9	3,608.4
Industry	2,271.7	2,693.1	163.7	625.2	2,435.4	3,318.3
Power	67	10	0	0	67	10
Oil and gas	695.8	79.3	9.3	0	705.1	79.3
Coal	0	5.3	0	0	0	5.3
Other fuel	0	0	0	0	0	0
Ferrous metals	3.4	105.8	0	7.3	3.4	113.1
Nonferrous metals	5.9	9.1	0.1	0.1	6	9.2
Chemical and petrochemicals	1,46.7	202.6	6.7	26.6	153.4	229.2
Machinery	35.3	958.8	1.6	119.5	36.9	1,078.3
Forestry products	0.3	96.7	0	9.2	0.3	105.9
Construction materials	28.2	50.2	0	5.9	28.2	56.1
Soft goods	1,082.5	550.7	138.9	254.5	1,221.4	805.2
Processed foods	205.9	444.7	7.1	185.1	213	629.8
Other industries	0.7	179.9	0	17	0.7	196.9
Agriculture	123.6	132.1	3.5	60.1	127.1	192.2
Other products	73.7	97.9	4.7	0	78.4	97.9

Note: Because of rounding, components may not add to the totals shown.

Table A-13
Turkmenistan: Trade in Foreign Trade Prices in 1990

Million rubles

	Interrepublic Trade		International Trade		Total Foreign Trade	
	Export	Import	Export	Import	Export	Import
Total	2,773.4	2,438	114.2	305.8	2,887.6	2,743.8
Industry	2,645.9	2,256.8	108.9	259.4	2,754.8	2,516.2
Power	100.5	15	0	0	100.5	15
Oil and gas	1,659.3	176.6	23	0	1,682.3	176.6
Coal	0	5	0	0	0	5
Other fuels	0	0	0	0	0	0
Ferrous metals	3.6	122.4	0	9.7	3.6	132.1
Nonferrous metals	9.9	15.2	0.2	0.1	10.1	15.3
Chemicals	151.8	168.8	5.3	19	157.1	187.8
Machinery	36.6	1,191.7	1.8	85	38.4	1,276.7
Wood and paper	0.2	63.8	0	5.2	0.2	69
Construction materials	30.6	43.2	0	2.2	30.6	45.4
Light industry	541.2	161.5	75	64.6	616.2	226.1
Food products	111.7	179.4	3.6	68.5	115.3	247.9
Other industry	0.5	114.2	0	5.1	0.5	119.3
Agriculture	44.4	69.7	0.7	46.4	45.1	116.1
Other products	83.1	111.5	4.6	0	87.7	111.5

