

Assigned by Ministry of Agriculture, Forestry and Fishery

**Survey on Agricultural and Rural
Development
based on Population Issues**

— The Republic of Uzbekistan —

**Focus on
Tashkent, Syrdarya, Djizak**

March 2003

**The Asian Population and Development Association
(APDA)**



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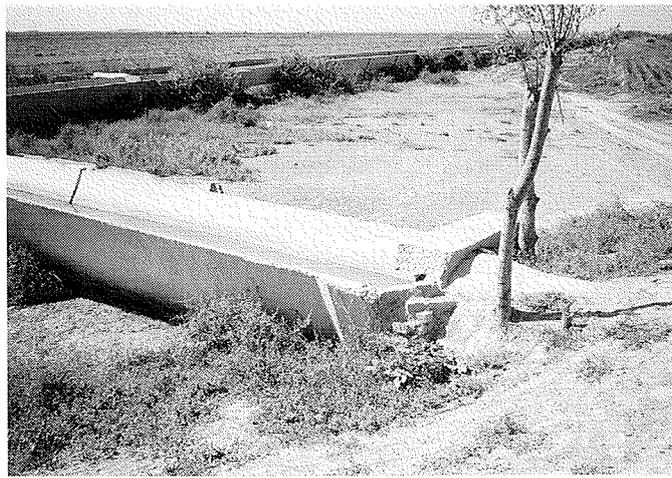
Hearing Survey at Tashkent Region
Right side
Dr. Norio Ishida, Survey Leader



Irrigation at cotton farm



Main canal from Syrdarya River



Irrigation water way at Djizak



Drainage channels at Djizak are thickly covered with halophilous plants and have ceased to function. Salt is gushing out from 1 meter above its surface to the bottom.



CASE Tractors supported by KR2 Project (Japan)

Foreword

This report presents the results of the “Survey on Agricultural and Rural Development based on Population Issues”, a project implemented in Republic of Uzbekistan by the Asian Population and Development Association (APDA) under the consignment from Ministry of Agriculture, Forestry and Fishery in 2002. The survey and compilation of the results were mainly carried out by the members of the APDA Survey Committee (Chairperson: Dr. Shigeto Kawano, Professor Emeritus, the University of Tokyo).

This survey was conducted under the concept that “Japan’s cooperation in the field of agriculture, forestry and fisheries positions contribution to stability of global food supply and demand as its important measure whose further promotion is expected. Meanwhile, in implementing international cooperation, strong demand for efficient and effective implementation and transparency exists for ODA in view of the country’s difficult economic and financial condition in the recent years. For this purpose, a study of subjects such as problems related to assistance in the major target countries of this survey, grasping of assistance needs, agricultural and rural development and the relationship between assistance and agricultural produce trade is indispensable. The study therefore must be performed from the viewpoint of changes in agricultural/rural population and employment structure in the developing countries.” The field survey in Uzbekistan was conducted with the guidance and cooperation of Ms. Shakhlo R. Abdullaeva, Deputy Minister of Foreign Economic Relations, Mr. Juraev Abduvakhid Mamatkulovich, Deputy Minister of Agriculture and Water Resources, Mr. Tomoyuki Hayasi, Third Secretary The Embassy of Japan, and other cooperators.

In Japan, guidance regarding the content of the survey and assistance for the arrangement of field survey were offered by the International Cooperation Division, General Food Policy Bureau, the Ministry of Agriculture, Forestry and Fishery and Division of Newly Independent States, Ministry of Foreign Affairs. In addition, Mr. Shakirov Kahramon, First Secretary, Embassy of the Republic of Uzbekistan in Japan had made all the arrangements for the field survey in Uzbekistan. I would like to take this opportunity to extend my deepest gratitude for their support.

I sincerely hope that this report will contribute to the advancement of the rural community and agricultural development programme in the Republic of Uzbekistan and support effective assistance by the Japanese Government in this country.

Lastly, I would like to note that this report has been compiled under the sole responsibility of APDA and does not necessarily reflect the view or policies of the Ministry of Agriculture, Forestry and Fishery, or the Japanese Government.

March 2003

Dr. Taro Nakayama,
Chairman,
The Asian Population and Development Association

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Chapter 1 Population of Uzbekistan

Introduction

No population census has been carried out in Uzbekistan since 1986. For this reason, it is not possible to analyse the population of Uzbekistan after the transition to CIS based on a census.

Data currently available on population in Uzbekistan is based entirely on registration of births, deaths and school enrolments. While no official opinion has been expressed, the study team had the impression that the Government of Uzbekistan is not feeling much of a need for a census.

One of the reasons for lack of such need is social organisations and systems from the former communist period still maintain, which is an outcome of the fact that Uzbekistan—unlike Kazakhstan and Kyrgyzstan which followed the path of rapid transition toward market economy and liberalism—chose to take a gradual introduction of market economy under the slogan of gradual transition. The country therefore is confident that the reports based on these systems are reasonably accurate and gives low priority to conducting a expensive census (costing about US\$1 per person).

Existing situation of population study in Uzbekistan is quite discouraging. Population issues are dealt by the Ministry of Labour and the Ministry of Health. However, the Statistics Bureau had practically no awareness of population issues as far as one can determine from the macroeconomic policies that form the basis of economic planning in Uzbekistan and hearing survey conducted at the bureau. It was shocking to learn how little population elements have been incorporated into the plan, forming a sharp contrast to the energy China is putting into population studies and emphasis she is placing on population as "predictable" social factor (i.e. a fact that can be planned).

Moreover, we were not able to interview the people in charge of population studies at the Statistics Bureau. There was also a professor specialising in demographics at the National University of Uzbekistan but the professor had not even obtained basic data on international organisations available on the Internet. The situation therefore was far from conducting studies that are worthy of note.

The Ministry of Foreign Trade was the only government agency in Uzbekistan that expressed concern about population increase.

The foundation of democracy lies in identification of the people in the country based on census and election performed by these people. In this sense, implementation of census is essential from the viewpoint of establishing the foundation of democracy.

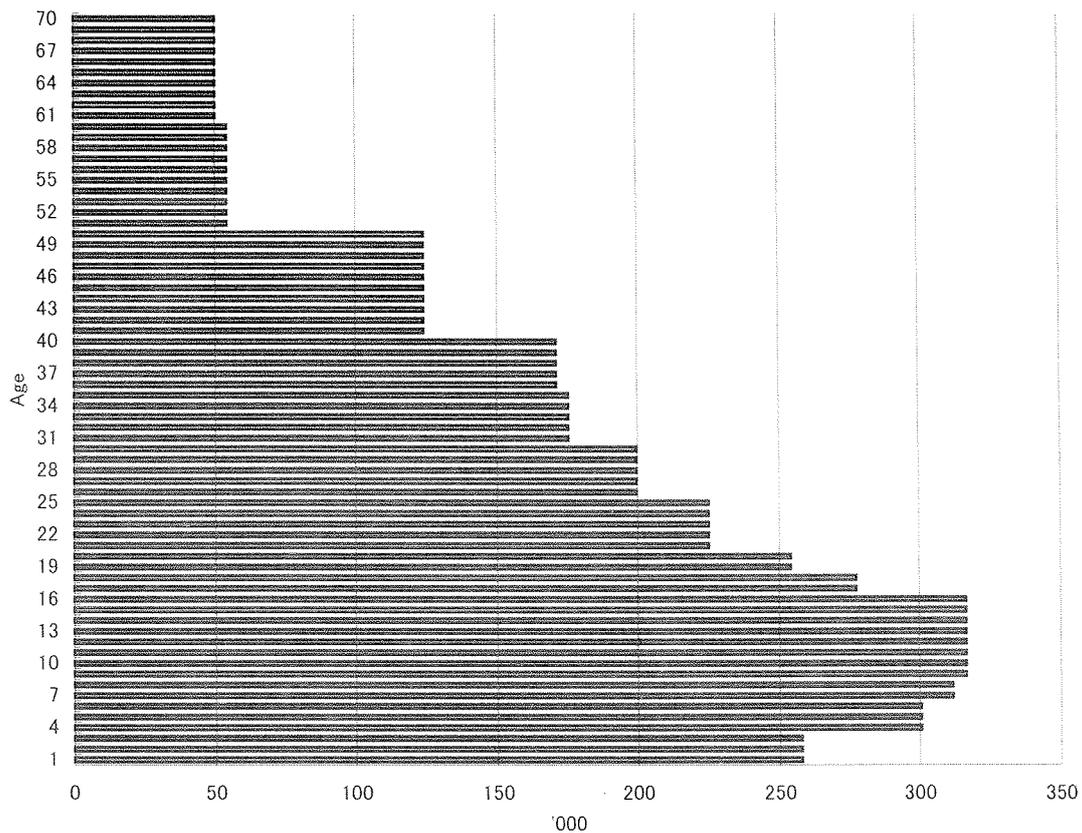
We will use the materials published by the Government of Uzbekistan and materials made available by the Uzbekistan Office of United Nations Development Programme (UNDP) for the analysis of population in this report.

1. Population Structure

A unique feature of population in Uzbekistan is her extremely young population structure. However, that fact that TFR is starting to decline as mentioned earlier suggests that demographic transition is advancing. While yearly fluctuations do exist for reasons unknown, implementation rate of family planning is increasing in terms of overall trend. However, it is premature to think that population is on the path of stabilisation by looking at the trends of TFR alone. Reproductive age population will continue to increase after experiencing a quadruple increase in population from the 1950s to the year 2000. As a result, the country's population is predicted to continue its increase.

As can be seen from the population pyramid, population of ages 5 to 15 is largest in the population structure of Uzbekistan (Figure 1). It shows the present situation in which pre-adolescence population is extremely large and signifies that this population cohort would reach the peak of its reproduction in the next 5 to 10 years judging from the fact that the average marrying age in Uzbekistan is about 21. The overall fertility would rise sharply despite the decline in TFR (which indicates the average fertility of individuals) when this most populous generation reaches the peak of its fertility. The momentum of the population and the cohort factor exert large influence and this generation would determine the future population trends on the world level. As providing education including sex education and enabling them to acquire proper knowledge is absolutely essential in addressing the population problem of Uzbekistan, it is necessary to become fully aware that there is hardly any time left for taking measures against this problem.

Figure 1 Population structure of Uzbekistan (female)



2. Population Density in Uzbekistan

We were often told during our stay in Uzbekistan that, with a population density of approximately 50 persons/km², population problem does not exist in this country. Can this be true? Although the population density of 50 persons/km² may appear to be not so high, the figure is highest among the countries neighbouring Uzbekistan (Table 1). A serious situation does exist in Uzbekistan. The majority of land in Uzbekistan belongs to arid or semi-arid zone with vast expanses of deserts and steppes. For this reason, cultivated acreage accounts for merely 10.1% of land area and the country's population density would exceed 500 persons/km² if we assume that the majority of population lives in cultivated areas. This would correspond to the same population density as South Korea and Nauru among the countries of the Asian Pacific region. Furthermore, the percentage of rain-fed agriculture in the total cultivated area is only 5%. Considering the fact that most countries with population density of 500 persons/km² import substantial amount of food, we may conclude that Uzbekistan's ability to somehow attain food self-sufficiency and export her cotton production is the consequence of her reliance on high productivity of irrigation agriculture.

The fact that this irrigation agriculture is significantly affecting the water issue of the entire Central Asia is well-known along with the fact that excessive water intake by the country's irrigation agriculture using Amu Darya and Syr Darya as its main source of water is the main cause of shrinking of the Aral Sea.

Regarding this water intake, the amount of water used for leaching salt from the ground in winter is far greater than the water used for irrigation. As a result of the priority given to investing funds into production of export commodities during the former Soviet Union era, colossal civil engineering works for construction of irrigation water supply and drainage channels were also carried out in the province of Syrdarya. They were undoubtedly colossal civil engineering works that excavated the drainage channel running parallel to the supply channel to depths of nearly 15 metres.

During the former Soviet Union era, gigantic heavy equipments were used for performing maintenance of irrigation drainage channels. Today, these channels are thickly covered with halophilous plants and have ceased to function. While leaching is being continued despite this condition, salt is gushing out from 1 meter above its surface to the bottom. It is the outcome of having expanded irrigation agriculture to regions where such form of agriculture would significantly degrade the environment.

Population density in arid and semi-arid regions that are not susceptible to irrigation is believed to be extremely low. As can be seen in Table 3 and Figure 2, considerable differences exist between provinces from 7.1 persons/km² in Navoi to 522 persons/km² in Andijian. In addition, the irrigation agriculture that is supporting this population and their farming is not likely to be capable of supporting the farms in the scale that exists today considering the appropriate allocation of water resources in Central Asia as a whole. Rather, reduction of irrigated farmland seems to be inevitable from the viewpoint of economic efficiency and environmental restraining factors. This point demonstrates the far greater importance of the population factor in the sustainable development of Uzbekistan—particularly the sustainable development of agriculture based on the premise of food self-sufficiency—than is perceived by the parties concerned in the country's government.

Table 1 Population Density of surrounding countries

Country or region	Area	Population				
	000Km	1950	2000	2015	2025	2050
Mongolia	1,565.00	761	2,533	3,085	3,478	4,146
Kazakhstan	2,717.00	6,703	16,172	15,957	16,090	15,302
Turkmenistan	448.00	1,211	4,737	6,059	6,844	8,401
Kyrgyzstan	198.00	1,740	4,921	5,836	6,460	7,538
Iran	1,648.00	16,913	70,330	87,103	99,343	121,424
Tajikistan	143.00	1,532	6,087	7,097	8,066	9,763
Afghanistan	647.00	8,151	21,765	35,577	45,193	72,267
Uzbekistan	447.00	6,314	24,881	30,554	34,203	40,513

Country or region	1950-2000	2000-2050	1950	2000	2015	2025	2050
	Growth rate	Growth rate	Density	Density	Density	Density	Density
Mongolia	3.3285	1.6368	0.49	1.62	1.97	2.22	2.65
Kazakhstan	2.4127	0.9462	2.47	5.95	5.87	5.92	5.63
Turkmenistan	3.9116	1.7735	2.70	10.57	13.52	15.28	18.75
Kyrgyzstan	2.8282	1.5318	8.79	24.85	29.47	32.63	38.07
Iran	4.1583	1.7265	10.26	42.68	52.85	60.28	73.68
Tajikistan	3.9732	1.6039	10.71	42.57	49.63	56.41	68.27
Afghanistan	2.6702	3.3203	12.60	33.64	54.99	69.85	111.70
Uzbekistan	3.9406	1.6283	14.13	55.66	68.35	76.52	90.63

Source: Population Division, Department of Economic and Social Affairs, *The World at Six Billion*, United Nations, 1999

Table 2 Population Density of Uzbekistan

	1995	1996	1997	1998	1999
Population Density (1km ²)	51.4	52.4	53.4	54	54.8
Cultivated land (Percentage of national land area %)	10.1	10.1	10.1	10.1	10.1
Forests (Percentage of national land area %)	3.0	3.0	3.0	3.0	3.0
Irrigated Land (Percentage of national land area %)	95.0	95.0	95.0	95.0	95.0

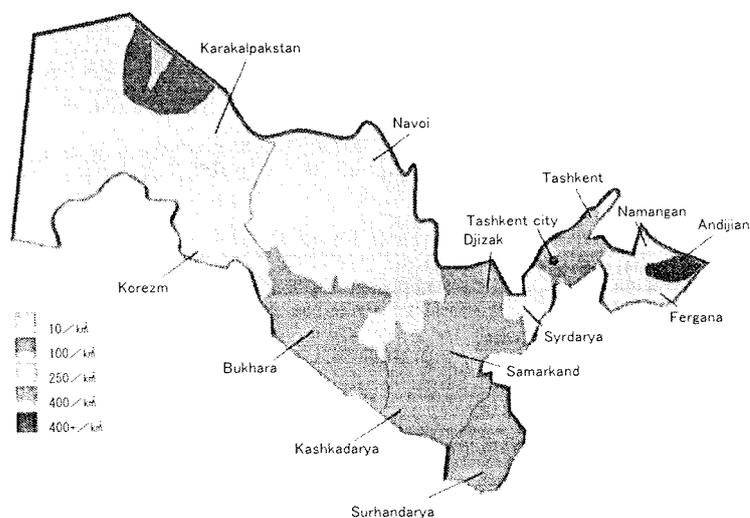
Source: UNDP Uzbekistan, *Human Development Report Uzbekistan 2000, 2001*

Table 3 Population Density in Uzbekistan (by Oblast)

	Density (persons/km ²)	Rate of rural Population (%)
Uzbekistan	54.8	62.4
Karakarpakistan	9.0	51.6
Andijian	522.0	69.8
Bukhara	35.3	68.8
Djizak	46.2	69.4
Kashkandarya	75.9	74.5
Navoi	7.1	59.5
Namangan	260.8	62.4
Samrkand	159.5	72.8
Surhandarya	86.6	80.0
Syrdarya	150.2	67.7
Tashkent	290.1	59.6
Fergana	399.4	70.7
Korezm	217.4	76.1

Source: UNDP Uzbekistan, *Human Development Report Uzbekistan 2000, 2001*

Figure 2 Population Density in Uzbekistan (by Oblast)



Source: The Ministry of Health and UNFPA, *Reproductive Health Care In the Republic of Uzbekistan (1991-1999)*, 2000

3. Projection of Population Growth

Population of Uzbekistan is predicted to keep increasing by a large margin in the future. Reduction of TFR and population increase rate have shown substantial decline over the last 10 years. If we assume that the population increase rate in the year 2000 that has dropped significantly in 10 years' time, the country's population will exceed 60 million in 2050. This corresponds to 10 times the number of population in 1950.

While the present population increase rate is declining and unlikely to continue, it signifies that Uzbekistan will have to support a population 2.5 times larger in size in another 50 years if the present population increase rate remains unchanged. The population will still exceed 40 million in 2050 when U.N.'s medium-level projection is applied. This is 1.5 times larger than the present population. If population continues to increase at the present rate then, population density in the province of Andijian would be around 800 persons/km² and would come close to the level existing today in Bangladesh. We are not able to imagine the same condition as Bangladesh—a country located in the monsoon region with agriculture centred around paddy rice—emerging in Central Asia. The situation is quite serious.

Figure 3 Population Projection

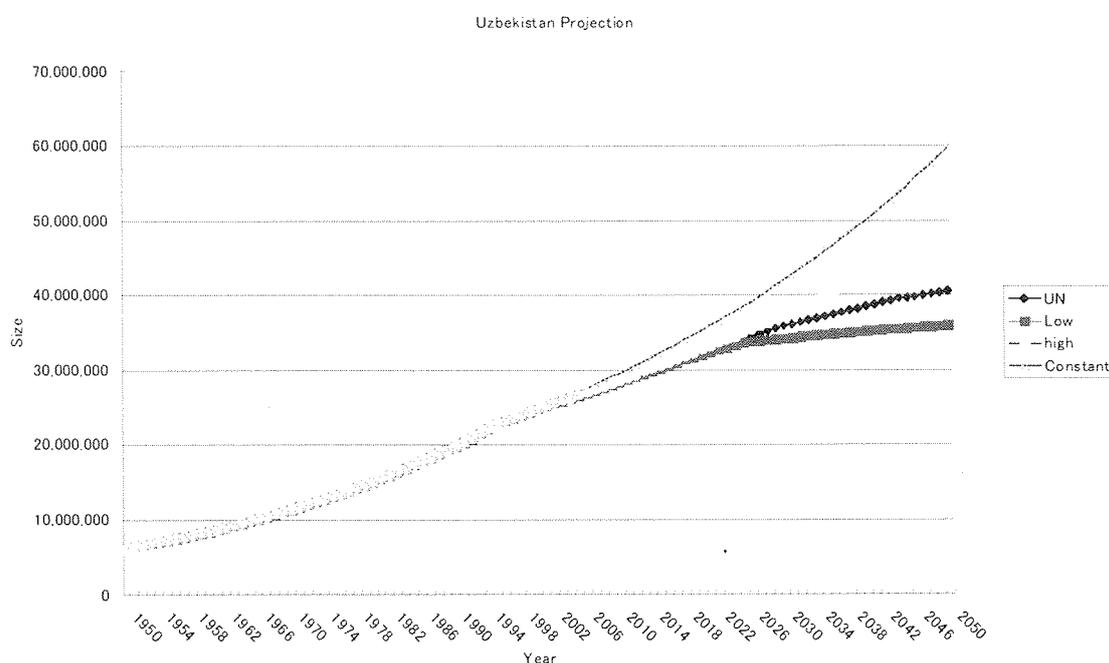


Table 4 Projection of Population Growth

Year	1950	2000	2015	2025	2050
Size of Population	6,314,000	24,881,000	30,554,000	34,203,000	40,513,000

Source: Population Division, Department of Economic and Social Affairs,
The World at Six Billion, United Nations.

Chapter 2 Agricultural Sector in Uzbekistan Under the Struggle for Farm Management Adjustment, Irrigation System Control and Landlocked Transport Route

Introduction

Uzbekistan became an independent state with the collapse of the Soviet Union in December 1991. The Conservative President Karimov was re-elected after winning 99.6% of the votes cast in his support in the referendum of March 1995 and is carrying out a reform through gradualism (phased transition to market economy). In the legislative branch, the former Community Party that changed its name to People's Democratic Party is holding the majority position and supporting the president.

Uzbekistan still has strong relationship with Russia in the area of diplomacy and trade but has an intention of growing out of dependence on Russia. Meanwhile, Uzbekistan is placing emphasis on the relations with the West and seeking improvement of relations and strengthening of cooperation with the Muslim states by joining Organization for Security and Cooperation in Europe (OSCE) as well as United Nations, IMF, World Bank, and Asian Development Bank (ADB) with expectation of receiving economic support from international agencies and developed countries. Nevertheless, privatisation of companies and modernisation of financial market and agriculture are lagging behind. While it is predicted that much time would be needed before Uzbekistan is admitted to WTO, the negotiations started in Geneva in July 2002. Since Uzbekistan is also a member of FAO, there is an increasing tendency of Uzbek agriculture being incorporated into the global economy.

Compared to other CIS states, the economy of Uzbekistan has the following characteristics.

1. Speed of economic reform is very slow
2. The majority of economic system from the former Soviet Union is still remaining
3. Production quota system still exists
4. There is no market worthy of its name
5. Currency transferability does not exist

At the same time, it is a monocultural economic system that is sensitive to fluctuations in the international cotton prices (which ranges from US\$2,000 to US\$800/ton).

Uzbekistan is the fourth largest producer of cotton and the sixth largest producer of gold in the world. The country also has abundant reserves of natural gas and well-developed petroleum, coal and nonferrous metal industries. Being originally an agrarian country that has attained energy self-sufficiency, the decline of outputs in Uzbekistan owing to disintegration of Soviet Union is smallest among CIS countries.

Uzbekistan introduced her own currency "SUM" in June 1994. However, it brought confusion in the exchange market because of the measures such as restrictions in foreign

currency exchange, foreign currency allocation and strengthening of import restrictions that were taken after the deterioration of international balance of payments, and resulted in substantial reduction in investment from overseas. A phased liberalisation of foreign-currency trading was decided in July 1998 but there are no prospects for its implementation.

(1) Importance of Water Resources and Irrigation Facilities

Uzbekistan has a total area of 4.47 million hectares. Fifty-three percent of this land consists of natural grazing land, 36% is non-agricultural land and the remaining 10% (4.47 million hectares) is used as farmland. Eighty-two percent of farmland is irrigated, realising an artificial irrigated agriculture unparalleled in the world. For this reason, it is essential to fully understand the country's irrigation facilities and the accompanying water distribution system when studying the agriculture of Uzbekistan.

Agriculture in Uzbekistan is completely dependent on irrigation facilities that had been built over a period of more than 60 years. It is therefore not possible to discuss Uzbek agriculture without examining the management and allocation system of agricultural water or its usage structure along with irrigation facilities. Since one cannot expect to practice rainwater agriculture in Uzbekistan, agriculture in the country can only develop through use of irrigation agriculture. Unlike in Southeast Asia, water largely determines the scale of farm management in West and Central Asia (refer to the water distribution system in this report).

Cotton production was the top priority matter prior to independence and its production quota was determined by the centralised planning of the Soviet Union. Under the centralised agricultural production system centred around cotton during the Soviet era, maximisation of water use was sought for cotton production, and the river water management system and its water allocation was determined accordingly. There are currently 26 irrigation reservoirs in the whole area of Uzbekistan excluding Kara Kalpak Republic, and the water stored in these reservoirs is distributed through irrigation canals reaching 130,000km in total length that were built during the Soviet era. These large scale irrigation facilities and their management have large impact on farm management and it is not possible to brighten the prospects for sustainable farm management in Uzbekistan without its maintenance.

(2) Trends of Agricultural Liberalisation⁶ and Diversification of Crops after the Collapse

Once one of the republics comprising the former Soviet Union, Uzbekistan succeeded in keeping the decline in domestic production activities that accompanied the disintegration of the former Soviet Union to a minimum. Uzbekistan was able to minimise the decline in production capacity by choosing a gradual approach instead of hurrying the transition to privatisation and market economy, and stands in contrast to countries that chose to follow the radical approach and lost half of their production capacity such as Kazakhstan and Kyrgyzstan.

The people working at the Uzbekistan office of the World Bank indicated that Uzbekistan's speed of transition to market economy was slowest when classified among the countries in the process system transition, and gave negative assessment of the country's economic reform in the negotiation held as recently as mid-September 2002. However, it is necessary to point out that the country reduced her export of cotton as raw material by half from 85% to

promote the domestic cotton processing industry¹ while succeeding in converting cotton fields to grain fields to improve the rate of food self-sufficiency.

The basic development strategy of Uzbekistan focuses on light industrialization for import replacement. For this reason, regulation of foreign trade and foreign exchange control are basic policies that have seen considerable improvement compared to 1991. The number of commodities subject to export regulation has been reduced by half in 1993 from 176 in 1991 with only few items remaining at present. The export regulation of 1991 was enforced under the policy of allocating resources from agricultural products of the export sector to import replacement light industry out of sheer necessity during the turbulent period that followed the collapse of Soviet Union.

Price decontrol is an essential requirement for making the shift to market economy. While direct control of prices is currently limited to certain medicines and energy-related commodities, the government is exerting strong influence on pricing of important agricultural commodities such as cotton and wheat through government procurement system. While there are commodities that are indirectly subject to government intervention, many points remain unclear with regard to this point.

Agriculture holds the position of the most important industry in the country, accounting for about 31% of GDP and about 40% of entire workforce. Sixty percent of added value in the agricultural sector come from agricultural commodities with the livestock sector supporting the remainder. Cotton is the primary agricultural commodity and is followed by wheat. Uzbekistan is the fifth largest cotton producer and the second largest exporter of cotton in the world.

The majority of light industry output is related to cotton produced in the irrigated regions and is contributing to 40% of foreign currencies acquired. However, a portion of irrigated farmland is being allotted to food production after independence for the purpose of improving food self-sufficiency. However, there exists a problem of cotton productivity not improving despite the decline in cotton planting.

(3) Forms of Farm Management

Farm management entities are supporting the agricultural sector in substance. Land ownership is an important issue for these farm management entities. However, we must know as a basic concept that permanent private land ownership and land market (that we who were born and raised in the West are generally aware of) do not exist in Uzbekistan. Various restrictions and unexplained aspects also apply to dekhkan (small-hold farmers) that have been granted with the right to lifetime use of land as well as its inheritance, ownership and lease.

Like other former Soviet Union countries, farm management in Uzbekistan prior to independence was characterised by forms of farm management such as large kolkhoz and sovkhoz based on; 1) large-scale irrigation facilities; 2) large-scale mechanization; 3) collectivization; 4) use of chemical fertilizers; and 5) breed improvement. After gaining

¹ The Government of Uzbekistan will invest \$1,045.5 million by 2005 to reduce export of cotton as raw materials and process the reduced portion within Uzbekistan. (The Times of Central Asia, July, 18, 2002)

independence, however, liberalisation gradually advanced and reduced the number of old forms of agriculture—although cases where management remains unchanged despite their change in form are occasionally observed in some new management forms. This section will carry out a system analysis of three central forms of farm management in Uzbekistan in an attempt to reveal the conditions of their establishment, their functions and the characteristics of machinery, land ownership and water regulations.

1. Form of farm management of Uzbekistan

(1) Large-Scale Farm Management (Shirkat)

After the independence, several bills related to agricultural land use and forms of agricultural production were passed, and a presidential decree on privatisation of collective farm management was issued between 1991 and 1994. When enforcement of these regulations was ordered to government agencies of respective states, the regulations were largely affected by political situation and power balance in these states. Different forms of management were born under the same regulation and various forms of management were created under the same form of management. However, such diverse forms of farm management did not emerge out of response to market principle needs or participation of farms in the reform process as they were adopted according to blueprint and institutional procedures.

In the case of kolkhoz, its assets such as land and agricultural machinery were allotted among the farmers comprising the kolkhoz in the same manner it was done in Kazakhstan. However, the allotment was largely affected by, and was determined according to factors such as the farm's position in the kolkhoz, length of employment at farm management, distinguished services to development of farm management and political influence. The operators of shirkats visited by our study group were persons that once served as kolkhoz leaders and received larger allotments than other members. For this reason, unequal allocation of assets among farms occurred from the beginning in the process of collective farm management reform. The situation was the same regarding this matter in Kazakhstan and Uzbekistan, even though the former chose the path of radical reform and the latter opted for gradual change.

(2) Independent Medium-Scale Farm Management (*Fermer*)²

A form of farm management called "*farmer*" was often mentioned during this study. However, this form of farm management does not exist in a legal sense and is officially referred to as "*Fermer*." "Farms" will therefore be analysed in the following.

This form of farm management ranges from 10 to 100 hectares in management area but differs in scale from region to region. Legally speaking, they are independent entities but are largely dependent on shirkats. *Fermers* are recognized as independent management entities by shirkats and are dependent on shirkats and for irrigation, production materials and logistics. In addition, they must follow government orders on production items (particularly with regard to production of cotton, wheat and rice). The law of the Republic of Uzbekistan concerning agriculture is comprised of seven chapters (36 sections in total).

² The Law of the Republic of Uzbekistan No.602-1 of April 30, 1998. (This law was amended in accordance with the Law of the Republic of Uzbekistan No.175-II of December 15, 2000.)

(3) Family Owned Small Farm Management (Dekhkan)

As in Persian, the term dekhkan signifies "farmer." This type of farm management usually consists of 0.35 hectare of irrigated land, 0.5 hectare of unirrigated land and 1 hectare of unirrigable land such as steppe and desert. They are independent entities in the legal sense but are largely dependent on other independent entities such as shirkats. Even their locations may change inside the shirkat zoning according to shirkat's policy in some cases.

The majority of dekhkans are self-employed part-time farmers and produce a wide range of crops. Some dekhkans continue cultivation for self consumption while others engage in production activities to earn cash. Dekhkans are playing an important role in the agriculture of Uzbekistan today as they are producing more than 60% of food (not including wheat). From the viewpoint of form of management, dekhkans accounted for 66.3% of total agricultural production as opposed to 26.8% of shirkats and 6.9% of *farmers* in 2001.³

The law providing the definition of dekhkan and its framework is the Republic of Uzbekistan Law NO604-1 of April 30, 1998.⁴

2. Results of hearing survey by form of management

The aspects of agriculture in Uzbekistan were introduced and analysed above by form of management. In this study, 3 shirkats, 3 *farmers* and 2 dekhkans that were mostly located in the Tashkent region were studied. However, we must keep in mind the fact that agriculture in Tashkent does not by any means represent the situation of agriculture in Uzbekistan as a whole. Tashkent is a region where a considerable number of irrigation and drainage facilities were built during the former-Soviet Union era and does not necessarily represent the general situation in Uzbekistan.

(1) Large-Scale Management Entities (Shirkat)

1) Urta-Saroy Shirkat (Tashkent Region)

This shirkat is located 20 kilometres from Tashkent and was established in 2000. The assets of the former kolkhoz (land not included—mostly machinery and livestock) was evaluated as part of the requirements for establishment. The assets were allotted among the members based on: 1) degree of contribution to the former kolkhoz; 2) length of membership; 3) political power; and 4) salary received during the last 10-15 years. Disparity in assets was already observed at that point. Land was handed over from the shirkat through a three-year contract according to the capacity and workforce of each household. The entire plot has an area of 1,425 hectares (including farmland, residential area, warehouse area), and 910 hectares of this area were used for cultivation in 2002. This shirkat has 1,246 households (of which 398 are members) and a population of 7,500. Water for irrigation comes from Chirchik River. Eight independent *farmers* have been established inside this shirkat zone and 394 hectares of shirkat land has been handed over to these *farmers* based on a 49-year

³ The Basic Indicators of Social and Economic Development of the Republic of Uzbekistan in 2001, p. 103.

⁴ This law was amended in accordance with the Law of the Republic of Uzbekistan No.175-II of December 15, 2000.

contract.⁵ Other facilities include 5 elementary schools (enrolment 1,200), 1 emergency hospital, 2 day-care centres (including state-owned), 1 spa and 1 military training centre.⁶

The shirkat owns 23 tractors, 1 combine harvester, 3 tillers, 1 harvester and 1 crop duster. All of these machines are made in Russia and the shirkat is renting 2 tractors from a state-owned machinery centre due to their shortage. Most agricultural machineries are old and date back to 1970s. There are also 9 cars and trucks. Since shirkats do not perform stock farming, 450 cows that were formerly under its possession have been handed over to farms that chose to become independent *farmers*. This shirkat is purchasing milk and butter it consumes from independent farms.

Production of main farm produce in fiscal 2001 consisted of 1,743 tons of wheat and 1,500 tons of cotton. The government purchased the entire cotton production. As for wheat, 722 tons were distributed among the members⁷ and the remainder was purchased by the government.

2) Production cost and profit status of Urta-Saroy as of January 2001

Table 1, which is a table on production cost and profit status of Urta-Saroy Shirkat, will be used as a reference for analysis. Provided that the data we obtained are valid, management efficiency of this large-scale form of management is not by any means high. The shirkat spends 90% of its sales on production cost and the majority of crops produced are under state control in some form or another.

**Table 1 Production cost and profit status of Urta-Saroy in fiscal 2001
(Farm management in the scale of 398 member households)**

Crop	Wheat	Cotton	Fruit	Vegetables
Sown area (hectares)	348.0	533.0	9.1	20.0*
Yield (tons)	1,743.0	1,500.0	-	-
Yield per hectare	4.3	2.8	-	-
Average price per ton (Sum)	60,000.0	10,000.0	-	-
Main product sales (Sum10,000)	10,458.0	15,000.0	-	-
Total sales (Sum10,000)	25,458.0			
Total expenses (Sum10,000)	22,921.4			
Share (%)	90.0			
Management surplus (Sum10,000)	2,536.6			
Average yield per hectare from sown area (Sum)	27,874.7			

Source: Prepared from a hearing survey conducted on July 31, 2002

* Of which 16 hectares are from inner gardens for home consumption.

3) Bayovut Shirkat (Syr-Darya region)

This shirkat is located 150 kilometres from Tashkent City and was established in 2000. The assets of the former kolkhoz (land not included—mostly machinery and livestock) was evaluated as part of the requirements for establishment and the assets were allotted among the members based on: 1) degree of contribution to the former kolkhoz; and 2) length of

⁵ Shirkat had an original total area of 1,819 hectares.

⁶ This training centre does not pay any rent to the shirkat.

⁷ Each household has the choice of deciding whether to sell it in the market, consume it or use it as seeds for the following year.

membership. Disparity in assets was already observed among members at that point. Land was handed over from the shirkat through three-year contract according to the capacity and workforce of each household. The entire plot has an area of 7,180 hectares (including farmland, residential area and warehouse area), of which 5,420 hectares are used for cultivation and the remainder is used as grazing land. There are 1,300 member households but membership count is 3,500 as some households put out more than one worker. Shirkat population is 11,000. Water for irrigation is fed by Syr-Darya River (South Mirezako Canal). Other facilities include 6 elementary schools, 4 emergency hospitals, 3 day-care centres (including state-owned) and 1 sports centre.

Among the members are 25 persons engaged in the executive position and 150 persons working as drivers and mechanical engineers. Seventy independent *farmers* have been established inside the shirkat plot based on a 49-year lease contract. Farmland is distributed to each member on a 3-year contract basis but the land will be returned to the management of shirkat if a farm fails to utilise the land effectively. On the other had, the members have the right to receive dividends.

Bayovut Shirkat owns 120 Russian-made tractors, 4 American-made combine harvesters, 5 Russian-made tillers, 1 harvester, 4 Russian-made crop dusters, 22 Russian- and Uzbek-made threshers and 25 Uzbek-made trucks. Eighty cows have been handed over to respective households because the shirkat is not engaged in livestock management.

The output of main agricultural produce in fiscal 2001 consisted of 8,000 tons of wheat, 8,500 tons of cotton and 400 tons of vegetables. The entire cotton production as well as 6,500 tons of wheat (after excluding the 1,500 tons for consumption within the shirkat) were purchased by the government.

Table 2 on the production cost and profit status of Bayovut Shirkat can be used as reference.

**Table 2 Production cost profit status of Bayovut Shirkat in fiscal 2001
(Farm management in the scale of 1,300 member households)**

Crop	Wheat	Cotton	Fruit *	Vegetables (potato)	Maize*	Feed crop *
Sown area (hectare)	2,000.0	3,100.0	70.0	50.0	100.0	100.0
Yield (tons)	8,000.0	8,500.0	-	400.0	-	-
Yield per hectare	4.0	2.8	-	8.0 *	-	-
Average price per ton (Sum)	80,000.0	94,000.0			-	-
Main product sales (Sum10,000)	64,000.0	68,000.0			-	-
Total sales (Sum10,000)	78,000.0					
Total expenses (Sum10,000)	76,000.0					
Share (%)	97.0					
Management surplus (Sum10,000)	2,000.0					
Average yield per hectare from sown area (Sum)	4,000.0					

Source: Prepared from a hearing survey conducted on August 1, 2002

* For consumption in shirkat and at home.

Provided that the data we obtained are valid, management efficiency of this large-scale shirkat is clearly inefficient compared to Urta-Saroy Shirkat. Average profit per hectare of sown area is only one-seventh of that in Urta-Saroy Shirkat. Crops based on state control accounts for the majority of production but diversity is being expanded.

4) Tashkent Shirkat (Tashkent region)

This shirkat is located 10 kilometres from Tashkent City that started out as a sovkhos in the 1960s. After the Soviet disintegration, it developed into a kolkhoz in 1992 as a part of the Primary Agrarian Reform and was established as a shirkat in 2000 during the Secondary Agrarian Reform. The standard for dismantling of kolkhoz and establishment of shirkat or land allocation were more or less same as other shirkats. The entire plot has an area of 1,320 hectares (including farmland, residential area, warehouse area), of which 700 hectares are used as farmland. The shirkat has 1,000 member households and a population of 10,000. Additional 4,000 households are engaged in farm management on 0.02 to 0.06 hectares of land as dekhkans. The water for irrigation comes from river water originating in snowmelt from the mountains and is carried by canals. Other facilities include 3 elementary schools, 2 clinics and 1 spa. There is also a vegetable processing factory (for tomato puree etc.) that is equipped with old machinery made in Uzbekistan.

Among the members are 19 executives and 50 factory workers (including members), several drivers and mechanical engineers. Land is being distributed to each member on a 3-year contract basis but will be returned to the management of shirkat if a farm fails to utilise the land effectively. Three-hundred workers were hired last year on a seasonal contract last year.

The Tashkent Shirkat owns 16 Russian-made tractors, 1 Russian-made combine harvesters, 22 trucks of various origins including Uzbekistan. As in other shirkats, 570 cows have been sold private farms (60 of which were sold to shirkat members).

The output of main agricultural produce in fiscal 2001 consisted of 1,200 tons of wheat and 4,900 tons of vegetables. Based on contracts signed between shirkat and respective farms, up to 4.2 tons per hectare of wheat production is handed over to the shirkat and each farm can sell any wheat produced in excess of this amount freely in the market. In the case of this shirkat, 89 farms among those comprising the shirkat (280 hectares total) were producing an average of 6 tons of wheat per hectare. As for vegetables, each farm can sell any harvest in excess of 2.5 tons per hectare.

While no concrete figures were available with regard to production cost and profit status, gross sales and total cost amounted to 233 million Sum and 157 million Sum, respectively. In addition, Cost accounted for 67% of gross sales, business surplus came to 76 million Sum and profit per sown area totalled 10,657 Sum. Efficiency is high in addition to the fact that costs are kept low compared to other shirkats. Meanwhile, profit per sown area is low compared to Urta-Saroy Shirkat but is high compared to Bayovut Shirkat.

(2) Medium-Scale Management Entities (*Fermer*)

1) Anarboy Usmanov *Fermer* (Tashkent Region)

The operator of this farm is a 44-year old male who is engaged in management of a 120 hectare farm that he rented on a 49-year contract in 1999. He works as a full-time farmer and lives collectively with 44 households of his relatives (a total of 110 persons).

Management area by produce consisted of 50 hectares of wheat, 5 hectares of vegetables and 65 hectares of cotton. Agricultural machinery includes 8 tractors (made in Russia, Uzbekistan and Belarus), 1 Russian-made tiller, 3 Uzbek-made cultivators, 2 Uzbek-made trucks and 3 Uzbek-made cultivators. Agricultural machineries are relatively new and were purchased between 1999 and 2001. There are also 4 horses and 4 milking cows. Milk from these cows is for consumption within the *fermer*.

Out of 210 tons of wheat the farm produces, 68 tons are distributed among the 44 households for self consumption and direct market sales, and the remaining 142 tons are sold to the government by contract. The farm produced 100 tons of vegetables and distributed 50 tons of them among the 44 households based on their labour participation and directly sold the rest in the market. The 185 tons of cotton farm produces are sold entirely to the government by contract. Each household has the freedom of choice in producing either wheat or cotton. Farms can also receive 50% advance funds from the government based on a contract regarding price and amount of production. The farm had obtained a loan from a local farm loan bank for working capital at 25% interest rate and has repaid the entire sum by fiscal 2001.

Table 3 Production cost profit status of Anarboy Usmanov *Fermer* in fiscal 2001 (Tashkent Region) (44 households consisting of 110 members)

Crop	Wheat	Cotton	Fruit	Vegetables	Maize	Feed crop
Sown area (hectare)	50.0	65.0	5.0	-	-	-
Yield (tons)	210.0	185.0	100.0	-	-	-
Yield per hectare	4.2	2.8	20.0	-	-	-
Average price per ton (Sum)	57,000.0	130,000.0	-	-	-	-
Total sales (Sum10,000)	4,000.0*					
Total expenses (Sum10,000)	3,100.0					
Share (%)	77.5					
Management surplus (Sum10,000)	900.0					
Average yield per hectare from sown area (Sum)	7,500.0					

Source: Prepared from a hearing survey conducted on July 31, 2002

* Includes other sales.

Provided that the data we obtained are valid, this medium-scale management is clearly efficient compared to Urta-Saroy Shirkat and Bayovut Shirkat. Percentage of cost in gross sales is 77.5%. Average profit per hectare of sown area is inferior compared to Urta-Saroy Shirkat but is 1.9 times higher than Bayovut Shirkat.

2) Murod Shukurov *Fermer* (Syr-Darya Region)

The operator of this farm is a 68-year old male engaged in management of a 17 hectare farm that he rented on a 10-year contract starting in 2001. He works as a full-time farmer and lives collectively with 3 households of his relatives (2 sons and their families). Land tax has been exempted based on law for the first 2 years of the lease period. The farm will be imposed a land tax of 2,500-3,000 Sum a year for each hectare of land thereafter.

Management area by produce that consisted entirely of cotton in fiscal 2001 has been changed to 10 hectares of wheat and 7 hectares of cotton in fiscal 2002. An Uzbek-made tractor is the only agricultural machinery it owns. The farm rents a combine harvester from a neighbour farm for a short period of time it is needed. The farm purchased 3 cows (1 milking cow, 1 bull and 1 calf) and 40 chickens last year for self consumption.

Out of 30 tons of wheat produced, 3 tons were used in self consumption (including seeds for the next year) and the remaining 27 tons were sold to the government by contract. It also produced 53 tons of cotton but sold the entire amount to the government by contract. The farm is operated on its own fund because interest rate is high. This farm household was involved in agriculture as shirkat leader before becoming a *fermer* operator but had resigned from shirkat to become an independent farm.

Table 4 Production cost profit status of Murod Shukurov *Fermer* in fiscal 2001 (Syr-Darya Region) (3 households)

Crop	Wheat	Cotton	Fruit	Vegetables	Maize	Feed crop
Sown area (hectare)	10.0	7.0	-	-	-	-
Yield (tons)	30.0	53.0	-	-	-	-
Yield per hectare	3.0	7.6	-	-	-	-
Average price per ton (Sum)	60,000.0	85,000.0	-	-	-	-
Total sales (10,000 Sum)	380.0					
Total expenses (10,000 Sum)	530.0					
Share (%)	1.39.0					
Management surplus (10,000 Sum)	-150.0					
Average yield per hectare from sown area (Sum)	-88,235.0					

Source: Prepared from a hearing survey conducted on August 1, 2002

Provided that the data we obtained are valid, this medium-scale management is operating on a deficit with total cost adding up to 1.39 times the amount of gross sales. The cause of this high cost lies in cost of desalination which is a common problem for the entire region. Our hearing survey revealed that 32% of cost is spent on desalination.

3) Bozorboy Hontoriev *Fermer* (Djizak Region)

The operator of this farm is a 50-year old male engaged in management of a 10 hectare farm that he has rented on a 10-year contract starting in 1996. He works as a full-time farmer and lives collectively with 3 households of his relatives (2 brothers and their families). Although the lease period was initially 10 years, he requested its extension to 49 years in 1997. A land tax of 3,500 Sum a year will be imposed for each hectare of land after an exemption period of 2 years.

Management area by produce consisted of 4.5 hectares of wheat, 5 hectares of cotton, 0.2 hectares of vegetables including tomato and 0.3 hectares of alfalfa. Three households jointly own an old tractor (made in Belarus in 1985), a hand-made tiller, an Uzbek-made crop duster, a Russian-made cultivator and a Russian-made seed planter. The farm also rents a combine harvester (made in the U.S. in 2000) from the State Machinery Centre when it is needed. The farm is also raising 4 cows (2 milking cows and 2 calves) since 1997 for self consumption.

Agricultural production in fiscal 2001 included 22 tons of wheat, 9.8 tons of which were used for self consumption (including seeds for the following year) and the remaining 12.2 tons were sold to the government by contract. The farm produced 13 tons of cotton which was sold entirely to the government by contract. The farm also produced 3.2 tons of tomato and 2 tons of other vegetables for self consumption. While the farm decides the production area of wheat and cotton on its own, their prices are negotiated between the farm and government agency and ultimately determined by the special committee. Since interest rate is high, the farm operates on its own fund and advance fund from the government (about 50% of the contracted amount).

Table 5 Production cost profit status of Bozorboy Hontoriev *Fermer* in fiscal 2001 (Djizak Region) (3 households)

Crop	Wheat	Cotton	Fruit	Vegetables (tomato)	Maize	Feed crop *
Sown area (hectare)	4.5	5.0	-	0.2	-	0.3
Yield (tons)	22.0	13.0	-	5.2	-	-
Yield per hectare	4.8	2.6	-	26.0	-	-
Average price per ton (Sum)	63,000.0	84,000.0	-	-	-	-
Total sales (10,000 Sum)	170.0					
Total expenses (10,000 Sum)	95.2					
Share (%)	56.0					
Management surplus (10,000 Sum)	74.8					
Average yield per hectare from sown area (Sum)	74,800.0					

Source: Prepared from a hearing survey conducted on August 2, 2002

* For livestock

Provided that the data we obtained are valid, this medium-scale management is clearly efficient compared to large-scale managements such as Urta-Saroy Shirkat and Bayovut Shirkat. This is because the percentage of cost in gross sales is 56%. Average profit per hectare of sown area is 2.7 times higher than Urta-Saroy Shirkat and is as much as 18.7 times higher than Bayovut Shirkat.

(3) Small-Scale Dekhkan Management Entities

1) Kayum Yuldoshev Dekhkan (Dostlik District, Djizak Region)

This small-hold farm management is made up of 3 households (7 persons including 52-year old parent and his sons). Parents were a member of a shirkat until 2000 but started engaging in farm management inside a shirkat as an independent dekhkan of 0.30 hectare after obtaining lifetime land ownership in 2001. The farm's ownership of the land is less than 2 years and is therefore exempt from land tax by law at present.

Management area by produce consisted of 0.15 hectare for wheat and 0.15 hectare for fruit. The farm does not hire any workers and operates entirely on family labour. Agricultural machinery owned include an old tractor (made in Russia in 1986) rented from shirkat and 2 hand-made tillers. The farm is also raising a milking cows and a calf for self consumption. It also has 35 chickens that lay 10 to 15 eggs a day. These eggs are either consumed at home or sold in the market for cash income.

Agricultural production in fiscal 2001 included 600 kilograms of wheat and 5 tons of fruit. Wheat is consumed by the family for bread and as seed for the following year. As for fruit, 0.5 ton is for self consumption and the remaining 4.5 tons are sold in the market. The farm also sells chickens in the market in some years. The farm more or less meets its entire fund requirements.

Table 6 Production cost profit status of Kayum Yuldoshev Dekhkan in fiscal 2001 (Dostlik District, Djizak Region) (2 households consisting of 7 persons)

Crop	Wheat	Cotton	Fruit	Potato	Maize	Green peas	Tomato	Radish
Sown area (hectare)	0.15	-	0.15	-	-	-	-	-
Yield (tons)	0.6	-	5.0	-	-	-	-	-
Yield per hectare	4.0	-	33.0	-	-	-	-	-
Total sales (10,000 Sum)	21.0							
Total expenses (10,000 Sum)	6.0							
Share (%)	29.0							
Management surplus (10,000 Sum)	15.0*							
Average yield per hectare from sown area (Sum)	500,000.0							

Source: Prepared from a hearing survey conducted on August 2, 2002

* The farm also has income from direct sales of 70-80 chickens in the market (SUM800 per head) in addition to the above.

Provided that the data we obtained are valid, simple arithmetic shows that this small-scale management is clearly efficient compared to large- and medium-scale managements. The percentage of cost in gross sales is only 26% and average profit per hectare of sown area is far greater compared to large- and medium-scale counterparts. For example, it is 18 times higher than Urta-Saroy Shirkat and is as much as 67 times the level of Anarboy Usmanov *Fermer*. Moreover, it grows 600 kilograms of wheat on 0.15 hectare (4 tons per hectare) and maintains productivity comparable to large-scale shirkat and *fermer* managements. Nevertheless, there is still a need to further confirm the data that has been presented.

2) Odilhoja Tohta Dekhkan (Tashkent Region)

This small-hold farm management is comprised of 2 full-time farm households (52-year old parent who is the farm operator and his 2 sons, 17 persons in total) and a part-time farm household parent.⁸

The farm operator worked for 20 years as a member of a kolkhoz which later changed its status to shirkat. He obtained lifetime land ownership in 2002 and is engaged in farm management inside a shirkat plot as an independent dekhkan with 0.52 hectare of land. Land tax is exempt for the first 2 years.

⁸ The response to whether the household is a full-time farm household in the questionnaire was "no." Another job the parent holds is the chairman of a committee comprised of 13 households, resulting in an income of SUM300,000 a year.

Management area by produce in fiscal 2002 consisted of 0.01 hectare for fruit, 0.05 hectare for potato, 0.05 hectare for radish, 0.02 hectare for green peas, 0.03 hectare for tomato and 0.20 hectare for maize. The remainder of the land is fallow land. The farm does not hire any workers and operates on family labour. The farm owns hardly any machinery and is raising 4 milking cows, 5 calves, 4 goats, 40 chickens and 20 ducks for self consumption and sales in the market. Chickens lay 25-26 eggs a day while ducks lay 20 eggs a day. These eggs are consumed at home and also sold in the market. Chicken and duck eggs are sold for as high as SUM 100 and SUM110 in the market, respectively.

Production in fiscal 2001 included 1 ton of potato, 1 ton of tomato and 9,000 eggs. Maize production is not known but is used primarily as livestock feed. The farm is taking out a long of SUM1.7 million from a government-related bank at an interest rate of 20% for operating capital.

Table 7 Production cost profit status of Odilhoja Tohta Dekhkan in fiscal 2001 (Tashkent Region) (3 households consisting of 17 persons)

Crop	Wheat	Cotton	Fruit	Potato	Maize	Green peas	Tomato	Radish
Sown area (hectare)	-	-	0.01	0.05	0.20	0.02	0.03	0.05
Yield (tons)				1.0			1.0	
Yield per hectare				20.0			33.3	
Average price per ton (Sum)							150,000.0	
Total sales (10,000 Sum)	150.0							
Total expenses (10,000 Sum)	44.0							
Share (%)	29.3							
Management surplus (10,000 Sum)	106.0							
Average yield per hectare from sown area (Sum)	388,889.0*							

Source: Prepared from a hearing survey conducted on July 31, 2002

* The 20% interest cover (corresponding to Sum340,000 a year) is included in the expenses. Wages are not paid to respective households. At the same time, the farm produces 9,000 eggs (sold at Sum100-110 each) and 13,600 litres of milk in a year for self consumption and sales in the open market.

Provided that the data we obtained are valid, simple arithmetic shows that this small-scale management is clearly efficient compared to large- and medium-scale managements. The cost accounts for only 29.3% of gross sales and average profit per hectare of sown area is far greater compared to large- and medium-scale counterparts. For example, it is 13.9 times higher than Urta-Saroy Shirkat and is as much as 52 times the level of Anarboy Usmanov *Fermer*. Moreover, its stock and poultry farming produces 9,000 eggs (sold at 100-110 Sum each) and 13,600 litres of milk in a year for self consumption and sales in the open market.

However, oral description of summaries was often the means for obtaining information as small-hold farms generally do not have access to accurate data about their management. For this reason, we were not able to reveal the whole picture of farm management owing to various constraints encountered during the survey. Further confirmation or review of presented data is necessary when working out the actual aid measures.

Chapter 3 Problems of Farm Management Systems, Water Resources, Irrigation Facilities and Landlocked Situation

1. Problems Concerning Shirkats

Shirkats represent the second phase of farm management in the transition process and a movement exists to gradually foster and promote medium- and small-scale independent farms from family farms (groups) in shirkats. For instance, shirkats may assist their members in the development of private farms (called "dekhkan") by helping to sell their produce.

However, the operators of shirkats we visited were dominated by persons that once served as kolkhoz chiefs and were receiving more allotments compared to other members. At the same time, the problem of management mentality not having changed still remains.

Generally speaking, expenses in agricultural production are not keenly recognized in CIS. This originates from the fact that farm operators have lost the sense of need for strict financial management because of budget allocation available during the Soviet era.

Today, agriculture in Uzbekistan must be operated under the same strict budgetary constraints as any other undertakings in the market economy and will go bankrupt if it fails to earn enough profit to repay its financial obligations. Under the socialist economy, undertakings were dependent on national expenditure for compensation of loss and repayment of debt. Agriculture had been carried out under such conditions with little budgetary constraints for many years and the government did not address this issue from a long-term perspective.

It is no exaggeration to say that disintegration of the Soviet Union occurred not because of ideology but because the debt that had accumulated over 70 years led to complete and decisive bankruptcy of Soviet as a colossal financial unit.

"Lenient budgetary constraint (a situation in which profitability is not given much consideration)" will become dominant when an economic entity thinks that it can overcome disadvantageous results such as lack of profitability through negotiation. Feasibility of such negotiation process either originates from a paternalistic attitude of the government that is unwilling to face the defect of economic entity like farm management directly or results from a fact that the national budget is realised by selling natural resources such as crude oil.

The mentality of "lenient budgetary constraint" existed in Uzbekistan as it did in Kazakhstan until the recent phase of the transition period. A self-limiting risk hedge mechanism did not exist in the country owing to lack of accurate concept corresponding to "depreciation of assets."

Farms cannot procure their operating funds and will have to rely on loans if they cannot make profit. For this reason, continuation of "lenient budgetary constraint" brought about debt accumulation which is accelerated by lack of profitability. Lack of profitability in farm managements of CIS countries is based on a number of factors including lack of profit and expenses associated with market economy and other general concepts (factors based on lack of general concepts), factors related to government policy and factors on farm management and organization level.

"Factors based on lack of general concepts" are problems that originated from not permitting bankruptcy under the socialist economy and not recognising "depreciation" of agricultural machinery and "expenses" in agricultural production as such and looking at them as "social cost" needed by farms for meeting minimum requirements for their livelihood. The notion of renewing the machinery repair cost and interest on business funds through reserve of expenses and accumulation of depreciation was very weak among farm operators.

However, the most fundamental factor is that in the farm management level related to traditional collective farm management organisation which basically has not changed after 10 years of farm management rebuilding and the so-called privatisation of Uzbekistan.

For instance:

- i) The scale of farms is still extremely large despite the shortage in production inputs such as available farm equipment, fertilisers and water supply and the farms have not been reduced to sizes that are easy to handle.
- ii) Farm operators at shirkats are the people that have been managing kolkhozes as administrators during the Soviet era and their mentality remains unchanged today.
- iii) Because of such mentality, managers started giving priority to maximising production volume instead of maximising profit under lenient budgetary constraint.
- iv) Member workers are still working in a kolkhoz-oriented fashion because individuals still do not have ownership of land and farm equipment in a strict sense.
- v) Some of the small stockholders in the production unit are abandoning their original function to become new types of workers or proletariats that are exploited by larger stockholders and agricultural input suppliers.

2. Problems Associated with *Farmers*

Land offered to medium-scale *farmers* is limited to reserve land, land owned by government special funds, land in regions experiencing shortage of labour resources and land in newly-irrigated regions. Even though these new forms of management are independent in a legal sense, they often require approval from shirkat general assembly in reality and are still dependent on shirkats with regard to use of irrigated water, production materials and distribution. In the case of *farmers*, they must follow orders from the national government with regard to several varieties of farm produce (particularly cotton and wheat).

Members desiring to break away from shirkat and engage in independent *farmer* enterprise have the right to obtain land lot from shirkat as they are entitled to receive their share of asset allocation and income based on the shirkat's deed of association. However, such granting of land lot shall not interfere with the activities and management of the shirkat. In addition,

there is a restriction that prevents *fermer* land from being utilised outside of its purpose and becoming an object of trade, collateral, donation and exchange, lease or privatisation.

The fee for use of land lots offered to *farmers* is land tax assessed according to land quality, location and water facility, and is charged in the form of annual rent included in the district budget. Although the government agencies are supposed to support *farmers* as a part of privatisation process to develop these forms of farm management, the relationship between individuals and government remains unclear.

A strict condition requiring shirkat and autonomous body of its residents to check the utilisation status of land that has been offered to *farmers* and take measures needed for its effective utilisation are also imposed. For this reason, it still has not quite reached its intended form of farm management by independent farmers.

3. Problems Associated with Dekhkans

Land plot belonging to residential land in a dekhkan is offered to its family members as lifetime reversion according to the method and size determined by law. While supported primarily by family labour, there is a special provision that permits people to participate in work on a temporary basis under labour contract conditions to perform certain work. In addition, utilisation status of land offered to dekhkan is scrutinised by shirkat and autonomous body of its residents in the same manner it is done in the case of *farmers*.

Although not included in this study, stock farming is the most independent form of management in Uzbekistan because stock farming does not have to rely on shirkat for irrigation water and basic production input that are essential for agriculture. In average, farms are operating on 65 hectares of land and raising 400 animals.⁹

Difference between large shirkat management and dekhkan management
There are several differences in comparison with the past

- i) Reduction in centralised management tendencies
- ii) Diversification of crops
- iii) Dekhkans generally have higher productivity compared to shirkats.¹⁰ However, some shirkats have higher productivity.¹¹ Average prices of farm produce are higher at *farmers* and dekhkans than at shirkats.¹²

According to statistics by the Government of Uzbekistan, shirkats and dekhkans accounted for 26.8% and 66% of agricultural production, respectively, in fiscal 2001 while *farmers* accounted for merely 6.9%.¹³ However, it is unlikely that the present form of farm management in Uzbekistan will continue in the future.

⁹ The Main Strategies of development of the Agrarian Sector of the Republic of Uzbekistan.

¹⁰ Further study is required with regard to this point as sufficiently effective materials could not be obtained due to limitation in period of implementing the study.

¹¹ Results of inspection under the project of "Perfection of Financial Structure of Agriculture of the Republic of Uzbekistan", conducted by the collective of the regional centre.

¹² Ibid.

¹³ The Basic Indicators of Social and Economic Development of the Republic of Uzbekistan, p. 103.

The government intends to ultimately reduce the number of shirkats and place *farmers* at the centre and such policy is also desired by the farmers. The number of shirkats has declined from 3,000 to 1,800 today. The policy is to have government committee ferret out money-losing shirkats and dissolve them according to bankruptcy law but the process is slow in coming. It will be very difficult to convert all managements into *farmers* when the situation surrounding agriculture in Uzbekistan such as shortage of machinery, irrigation facilities and soil salinisation is taken into consideration.

The optimum scale and form of farm management in Uzbekistan in view of the present situation would be the greatest issue that must be addressed when we think about the Uzbek agriculture of the future.

4. Problems Associated with Water Resources

Water shortage that is coming to surface in many parts of the world is not only causing conflict and war over resources but also giving rise to environmental concerns. A typical example of such concerns can be found in the Aral Sea region of Central Asia. Aral Sea rapidly shrunk its area due to excessive irrigation farming practiced during the Soviet era. The resulting deterioration of water quality is threatening the health of people in the region and bringing about serious environmental disaster to the extent the region is referred to as "Quiet Chernobyl."

Extending between Uzbekistan and Kazakhstan, the Aral Sea was once the fourth largest lake in the world. With rivers Amudarya and Syr-Darya flowing into it, the lake and its tributaries once supported the lives of nearly 35 million people in 8 countries including Turkmenistan and Afghanistan. However, irrigated farming in Uzbekistan that used water intake from the two rivers rapidly expanded during the Soviet era to increase cotton production. Consequently, sinking water level of the Aral Sea started becoming conspicuous around 1960 and the lake diminished by more than 40% in area by the end of the 1990s.¹⁴ Water quality also deteriorated rapidly as a result and caused contamination of drinking water through sharp rise in salt concentration while agricultural chemicals used in cotton cultivation remained on the dried out lake bottom in high concentrations. Furthermore, dust storm blew up these hazardous substances into the air and sapped people's health by giving rise to proliferation of diseases such as bronchitis.

The Soviet Government requested assistance to United Nations Environment Programme (UNEP) in 1989. Following disintegration of the Soviet Union in 1993, the Aral Sea Basin Council was organised by the 5 neighbouring countries to embark on water resource management and water purification plan under the initiative of the World Bank. However, the progress has been slow in coming so far. The key for recovery of the Aral Sea seems to lie in curbing demand through comprehensive water resource management. However, it is difficult to cut down on water demand for agriculture without changing the industrial structure in a country like Uzbekistan where agriculture accounts for more than 40% of gross domestic product with high dependence on primary commodities in particular. On the other

¹⁴ Nihon Keizai Shimbun, November 16, 2002.

hand, increasing food production has become the national goal of Uzbekistan as a result of population increase.

Taking these matters into consideration, one can conclude that Central and West Asia forms a contrast to Southeast Asia in the sense that water—not land—exercises a decisive impact on the scale of farm management. The government is offering any amount of farmland to those who are willing to rent it to practise farming. Generally speaking, there is a shortage of means of production, particularly with regard to water resources and irrigation facilities. Agriculture in Uzbekistan will be facing torment if restraint on water resources is carried out on top of this.

For this reason, it goes without saying that the direction of change for the form of farm management in Uzbekistan is deeply related to the condition of irrigation facilities, water facility system and water resources. Moreover, maintaining the present irrigation facilities alone would pose significant technical and financial challenge to the agriculture sector of Uzbekistan.

Ministries in charge of water resource management in respective republics were also separated after the disintegration of the Soviet Union but agreements between the countries on water allocation were continued. However, there are several issues that must be pointed out.

The first issue concerns the period for continuing such agreement. With rapid changes in international relations, water allocation may well become the greatest issue as is witnessed in Afghanistan and Iran.

The second issue is aging of water supply facilities. In particular, Uzbekistan is a country where large-scale irrigation land development for cotton cultivation took precedence and machines are used to pump water in half of the 4.2 million hectare irrigated land. However, the majority of pump stations were built during the 1980s and are becoming superannuated. Half of the arterial canals are also in need of considerable repair. However, this is a very difficult task considering the present financial condition of Uzbekistan. Moreover, there is a shortage of revenue source because water tax imposed on respective farms priced low in addition to the fact that tax is collected from only about half of these farms. investment in agriculture is also decreasing compared to aggregate capital investment and to investment in industrial sector.

The third issue is the changes in responsibility for management (as well as maintenance and development) of terminal waterways accompanying the privatisation of agriculture. In particular, the issue of water facility in privatised farm managements requires special attention in the second phase of shirkat transition.

The fourth issue is related to changing of people's awareness about general water conservation. For this reason, Uzbekistan is making efforts for water conservation by raising sense of self-responsibility through shifting of the control of water supply facilities that are benefiting multiple shirkats from the government to water utilisation associations.

According to a study by Uzbekistan's Ministry of Agriculture and Water Resources, the amount of water used per hectare has decreased from 15,000m³ to 11,000m³.¹⁵ However, there is still room for improving the efficiency of water use when one looks at the condition of regions included in this study. For instance, the questionnaire survey has shown that water consumption per capita in Uzbekistan is 10 times the level of European average.

Securing water resources and water conservation are issues requiring priority measures when one considers the fact that expansion of farmland is not an option in Uzbekistan because of the water shortage.

In Uzbekistan, the government is responsible for management and maintenance of water until it reaches the farm and the each farm takes on the responsibility from that point onward.

The Government of Uzbekistan is planning to carry out a reform of water facility management by 2007. The plan involves a shift from a system based on regions to a system based on canals and ultimately to a system based on farms. The purpose of this reform is believed to lie in improving the efficiency of water facilities and having their users (beneficiaries) pay for their cost. However, the government is in charge of basic management of rivers and arterial canals. Such change in system has given rise to opposition among some large farms (shirkats) that are concerned about reduction in the amount of water they receive. Meanwhile, the operators of respective farm management entities are currently reducing their crop area in addition to the reduction of cotton production area by the government as a measure against water shortage. At present, the government is basically deciding the allocation of water resource which, in turn, determines the cultivated area. For this reason, political clout is often at work and no significant relationship is observed between water facility allocation and productivity.

Since water allocation is determined through such decision process, it will be affected by power relationship between shirkats. Distance between farm management entities and rivers/arterial canals also affects the amount of water that would be supplied. It is also true that collective managements (i.e. shirkats) experience difficulty and are slow in changing their management policy in the event water shortage occurs.

The Government of Uzbekistan is receiving assistance from Israel in connection with the water resource issue in addition to buying water from Turkmenistan, Tajikistan and Kazakhstan. According to a questionnaire survey, the country's annual payments to Kazakhstan and Kyrgyzstan amount to \$3.6 million and \$10 million, respectively.

5. Uzbek Agriculture Under Struggle in Landlocked Condition

Landlocked condition is one of the problems facing the Uzbek economy in general (particularly agriculture). All import and export routes—particularly those for cotton export and food import—are of extreme economic and strategic importance in the age of intense international price competition. All commodities were distributed through Soviet Union during the Soviet era. However, no distribution channel to take the place of this system has

¹⁵ Shimizu, Manabu (ed.) "*Chuo Ajia—Shizo Keizai no Gendankai to Kadai*," Ajia Keizai Kenkyujo, 1998, p.73

developed in the country to date. Import and export distribution in Uzbekistan is currently under the influence of foreign country. For this reason, diversification of access to international market (including crude oil pipeline) has become an urgent task. These routes, for instance, include reaching the Persian Gulf via Iran, reaching Europe via Black Sea and reaching China via Kyrgyzstan (sections running through China and Uzbekistan have been completed¹⁶ but the section running through Kyrgyzstan is still incomplete).

Based on an agreement between the governments of Uzbekistan and Iran, Uzbek cotton will be exported through the Iranian route (from Amirabad in the Caspian Sea and Bandar Abass in the Persian Gulf).¹⁷

Conclusion

Gradual shift to market economy in Uzbekistan started from construction and small industries, and spilt over to agricultural sector. According to government statistics on gross national product by sector, 99.0% of agricultural sector is not affiliated with the government.¹⁸ In the case of Uzbekistan, however, selling a mere 10% of state enterprise in the market is sufficient to qualify as a non government-owned entity that has been privatised.

While government control on agriculture is steadily being lifted, 25% of wheat, 30% of cotton, 25% of rice and 100% of sugar is still under government control (sugar is controlled by state organization).

As far as the results of our institutional analysis and field study are concerned, the form of farm management in Uzbekistan underwent significant changes in the last 10 years as collective and state-managed forms of management shifted towards joint capital management (*shirkats*) or to medium-scale *farmers* and small-dekhkans. Nevertheless, one cannot deny that *shirkats* are still being managed in an old fashioned manner and that *farmers* and *dekhkans* are under numerous restrictions,

Management decisions, water facility allocation and market-orientation of prices in the agricultural sector of Uzbekistan can be divided into 4 stages: i.e. 1) government level; 2) state level; 3) regional level; and 4) farm management level. Government control of agricultural sector is gradually being lowered from these 4 stages to the regional level in an effort to place strategic crops under government control and leave the cultivation of other crops to the decision of regions and farmers. It is believed that another 10 to 20 years are required before the decision comes down fully to the farmer level.

However partial it may be, production activities are still being controlled by the government and its price formation process does not necessarily reflect the market. For instance, there is an agreement on the volume of wheat and cotton production between the government and the farmers but the relationship between the two has not been revealed.

¹⁶ According to a questionnaire survey, Uzbekistan is covering the payment for Kyrgyzstan.

¹⁷ Iran Tsuhin, November 11, 2002

¹⁸ The Basic Indicators of Social and Economic Development of the Uzbekistan in 2001, p. 84

The government purchases from all forms of farm management at low prices (SUM53/kg for wheat and SUM14/kg for cotton; wheat is sold at SUM150/kg in the free market) irrespective of international prices (30% of cotton and 25% of wheat). Moreover, purchasing prices are not fixed and may change according to market prices, although the government is offering a measure of raising the purchasing price by 20% when purchasing a portion in excess of 30%. At any rate, the government is procuring their produce at prices lower than international prices. It appears that farmers have the desire to produce crops with added value but are placed under the restriction of having to participate in the government's plan.

The problems faced by agriculture in Uzbekistan can be divided into the four following categories:

- 1) Physical problems (securing and allocating water, agricultural machineries and their adequacy (e.g. large machineries from U.S. and Germany and small machineries from Japan), soil and salinisation issue, promotion of agricultural produce processing industry)
- 2) Adequate scale of farm management entities in terms of system (adequate management scale and production volume)
- 3) Agricultural policy of the government (e.g. compatible measures for market and planning, determination of priorities for resource allocation based on regional differences, contradiction of unemployment and mechanisation of agriculture, balance between cash crops and food production, farmer education)
- 4) Mentality and economic considerations of farm operators

There is a need to improve the planning-oriented management policy and the mode of thinking among operators and workers that continued in the country over 70 years. For instance, tractor drivers worked only as tractor drives during the kolkhoz era but will have to be interested in water, machinery and salinisation as a farmer in the future. In short, there is a need for farmer-oriented education.

In conclusion, it is necessary to point out the direct link between the development of agriculture in Uzbekistan and allocation of water resources rather than the issue of farm ownership. Water resources represent political issues and strategic goods in this region whose allocation needs to be decided through negotiation from the standpoint of the entire region instead of deciding on a country basis.

Considering the issues of water resources and landlocked situation, it is no exaggeration to say that security and peace in the entire region and friendly cooperation with neighbouring countries are the most important factors for Uzbekistan.

Chapter 4 Challenges Faced by Uzbekistan

Agriculture and Agricultural Development

1. Challenges of Agricultural Development in Uzbekistan

It is believed that Uzbekistan is giving priority to the policy target of import substitution policy, preferential policy for export-oriented industries and food self-sufficiency while postponing privatisation and transition of her agriculture to market economy. Materials and information of greater details are needed to determine whether such strategy is more effective towards mid- and long-term economic development as well as agricultural development of Uzbekistan compared to radical reform advocated by IMF that gives priority to privatisation, trade liberalisation and deregulation.

For this reason, the author will not go beyond discussing the problems and mutual contradictions of food self-sufficiency, privatisation of agriculture and government procurement system.

There is no problem with attaining self-sufficiency of wheat provided that wheat cropping has comparative advantage because, even after considering the limited water resources, wheat cropping does not consume more water compared to cotton cropping. Tsuruma, however, has concluded that comparative advantage rests with cotton and that producing cotton domestically and exporting this cotton to earn foreign currency for importing wheat would lead to more effective utilisation of resources. A report prepared by the World Bank also indicates that profitability per unit area is much higher for cotton than for wheat (Kawai, [1998], p.92). Based on these data, it appears that the policy for increasing wheat production through conversion of cotton-growing land is carried out at the expense of effective resource utilisation and income of farmers.

Successful privatisation of agricultural sector (particularly land reform and changing the form of management structure) is believed to rely on adoption of market economy for agricultural produce (i.e. abolition of government procurement system and liberalisation of factor market), although a challenge would be posed with regard to development of alternative channel for industrial procurement after transfer from agricultural sector to other sectors (accounting for as much as 4% of GDP) becomes nil after the government procurement system for wheat and cotton is abolished. Moreover, the scale of irrigation system would make it difficult for farmers, who have been accustomed to using irrigation system under the traditional collective farm system, to reorganise the irrigation system and adjust the interests among the members of the organisation as they become independent from collective farms and start making free production and marketing decisions as independent farms.

Furthermore, according to the Ministry of Agriculture and Irrigation, a plan for transferring the operation and maintenance of irrigation and drainage system—the role that had historically been played by public authority—from government to farmers is under way as a part of effort to privatise the agricultural sector. Nevertheless, self-management of large-scale irrigation system poses a nearly-impossible task for Uzbek farmers having no experience in operation and maintenance of irrigation system.

In short, the challenge faced by the development strategy for Uzbekistan lies in how to go about attaining industrialisation by transferring funds from agricultural sector while maintaining food self-sufficiency under limited water and land resources. Such task calls for a need to improve the productivity of agriculture through promotion of privatisation and adoption of market economy of agriculture while offering preferential treatment to wheat farmers through government control of quasi-public goods such as irrigation facilities. It will be necessary to increase the amount of land tax and water use fee to make up for decline in fiscal revenue accompanying the abolition of government procurement system and maintain food self-sufficiency and secure the cost of irrigation system operation and maintenance.

At any rate, simultaneous attainment of three mutually-contradicting goals of realising food self-sufficiency, promoting privatisation of agriculture and exploiting the funds for industrialisation through government procurement system will be accompanied by enormous difficulty. For this reason, there may be a need for some kind of policy change in the near future.

2. Challenges from the Viewpoint of Forms of Agricultural Management

The gradual process of transition to market economy in Uzbekistan started in construction and small industries, and has spread to agriculture. According to government statistics, 99.0% of agricultural sector is under non-state ownership when seen in terms of sectors comprising gross domestic production.¹⁹ In the case of Uzbekistan, however, state farms are deemed to be non-state owned and privatised after selling merely 10% of their stock in the market.

While government control on agriculture has certainly diminished, 25% of sugar, 30% of cotton, 25% of rice and 100% of sugar are still under the control of government.

As far as the results of system analysis and field study show, form of farm management in Uzbekistan has undergone significant changes as collective and state-owned farm managements have been transformed into jointly-owned farm managements (*shirkats*) and to medium-scale *farmers* and small-scale *dekhkans*. However, we cannot deny that *shirkats* are still operated in the manner of the past and that *farmers* and *dekhkans* are placed under various restrictions.

Transition to market economy with regard to management decisions, water use allocation and pricing in the agricultural sector of Uzbekistan can be divided into four stages; i.e. 1) government level, 2) province level, 3) regional level and 4) farm management level. This

¹⁹ The Basic Indicators of Social and Economic Development of the Uzbekistan in 2001, p. 84

system of gradually lowering the state control of agricultural sector down to the regional level is an approach that keeps strategic crops under state control and allowing control of other crops to regional and farmer levels. Another 10 to 20 years are probably needed before everything is brought down to the farmer level.

However partial it may be, production activities are placed under government control and their price formation process do not necessarily reflect the market. For instance, although the agreement between the government and farmers regarding the production volume of wheat and cotton, the relationship between these parties has not been revealed. The government purchases from all forms of farm management (30% of cotton and 25% of wheat they produce) at low prices irrespective of international prices (SUM53/kg for wheat and SUM14/kg for cotton; wheat is sold for SUM150/kg in the free market). These prices are not by any means constant and may fluctuate from time to time according to market prices, although the government offers a measure of raising the prices by 20% when farmers offer more than 30% of their production. The government is procuring these items at prices lower than international prices. Farmers appear to have the desire to produce crops with added value but are under the obligation to participate in government programs.

Agricultural issues in Uzbekistan can be divided into the following four categories:

- 1) Resource issue: Securing water and its allocation system, agricultural machineries (large machineries from U.S. and Germany, small machineries from Japan) and their adequacy, problems with soil and salinity, fostering of agricultural processing industry
- 2) Appropriate scale of farm management in terms of system (appropriate scale of management and production volume)
- 3) Government agricultural policy (measures uniting market and programs, prioritisation of resources based on regional differences, contradiction between unemployment and mechanisation of agriculture, balance between cash crops and food production, farmer education etc.)
- 4) Management mentality and economic approach

It is necessary to make improvements of planned management policy and attitudes of operators and workers that had continued over a period of 70 years. For instance, a person that was only driving a tractor during the kolkhoz days will have to be interested in matters such as water, machinery and salinisation as a farmer in the future. In other words, a farmer-oriented education is necessary.

3. Challenges Faced from the Viewpoint of Population

As mentioned in Chapter 1, the general view is that Uzbekistan, with a population density of 50 persons/km², does not have a population problem. However, in Uzbekistan where the land is predominantly arid or semi-arid, cultivated acreage accounts for merely 10.1% of national land. Moreover, the country's population density is quite high in view of the fact that significant number of irrigation facilities are not operating at full capacity owing to difficulty in maintaining the facility. In fact, population density in Andijian Province noted for abundance of water is extremely high at 522 persons/km². In other parts of the world, almost all countries having population density in the neighbourhood of 500 persons/km² rely on imports to meet their food demands. In this respect, there is an urgent need to rapidly

raise the standard of the country's population studies and formulate policies that take into consideration changes in population structure and static population which is the level of population reached after population is stabilised.

1) Challenges from the viewpoint of water resources

Uzbekistan is dependent on other countries for almost all of her water source and therefore cannot solve the issue of water resource alone. Water is becoming increasingly scarce in Central Asia. Freshwater resources—which were believed to have existed in abundance and were not recognised much owing to their abundance—are becoming the most important resource of all. Freshwater resources are important for any country and are directly related to lives, properties and livelihood of people in that country. In this sense, it is not easy for any country to abandon the rights they have acquired up to now while a country blessed with abundant water resources like Kyrgyzstan would see it as natural resource similar to petroleum and natural gas and use it as the driving force for national development.

However, it is not easy for countries that are located downstream such as Kazakhstan, Uzbekistan and Turkmenistan to accept such view.

As shown in the Appendix in Chapter 2, there exists an attitude to address the problem in a cooperative manner by signing several international treaties. However, the coordination for reaching an agreement is accompanied by many difficulties. In this sense, there is not much meaning in thinking about the water resources in this region from the viewpoint of a single country. Any measures taken will have to take into consideration the hydrological conditions of the entire Central Asia. For instance, earthquakes frequently occur along the Tian Shan region of Kyrgyzstan. Radioactive slag, which is residue from radioactive ore that was mined during the former Soviet Union era, is left as is without being processed, posing the risk of contaminating the reservoir if there is collapse due to earthquake. Once the water source in Kyrgyzstan or Tajikistan is contaminated, it would have enormous impact on the entire Central Asia.

One cannot stress enough the importance of using the water resource in an economic and efficient manner by improving the use of irrigation water. However, the matter of even greater importance is to build the scheme for developing the water resources for Central Asia as a whole.

Development of agriculture in Uzbekistan is more closely linked with water resource allocation and water use management than with the farm ownership issue. Water resource in this region is a political issue and strategic item that should be decided from the viewpoint of the entire region through negotiation than on a country basis.

Considering the implications of water resource and landlockedness in agriculture, it is no exaggeration to say that safety and peace in the region as well as friendly cooperation with neighbouring countries are most important factors for Uzbekistan.

Appendix Survey Member, Cooperator, Itinerary and Collected Material

1. Survey Committee

(1) National Committee

Dr. Kawano Shigeto	Emeritus Professor, The University of Tokyo
Dr. Hara Yonosuke	Professor, Institute of Oriental Culture, The University of Tokyo
Dr. Isida Norio	Professor, Graduate School, Kyoto University
Dr. Naghizadeh Mohammad	Professor, Meiji Gakuin University
Dr. Fukui Seiichi	Professor, Graduate School, Kobe University
Mr. Hirose Tsuguo	Executive Director/ Secretary General APDA (Asian Population and Development Association)
Mr. Kusumoto Osamu	Assistant Secretary General/ Senior Researcher APDA
Ms. Mieko Tsumori	Staff, International Affairs, APDA
Ms. Junko Mochiduki	Staff, International Affairs, APDA
Ms. Ryoko Kimura	Staff, International Affairs, APDA

(2) Survey Member(July 23, 2002-August 9, 2002)

Dr. Isida Norio	Survey Team Leaderr
Dr. Naghizadeh Mohammad	Survey Team Member
Dr. Seiichi Fukui	Survey Team Member
Mr. Kusumoto Osamu	Survey Team Member

2. Cooperators

(1) The Embassy of Japan and JICA

1. Mr. Tomoyuki Hayasi, Third Secretary
2. Mr. Hiroyuki Suzuki, Third Secretary

(2) Government and Institutions of Uzbekistan

1. Ms. Shakhlo R. Abdullaeva, Deputy Minister, Ministry of Foreign Economic Relations of the Republic of Uzbekistan
2. Mr. Alisher Kayumov, Director, Directorate General of Foreign Economic Policy and Analysis, Ministry of Foreign Economic Relations.
3. Mr. Jasu K. Tadjiev, Senior Specialist, Asian Pacific Department, Ministry of Foreign Economic Relations.
4. Mr. Juraev Abduvakhid Mamatkulovich, Deputy Minister, Ministry of Agriculture and Water Resources.
5. Mr. Rakhim Kurbanov, Chief, Department of International Relations, Ministry of Agriculture and Water Resources.
6. Mr. Farkhad M. Zakhidov, Chief Specialist, Ministry of Agriculture and Water Resources.
7. Mr. Timur Dadabaev, UNESCO- Keizo Obuchi Fellow,
8. Mr. Rustam M. Razakov, Director, Center "Ecology of Water Management".
9. Mr. Richard Conroy, United Nations Resident Coordinator and UNDP Resident Representative in Uzbekistan.
10. Mr. Saidkasim S. Sakhipov, NPPP RH, UNFPA
11. Mr. Khusanov Rasulmat Khusanovich, Director, Uzbek Research Institute of Market Reforms (in Agro-industrial complex).
12. Mr. Rafikov Ikrom, Deputy Director, Uzbek Research Institute of Market Reforms (in Agro-industrial complex)
13. Ms. Nazarava Fobima, Fellow. Uzbek Research Institute of Market Reforms (in Agro-industrial complex).
14. Mr. Khamdamov Azizillo, Fellow. Uzbek Research Institute of Market Reforms (in Agro-industrial complex).
15. Mr. Buriev Khasan Chutbaevich, Rector, Tashkent State Agrarian University
16. Mr. Saidasror S. Gulyamov, Vice Rector, Tashkent State Agrarian University
17. Mr. Mahmud F. Shaumarov, International Officer, Tashkent State Agrarian University

18. Mr. Toychiev Hodjiakbar Abduasulovich, Deputy Rector, National University of Uzbekistan
19. Mr. Erbekov Isroil Yuldoshovich, Sirdaryo Viloyati Hokimining, 1 Muovini
20. Mr. Tillaboyev Maksim Teshaboyevich, Khokim of the Urta Chirchic district of Tashkent Region

3. Survey Schedule

July 23rd (Tue)

- 13:10 Depart from KIX(OZ111) 15:00 Arrive at Incheon (Korea) (Ishida, Fukui)
- 13:30 Depart from Narita(OZ101) 16:00 Arrive at Incheon (Korea)(Nagizadeh, Kusumoto)
- 17:30 Depart from Incheon(OZ573) 21:00 Arrive at Tashkent

July 24th (Wed)

- Discussion with a local counter part on survey program.
- Visit the Embassy of Japan. Briefing on Agriculture and Rural Development in Uzbekistan and discussion on the survey program with Mr. Tomoyuki Hayasi, Third Secretary.
- 14:00-15:00 Visit to Ministry of Agriculture and Water Resources. Briefing on outline, present situation and important issues of Uzbekistan Agriculture from Mr. Juraev Abduvakhid Mamatkulovich, Deputy Minister, Ministry of Agriculture and Water Resources.
- 16:00-17:00 Visit to Ministry of Foreign Economic Relations. Briefing on outline of international cooperation between Uzbekistan and Japan from Mr. Alisher Kayumov, Director, Directorate General of Foreign Economic Policy and Analysis,

July 25th (Thu)

- Visit to Market in Uzbekistan. Conduct hearing survey.
- 15:00 Visit UNDP office. Briefing on the International assistances to Uzbekistan through UNDP by Mr. Richard Cornay, UN Resident Coordinator and others.
- 16:45 Visit UNFPA office. Briefing on population of Uzbekistan by Dr. Peer Sieben, UNFPA officer in Charge, Uzbekistan

July 26th (Fri)

- 10:00-11:00 Visit Research Institute of Market Reforms in Agrarian Sector, Briefing on transition economy of Uzbekistan and changes of Agriculture from Dr. Kusanov Rasulmat, Director.
- 11:30-12:30 Visit Tashkent State Agrarian University. Briefing on Agriculture of Uzbekistan and sustainable development from Dr. Buriev Khasan Chutbaevich, Rector.

July 27th (Sat)

- Visit to survey area.

July 28th (Sun)

- OFF

July 29th (Mon)

- 10:00-11:00 Visit National University of Uzbekistan, Institute of Population. Briefing on population in Uzbekistan by a specialist.
- 11:30-12:30 Visit State Statistic Department of Ministry of Macro-economics and Statistics. Briefing on Agriculture and Population Related statistics and material collection.

July 30th (Tue)

- 10:00-11:00 Visit Ministry of Macro Economics and Statistics. Briefing about the macro economic policy of Uzbekistan from Mr. Furkat P. Baratov, Vice Minister.
- Visit to World bank Uzbekistan Office. Briefing on World bank project in Uzbekistan and Macro

Economics of Uzbekistan from David Pearcs, Resident Representative.

July 31st (Wed)

- Visit to the office of Agriculture and Water Resources at Tashkent Region. Discuss about field survey programme with Mr. Yulchiev Akbar, First Deputy Director, Department of Water Management of Tashkent Region.
- Visit to Utra Chirchic. Discuss about field survey with Mr. Tillaboyev Maksim Teshaboyevich, Khokim of the Utra Chirchic.
- Conduct hearing survey at Okhunboboev shirkat .

August 1st (Thu)

- Visit to Government of Syrdaria, Briefing on outline of Syrdaria region. Discuss about field Survey (Cotton Production)
- Visit to Boyavut District. Hearing survey at Uch Beyavut Shirkat (Dr. Nagizadeh, Dr. Fukui).
- Visit to main canal at Farhad gate at Shirin district. (Dr. Ishida, Mr. Kusumoto)

August 2nd (Fri)

- Visit to office of Agriculture and Water Resource in Djizak Region. Discuss about survey programme with Mr. Kholmurodov Adkham, Deputy Director, office of Agriculture and Water Resource in Djizak Region.
- Conduct hearing survey at Abay Shirkat, Uizachul District
- 16:00 Depart from Tashkent arrive at Almaty (Ishida)

August 3rd (Sat)

- Conduct Field Survey at Tashkent Region. Dostric Shirkat (Wheat Production, Vegetable Production or Fruits Production).
- Conduct field survey at salinization at Syrdariya.

August 4th (Sun)

- OFF

August 5th (Mon)

- Visit Embassy of Japan. Report the survey results.
- 11:00-12:00 Visit Ministry of Agriculture and Water Resources. Report the survey result to Mr. Rakhim Kurbanov, Chief, Department of International Relations.
- 15:00-16:00 Visit to Ministry of Foreign Economic Relations. Report survey results to Ms. Shakhio R. Abdullaeva, Vice Minister.
- 17:00 Visit to the Embassy of Japan, Report survey results.

August 6th (Tue)

- Visit to Research Institute of Market Reforms in Agrarian Sector. Discuss about survey results with Kusanov Rasulmat, Director.
- 12:00 Visit to Ministry of Agriculture and Water Resources. Discuss about water management in Uzbekistan.
- 21:40 Depart from Tashkent by (OZ574)

August 7th (Wed)

- 8:50 Arrive at Incheon (Korea)
- 10:00 depart from Incheon 11:40 Arrive at KIX (Fukui)

- 10:00 depart from Incheon 12:10 Arrive at Narita (Kusumoto)

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August 8th (Thu)

- Hearing survey at shirkat by Dr. Nagizadeh Mohamad.

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August 9th (Fri)

- 17:00 Depart from Tashkent arrive at Teheran (Nagizadeh)

4. Collected Material

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