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# Turkmenistan

## *An Assessment of Leasehold-Based Farm Restructuring*



*Zvi Lerman  
Karen Brooks*

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Development Series*

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# Turkmenistan

*An Assessment of Leasehold-Based  
Farm Restructuring*

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*Zvi Lerman  
Karen Brooks*

*The World Bank  
Washington, D.C.*

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# Contents

Foreword .....	v
Abstract .....	vi
Preface .....	vii
Executive Summary .....	xi
1. Sectoral Context of Land Reform in Turkmenistan .....	1
The Macroeconomic Environment for Agriculture .....	2
Sectoral Performance Since Independence .....	5
State Procurement of Wheat and Cotton .....	7
Implicit Taxation of Cotton and Wheat Producers.....	8
Processing.....	11
Agricultural Inputs .....	12
Credit, Debt, and Arrears .....	12
2. Historical Background and Chronology of Legal Measures in Land Reform.....	15
Growth of Individual Sector.....	16
Legal Framework of Land Reform.....	19
The Concept of Private Ownership of Land in Turkmenistan .....	21
Restructuring of Traditional Large Farms .....	22
Land Titling.....	27
3. The Peasant Association: Managers' Perspective .....	29
Land and Labor in Peasant Associations.....	29
Leasing Terms and Rights of Leaseholders.....	30
Impact of Reform .....	32
Transfer of Assets.....	35
Irrigation.....	36
Production .....	36
State Orders .....	37
Marketing and Supply Channels .....	38
Farm Finances .....	39
Social Sphere and Standard of Living.....	42

4. The Peasant Association: Leaseholders' Perspective .....	45
Demographics and Organization.....	45
Land Holdings.....	47
Rights and Obligations.....	48
Labor and Resources.....	49
Production in Leasehold Farms .....	50
Sales .....	52
Input Supply.....	52
Finances .....	54
Debt.....	55
Production and Income from the Household Plot.....	56
Standard of Living .....	57
Social Services and Benefits.....	59
5. Selected References on Land Reform and Farm Restructuring in Transition Economies.....	63

## Foreword

Agriculture remains the main source of employment and livelihood for the large rural population of many transition countries, especially in Central Asia. The World Bank continuously monitors the progress of land reform and farm restructuring in the region because of the potential impact of these processes on rural development and poverty alleviation in rural areas.

The present study on Turkmenistan is the latest addition to a long and growing series of World Bank publications on land reform and farm restructuring in the former socialist countries of Europe and Central Asia. The unique features of all these publications is their reliance on first-hand empirical information collected through extensive farm surveys of various rural constituencies. Farm surveys have been conducted by the World Bank in many countries of the CIS (Russia, Ukraine, Moldova, Belarus, Armenia, Georgia, Kazakhstan), and Central and Eastern Europe (Poland, Romania, Bulgaria, Hungary, Albania). Analysis of survey findings enables the World Bank to base its policy dialogue with governments in the region on solid empirical facts, making the Bank's recommendation much more credible and relevant. The new findings for Turkmenistan will similarly provide a platform for useful policy discussions with this country's government and supply the many international donors active on the local scene with essential information for the design of their strategic programs.

*Kevin Cleaver*

Director

Environmentally and Socially Sustainable Rural Development

## **Abstract**

The Government of Turkmenistan has chosen a unique approach to land reform and farm restructuring unlike the procedures and mechanisms adopted by other former Soviet republics. The collective land holdings are divided into plots that are leased to families while retaining the overall collective structure and state ownership of all agricultural land. The leased plots eventually may be privatized if the leaseholders show a satisfactory record of performance for at least two years. The development of this leasehold-based farming system was investigated in a farm survey conducted in the fall of 1998 in three velayats (provinces) Akhal, Lebap, and Mary, that lie in the southern and south-eastern parts of the country, stretching from the central regions around the capital to the eastern border with Uzbekistan.

Turkmenistan's unique approach to land reform and farm restructuring has produced a significant shift to individual or household-based farming, with more than three-quarters of the arable land leased to individual households or small groups. Most leaseholders consider this land to be rightfully theirs, and they expect to keep it in the future, either as private owners, or through extension of their leasehold. However, individual production is administratively circumscribed by a pervasive system of state orders and central planning. The lease contracts rigidly specify the crop that each leaseholder is required to produce (typically cotton or wheat) and set a specific quantity target for delivery to the state at prices much below the level of prices on international markets. Managers and leaseholders universally express the view that the prices they receive from the state for wheat and cotton are too low, and identify the chance to sell freely at open market prices as a key factor that would improve the economic situation on farms. Both managers and leaseholders expressed enthusiasm for the reform at the time of the survey. This is a natural psychological reaction to the dramatic transition to a new system, and to avoid disillusionment, the initial change must be followed by further meaningful reforms, including abolition of state orders, transfer of land to individual control, and elimination of constraints on individual choice.

## Preface

Since 1992, the World Bank (ECSSD) has assisted a number of governments in the former socialist countries in Europe and Central Asia to monitor the progress of land reform and farm restructuring. The World Bank's overall purpose in this continuing effort is to understand the extent of restructuring in the agricultural sector and its actual impact on productivity and efficiency. In addition to regular sector missions to the target countries and analysis of macro-economic data, the monitoring tools include farm-level surveys of rural populations, which gradually produce a comprehensive picture of the farm sectors throughout the region. These farm-level surveys provide unique insights into the functioning of farms in transitional economies, and are especially valuable in view of the paucity of statistical data in these countries. The survey results are analyzed and published to provide governments, civil society, and the donor community with relevant and timely empirical information for policy making and design of public investment. Previous farm-survey publications cover Russia, Ukraine, Moldova, Armenia, and Georgia.

Turkmenistan has adopted a leasehold-based farm-restructuring model essentially different from that used by other former Soviet republics. Yet official statistics on the scope of the reform process are extremely limited, and information on farm-level impacts of restructuring is virtually unavailable. The World Bank, in cooperation with the government of Turkmenistan, conducted a survey of peasant associations with the objective of assessing the impact of the government's reform program on large-scale farms and on rural households. The study was designed to provide information on changes in the organization of agricultural production and rural incomes after the first two years of reform and thus fill the gap in official statistics. Strategically, the study was intended as a tool to facilitate the dialogue with the government of Turkmenistan and form a foundation for planned CAS discussions.

The present report combines an analysis of the 1998 farm survey with an overview of general agricultural policies and sectoral performance. The survey was carried out in the fall of 1998 in three velayats (provinces), Akhal, Lebap, and Mary, covering 42 managers of peasant associations and 840 leaseholders in these associations. The sample structure is shown in **Table A**. The three velayats participating in the survey lie in the southern and south-eastern parts of the country, stretching from the central regions around the capital to the eastern border with Uzbekistan.

**Table A. Structure of Respondents in the 1998 Farm Survey in Turkmenistan**

Velayat	Managers of peasant associations	Leaseholders in peasant associations
Akhal (central)	12	240
Mary (east-central)	16	320
Lebap (eastern)	14	280
<b>Total</b>	<b>42</b>	<b>840</b>

Source: farm survey results

The survey was supported by the World Bank and implemented by a team from the Ministry of Agriculture and Water of Turkmenistan and the Academy of Agricultural Sciences in Ashgabat. The survey was endorsed by the Council of Ministers of Turkmenistan, in anticipation of its potential to contribute to policy decisions in the agricultural sector. The late Ata N. Nabatov was highly instrumental in the preliminary approval and design stages in his capacity first as the Acting Minister of Agriculture, then as the head of the Agricultural Development Fund, and finally as the Minister of Agriculture. Deputy Minister of Agriculture Nail T. Israfilov coordinated the project at the Ministerial level from its inception. The local survey team was headed by Orasmurat K. Karakhanov, Deputy Director, Institute of Agriculture and Water Economy in Ashgabat, with the assistance of Kurban O. Orazov of the same Institute. The World Bank team included Karen Brooks and Zvi Lerman. Guljahan Kurbanova, Head of the World Bank Liaison Office in Ashgabat, with her staff provided administrative supervision on behalf of the World Bank and supported communications between the local team in Ashgabat and the World Bank team.

Survey questionnaires were developed by a steering group of local experts that included Orazmurat Karakhanov, Buri Karliev, Geldy Muradov, Lado Mkrtychan, and Kurban Orazov, with guidance from Zvi Lerman and Karen Brooks. The steering group also decided on all relevant sampling issues for the survey. Ivan Stanchin provided valuable comments on various drafts of the questionnaires. The questionnaires, originally developed in Russian, were translated into the Turkmen language by team members in Ashgabat. Valuable technical assistance in Ashgabat was provided by Lyudmila Dubinina, who was responsible for preparing the draft Russian questionnaires, by other colleagues who prepared the first draft versions of the Turkmen questionnaires, and did a highly professional job producing the final camera-ready copy of the Turkmen questionnaires for the field phase of the project.

The actual field work was conducted by etrap-level staff of the Ministry of Agriculture and the State Land Reform Committee, with supervision by members of the steering group from Ashgabat. The initial database design was developed by Dimitrii Dubinin in Ashgabat with guidance from Zvi Lerman. Data entry and database creation after the field phase of the project were managed by Kurbanmurad Ussaev with the assistance of a team of operators at the Institute of Agriculture and Water Economy in Ashgabat.

In this report, the presentation of survey results is preceded by a sectoral review; a description of the emerging legal framework for land reform and farm restructuring. The data in the review part of the report (the first two chapters) are based on official statistical publications on information collected by the authors in the course of World Bank agricultural sector missions to Turkmenistan from June 1995 to September 1998, and on background reports prepared by Turkmen counterparts in Ashgabat (Orazmurat Karakhanov and Kurban Orazov, of the Institute of Agriculture and Water, and Ivan Stanchin, of the Turkmen State Institute of Statistics and Forecasting). Current information on Turkmenistan was provided by the State Committee for Land Reform, the State Committee on Statistics, and the Ministry of Agriculture and Water. Information about latest laws and decrees on land issues in Turkmenistan was obtained from the compilation *Zemlepol'zovanie i zemlevladienie v Turkmenistane: sbornik normativnykh aktov respubliky Turkmenistan* (Ekologicheskii klub Satena, Ashgabat, 1998). Some material of Chapter 2 was previously included.

in a chapter written by the authors of the present report for the volume *Land Reform in the Former Soviet Union and Eastern Europe*, edited by S. Wegren and published by Routledge, London (1998).

The findings of the 1998 farm survey are presented in the last chapters of the report. The survey data were analyzed by Zvi Lerman with the help of Anja Crommelynck, a research assistant from the Catholic University in Leuven, Belgium, funded by FAO/TCD. This version of the report was written by Karen Brooks and Zvi Lerman in Washington.

An earlier draft of the report was discussed at a roundtable meeting held in Ashgabat in November 1999 with the participation of a group of fifteen local experts and officials. ECSSD was represented at the roundtable by Michel Debatisse and Zvi Lerman. Comments by the roundtable participants were incorporated in the final report. Peer reviewers for the report were Csaba Csaki, Thirumangalam Sampath, Tjaart Schillhorn, and Laura Tuck.

It is hoped that the present report, with its solid empirical foundation, will be useful in the renewed policy dialogue between the World Bank and the Government of Turkmenistan. The report reflects the interpretation of the situation as viewed by the World Bank experts, and the government's interpretation may naturally differ. Yet the empirical facts and survey results assembled in this report provide a truthful picture of the current relations and problems in peasant associations, and the report as such should constitute a useful common platform for mutual discussions of policy issues and reform design in agriculture.

All tables and figures in Chapters 1 and 2 are based on official national-level statistics. All tables and figures in Chapters 3 and 4 are derived from the 1998 farm survey, representing the sample farms in three velayats. The official exchange rate at the time of the survey was 5,200 manat/\$, and this rate has remained fixed since the last adjustment in 1998 (a depreciation of about 25% from 4,165 manat/\$ in 1997). The unofficial exchange rate is considerably higher.



## **Executive Summary**

The present and future well-being of Turkmenistan's majority rural population depends in large part on how agricultural reforms are managed. Because of the country's harsh desert climate, successful agriculture requires consistent inflows of investment to maintain soil quality and topography, and to service and improve the irrigation system. Under the present scarcity of budgetary resources, new incentives are needed to encourage private rural households to invest in agriculture. A key measure of success of agricultural reforms, therefore, will be the extent to which they create the possibility and inducements for producing sustainable increase in output by stimulating private investment by rural households. Land reform and increased security of tenure are thus at the heart of the reform process.

The objective of this study is to strengthen the understanding of the impact at the farm level of recent reform measures in agriculture. Agriculture remains highly administered, and changes in policy and personnel are frequent. New people moving into responsible administrative positions need a good empirical understanding of the strengths and problems of the sector. Yet the statistical reporting on the sector and analysis are weak. To strengthen the empirical understanding of changes in the rural sector and to clarify how recent policy decisions and programs have affected the opportunities in agriculture, the Government of Turkmenistan, in collaboration with the World Bank, undertook a survey of agricultural producers in 1998. This survey of approximately one thousand leaseholders and managers of peasant associations complements the Living Standards Measurement Survey (LSMS) also carried out in 1998, which provides broader coverage of the population at large, but less detail on agricultural issues. The report combines an analysis of the survey findings with an overview of the macroeconomic and sectoral context in which reforms of land tenure and farm structure have been designed and implemented.

### **Leasehold-Based Land Reform**

The Government of Turkmenistan has chosen a unique approach to land reform and farm restructuring unlike the procedures and mechanisms adopted by other former Soviet republics. There is no distribution of former collective land into paper certificates of entitlement ("land shares"), as throughout most of the former Soviet Union, nor is there physical division of agricultural land into individual plots leading to abolition of collective structures, as in Armenia, Georgia, and partially in Moldova. Instead, the collective holdings are being transformed gradually and from within through a process of dividing collective land into plots that are leased to families while retaining the overall collective structure. The process does not involve transfer of land ownership from the state to the collective. All agricultural land remains in state ownership, but the leased plots eventually may be privatized if the leaseholders show a satisfactory record of performance for at least two years. In the interim, the land remains within the collective structure, but the former collective farm (kolkhoz) is formally reorganized into an entity called peasant association (daikhan berleshik).

This approach to land reform and farm restructuring has produced a significant shift to individual or household-based farming. According to the survey of managers, more than three-quarters of the arable land of associations have been leased to individual households or small groups. According to the survey of leaseholders, most consider this land to be rightfully theirs, and they expect to keep it in the future, either as private owners, or through extension of their leasehold. Crop production has almost entirely shifted from large collectives to family units and small groups with land holdings of 6 hectares on average. Only 16% of land remains in joint use.

### **Individual Farming Restricted by Persistence of State Orders**

The individual production, however, is highly circumscribed by administrative regulations that constitute a pervasive system of state orders and central planning. The lease contracts concluded by the peasant association with households rigidly specify the crop that each leaseholder is required to produce (almost universally cotton or wheat) and set a specific quantity target for delivery to the state at prices much below the level of prices prevailing on international markets. Production and marketing requirements are conditions for gaining access to land, and the few revocations of leasehold reported in the sample took place because the producer used the land to grow products other than those specified in the contract.

About 70% of lease contracts in the sample are for cotton and 20% for wheat. Commodities free from state orders (vegetables, fruits, milk, and meat) are produced by a small proportion of leaseholders. Production of these commodities remains largely in the domain of household plots, as in the past. Thus, although production has been largely individualized through leaseholding, it does not entail the managerial decision-making usually associated with small-scale family production in a market economy.

### **Financial Independence of Leaseholders Strictly Circumscribed**

Leaseholders are allowed to have individual accounts and conduct financial transactions only with an officially designated bank (Daikhan Bank), and the peasant association retains a role in managing the leaseholders' relations with financial institutions. Credit to leaseholders is provided exclusively through special government programs administered by Daikhan Bank. Despite the increased access to bank accounts, leaseholders' financial autonomy is significantly limited.

### **Price Distortions Result in Low Family Incomes**

While leaseholders are in general satisfied with the standard of living of their families, in absolute terms the rural population in Turkmenistan is quite poor. The reported actual income for the average family of 6 is about \$1,300 per year, or \$215 per person (at the official rate of exchange). The income that families in the survey judge sufficient to maintain a "normal" standard of living is \$3,500 per year, or slightly less than \$600 per person, which is 2.7 times higher than the actual income. Household income of less than \$600 per person per year would be considered poverty in other parts of the world where domestic prices reflect international prices. In Turkmenistan, \$600

per person per year is considered sufficient and even exceeds actual income levels by a large margin. This fact suggests that the domestic prices in Turkmenistan are still very low relative to international prices due to government intervention. While producers clearly understand that they are getting much below world prices for their wheat and cotton, they may not grasp the full extent to which the entire cost structure in the country is distorted and below world levels.

The low level of absolute earnings has a significant implication. Rural people may be able to maintain an acceptable level of living given current low incomes due to policies that reduce prices for essential items, such as flour, electricity, and gas, but subsidies may not be sustainable in the longer run. Moreover, if yields are to increase from their present low levels in both the crop and the livestock sector, modern internationally traded inputs, such as improved seeds, veterinary medicines, and plant protection agents will be needed. Low-income producers will have great difficulty adopting higher yielding technology.

### **State Orders Impose a Severe Tax Burden on Agriculture**

Managers and leaseholders universally express the view that the prices they receive from the state for wheat and cotton are too low. Conventional measures of distortions used in international comparisons support their view. The state order system in the past three years has extracted between 40% and 60% of the international value of cotton and wheat, and reallocated this from primary producers to the budget, to consumers, and to other recipients and activities not clearly identified. In exchange, producers received subsidies for inputs and for water, but the aggregate value of the subsidies did not outweigh the cost of the implicit taxes. At the same time, budget limitations prevent government from making adequate investments in operation and maintenance of the infrastructure.

Leaseholders and managers identify the chance to sell freely at open market prices as a key factor that would improve the economic situation on farms. They may be less aware of the higher costs they would face for inputs and for water, but on balance producers would gain from a shift to international market prices for inputs and output.

### **Peasant Association Retains Central Role in Monitoring and Control**

In this policy environment, peasant associations fulfill a dual function. On the one hand, they deliver services to producers within the associations. On the other, they enforce the high implicit taxes levied through the system of state orders. The peasant association as the successor of the former collective farm retains broad central management and control functions. The association is responsible for allocating cotton and grain state orders to leaseholders, monitoring their contractual obligations, and coordinating production. The association provides management services to leaseholders. It assists leaseholders with product sales and supply of farm inputs. The association, in the tradition of former collective farms, continues to be at least partly responsible for municipal and public services in the village, including maintenance and development of infrastructure, soil amelioration, and planting of new orchards.

Some of the activities of service providers have been moved outside the association, with the transfer of assets to parastatal organizations off the farms, but the transfer at present is still partial. Overall, peasant associations have shed direct responsibility for half their assets (by balance sheet value), and the remaining 50% continue to be operated by the association for a variety of joint uses and direct services to leaseholders. About 70%-80% of associations continues to act as providers of farm inputs to the leaseholders.

The financial accounting of the associations appears to reflect some ambiguity regarding the relationship between leaseholders and the associations. The actual flow of payments is now directly between Daikhan Bank and leaseholders, bypassing the association, but all production accounts – revenues as well as all costs, including labor – are still reflected in the financial statements of the associations. The association accounts thus present a consolidated picture of the financial results of production for leaseholders and associations.

The financial results of peasant associations on average show a modest loss. The profit and loss accounting in the associations uses the official domestic prices for inputs, before the government subsidies to wheat and cotton growers. When the 50% subsidy for inputs used in cotton and wheat production is included in the calculations, the association accounts show a slight profit. Both managers and leaseholders report that their financial health is better in 1998 than it was in prior years. This optimism probably derives in part from general satisfaction with the novelty of the leasehold system, and in part because the exceptionally good wheat crop of 1998 had been harvested just prior to the fieldwork of the survey.

### **Unclear Reforms in the Livestock Sector**

The land reforms discussed in this report have accomplished a major first step through allocation of identified plots of land to households within the associations. This has brought a significant change in the management of the crop sector in Turkmenistan. The livestock sector has been less fundamentally altered. Many of the cattle have been transferred to the household sector, but the households have not been provided with enough land to support an adequate feed base, and as a result livestock productivity is declining. As part of the creation of the associations, much of the formerly collective herd was to be transferred to the ownership of the parastatal livestock-management system Turkmenmallyary, but the picture that emerges from the association survey with regard to livestock is unclear.

The future evolution of the associations in the context of further development of the land reform will require additional attention to livestock. Like land, livestock should be transferred entirely to household control, together with a sufficient feed base. This is especially important given the traditional weight of the livestock sector in the Turkmen rural economy, and its potential future contribution.

## **Need for Transition to Secure Tenure Rights in Land**

The Turkmen experience with the leasehold system has provided most rural households with land allotments that they consider will eventually be their own. In this respect, the experience shows more dynamism than in countries where the share system was used as a mechanism for land reform, such as in Russia and Ukraine. In the latter two countries, the mechanism has been created, but land remains largely in its original configuration of small household plots and large collective holdings. In Turkmenistan, in contrast, most rural households now have household plots plus additional leaseholds of from 3 to 7 hectares (or as much as 20 hectares if not irrigated). Yet leaseholders are not free to make their own production decisions on this land, as their lease contract is strictly conditioned on fulfillment of state orders. Moreover, contrary to Russia and Ukraine, Turkmenistan has no provisions for leaseholders to exercise their freedom of choice by leaving the association with their irrigated land to establish an independent family farm outside the collectivist framework.

The future of the leaseholds is unclear. Rural people who have the leaseholds want them converted to private ownership, and expect the conversion to take place soon. Association managers, however, are less sanguine about the prospects for conversion according to the findings of this survey. The legal framework defining and supporting private ownership of land in Turkmenistan is not yet complete, since the new Civil Code has not yet been adopted in its entirety, and as a consequence, the new Land Code is still in draft form. The language of the draft Land Code essentially equates private ownership and inheritable possession, suggesting that ownership will be circumscribed even if it is granted.

Most importantly in the Turkmen context, however, the continued existence of state orders impedes conversion of land to private ownership. Producers working privately owned land (the relatively few "daikhan farmers," as opposed to leaseholders) are formally exempt from state orders for cotton and wheat. As long as the state remains committed to retain state orders, it is doubtful that the hopes of rural households to have leaseholds converted to ownership will be met on a large scale.

The state order system thus constrains rural people doubly. State orders tax away a large portion of the income that they could otherwise use for current consumption and for investment in their farming operations. In addition, the continuation of the state order system retards the conversion of leaseholds to private ownership, since local officials and association managers would lose present instruments for enforcing the orders if land tenure were converted from leasehold to private ownership. Establishment of a schedule for phasing out of state orders would provide a significant basis for the high expectations that rural people now express regarding the land reform program.

## **Need to Ensure Lasting Satisfaction with Reform**

At the time of the survey, both managers and leaseholders expressed enthusiasm for the reform. Association managers report that the financial situation of the farms has improved and that leaseholders now have much greater incentives to work. Leaseholders similarly report that the standard of living of their families has improved (or at worst remained unchanged) and that their family incomes are generally sufficient to satisfy all their needs.

It is too early to judge if this positive evaluation of the reform is a lasting feature of rural development in Turkmenistan. It may reflect mainly a psychological reaction to a dramatic transition to a new system, which has raised considerable hopes among farm managers and peasants alike. Unless the initial change is followed by further meaningful reforms, including abolition of state orders, transfer of land to individual control, and elimination of constraints on individual choice, the enthusiasm may give way to disillusionment. The Chinese experience indeed indicates that, after an initial period of positive response to the new situation, persistence of restrictive government intervention may seriously limit agricultural growth.

### **What Can Turkmenistan Learn from World Experience with Farming Structures?**

While Turkmenistan is following its own program of reforms in the rural sector, it may be advisable to look at the experience with agriculture in market economies throughout the world. Farming structure in market economies is characterized by three basic forms of farm organization: family farms; production cooperatives; and farming corporations. **Family farms** based on privately owned or leased land are the most widespread organizational form in agriculture in market economies. **Production cooperatives** are the rarest farm structures in market economies: they have proved to be less efficient and less productive than other forms of agricultural production due to inherent weaknesses in their incentive structure which lead to suboptimal behavior by their members. **Farming corporations** are not widespread in market economies either. They do exist, but usually under very specific circumstances or in cases when clear economies of scale are observed, e.g., plantations that require integration between harvesting and shipping, or agro-industrial operations, such as pig farms or poultry factories (which, however, may cause considerable environmental damage due to their large size).

The main feature that distinguishes family farms from production cooperatives and corporations is the **ability to monitor labor activities** on the farm. On a family farm, people work because they feel that it is their duty to the family, and all family members share the risks of failure. In a cooperative or a corporation, workers often do not feel the same commitment to the organization and do not have the same work ethic as in a family. They do not feel that they have to face the risk of failure of the organization. Corporations therefore must employ managers and supervisors to monitor the workers and to ensure that they put sufficient effort into their work. Because of difficulties with labor monitoring and supervision in corporate farms, most American farms registered as corporations are simply medium-sized family farms that decided to incorporate mainly for tax reasons: they are operated by family members (with some hired labor, when needed) and are run by the head of the family, not by a hired manager.

Another feature of family farms in market economies is their frequent **reliance on service cooperatives** (as distinct from production cooperatives). Family farms overcome difficulties with input supply, marketing of farm products, and availability of machinery by establishing voluntary service cooperatives. These service cooperatives exploit the economies of scale that exist in trade and processing by transacting for the benefit of their members large volumes of farm-related operations, including joint purchase and operation of farm machinery. Contrary to production cooperatives, which are a rare phenomenon in market economies, service cooperatives are very

common throughout the world. They are particularly successful in situations and areas with underdeveloped market services, when individual farmers face difficulties with access to marketing and supply channels. **Service cooperatives are an accepted market mechanism for dealing with difficulties attributable to small farm sizes.**

The fact that family farms are the most popular form in market economies, while cooperatives and corporations are rare suggests that family farms enjoy a definite performance advantage in market economies. Otherwise, they would not be so popular. **A family farm is not necessarily a small farm:** there are many examples both in market economies and in transitional economies where an individual farmer starting with a small allotment gradually increases his holdings through market transactions, which may include both purchase and leasing of land owned by others. The purpose of land transactions is to enable the farmer to achieve a farm size that maximizes the family's income under the specific circumstances. The desired farm size depends on many factors, which include the climate, the environment, economic conditions, government's policies, production technology, relative cost of labor and machinery, but perhaps most importantly **the specific skills and managerial capacity of the family members.** A family farm will continue growing as long as it can be efficiently managed by the family. As a result, one cannot identify one single optimal farm size that would be the best for everybody in all countries. There is no evidence anywhere in the world that state officials have been successful in dictating the optimal farm size. It is the farmers themselves who optimize the size of their farm over time in response to market mechanisms, subject to the constraints of their own skills and preferences.

Different countries in the CIS and Central Eastern Europe and chose different starting points for land privatization and distribution in their land reform strategies. The starting points were determined by a combination of cultural, historical, and political considerations. Some countries chose restitution of land to former owners, other countries distributed land share certificates to peasants representing undefined plots of land, yet others chose the process of physical distribution of land plots to farmers. The experience of a decade of transition makes it impossible to decide if any particular strategy has worked better than the others. They all provided individuals and families with access to a basic allotment of land. Yet it is clear today that, in addition to providing a basic allotment of land, **the land reform process must ensure easy transferability of land among individuals in the interest of creating optimal farm sizes.**

Most land in market economies is privately owned, but farmers do not own all the land they use. Land leasing and renting are a wide-spread practice. It is extremely important, therefore, to ensure transferability of land after the initial distribution. Privately owned land, as well as land leased from the state, must be easily transferable through market transactions to provide sufficient flexibility for farm size adjustment. The easy transferability of land is an essential means to avoid ending up with a locked-in, inefficient farm structure that prevents the country from enjoying the full economic benefits of land privatization.

Hungary is an example of a country where farm size adjustment, including consolidation of highly fragmented holdings into efficient commercial operations, has progressed significantly through a variety of leasing arrangements among individual land owners. But Hungary is not the only country with positive experience in this direction. Empirical evidence from all transition

countries, including Ukraine, Georgia, Armenia, and Moldova, shows that farmers who increase their land holdings by leasing land from others at the same time increase their family income and well-being. Individuals who lease out land also benefit: pensioners who otherwise would be unable to cultivate their plots receive useful lease income, while individuals who may be more skilled in non-farm occupations are able to devote their effort to other work while at the same time ensuring that their land is not idle. Poland provides an opposite example: here, despite an unbroken tradition of private land ownership, farm sizes have generally failed to adjust so far due to various constraints and inadequacy of market mechanisms. As a result, Polish farmers have on the whole been unable to fully exploit the potential benefits of private land ownership.

The government has a crucial role to play on two levels: (a) **launching the process of land distribution to families**, preferably based on full-fledged private ownership, but without attempting to decide in advance on an “optimal” farm structure; and (b) facilitating the gradual evolution of farm size through **removal of restrictions on transferability of land** and establishment of legal and technical instruments for the adjustment of the initial farm structure through market mechanisms. The instruments of adjustment should allow free, voluntary decision by families to form groups for working jointly in partnerships, cooperatives, or incorporated farms.

## 1. Sectoral Context of Land Reform in Turkmenistan

Turkmenistan is a predominantly desert country in which climatic factors limit the agricultural potential. Land area and sunshine are abundant, but water is scarce. Almost 80% of the country is extensively grazed desert pasture. Cropped area is virtually all irrigated, and comprises only 3.6% of land area. The endowment of irrigated crop land is less than one hectare per rural person. This is similar to the per-capita endowment of crop land in Armenia, Azerbaijan, and Moldova, with one substantial difference: all these are countries with a relatively high population density, while the population density in Turkmenistan turns out to be high only when calculated per unit of irrigated land, and not all agricultural land.

Despite climatic limitations, agriculture is an important sector in the Turkmen economy. Turkmenistan's rich reserves of oil and gas offer potential for substantial growth from sectors other than agriculture. However, this potential has not been realized due to large capital investment requirements, as well as difficulties with logistics, market access, and low international energy prices. Agriculture therefore remains at present an important source of employment and export earnings; in 1998 about one quarter of export revenues derived from cotton. Over half of the population is rural, and just less than one half of the labor force is employed in primary agriculture. Yet agriculture contributes only about one quarter of GDP, suggesting that labor employed in agriculture is significantly less productive than in other sectors. However, national accounts are very approximate, and agriculture's share may be underestimated.

With the country's high ratios of labor to land, abundant solar radiation, and dependence on irrigation under conditions of water scarcity, economic logic suggests that the sector should specialize in labor intensive products with high yields and high value per hectare. The actual pattern of production, in contrast, emphasizes low yielding and low value products. Just under half of the planted area (45%) is devoted to grains. By international standards, grains offer relatively low value per hectare, particularly at the yield levels observed in Turkmenistan. Another 38% of the planted area is devoted to cotton, a higher value crop, but cotton area is down from 49% of the planted area in 1991. Horticultural products can offer higher value per hectare than grains or cotton, and prior to independence Turkmenistan was a major producer and exporter of fruits and vegetables for more northerly regions of the USSR. Production and trade in these products declined markedly in the 1990s with the dissolution of the USSR, and has not recovered.

Crop yields show high variability despite the prevalence of irrigation. Although the variability masks trends, yields appear to be low and declining, particularly since 1995. The 1998 wheat harvest was a welcome exception to recent low yields, but much of the improvement is attributable to unusually favorable rains. The 1998 wheat yields, although higher than the prior two years, were still low by international standards for irrigated wheat, and may be difficult to sustain in future years with more normal weather patterns. With low yields and increased area devoted to low value crops, the evolution of Turkmen agriculture is at odds with longer-term trends that could increase rural well-being. In addition, present agricultural practices are contributing to depletion of

soil and water resources, and may undermine the natural resource base for agricultural production in the future.

Poor performance of agriculture raises important questions regarding the prospects for longer-term growth in Turkmenistan. The outlook for agriculture and for the rural sector more generally depends to an important degree on reforms in land tenure and related decisions regarding agricultural policy. Since 1991, the government has made a number of changes in agricultural policy. Major objectives of agricultural policy have been to achieve self-sufficiency in grains, earn foreign exchange through continued export of cotton, and provide resources to other sectors for investment in public buildings, infrastructure, and industry. These multiple roles and ambitious goals for the agricultural sector were expected in 1991 to be temporary, since high and early earnings from the energy sector were anticipated.

Earnings from the energy sector did not materialize as expected, and agricultural policies adopted soon after independence became a longer-term framework for the sector. Under these policies, agriculture experienced a gradual decline in performance until 1996, when output dropped precipitously for a number of reasons. Adjustments in policy and adoption of new programs followed after 1996.

Recent developments in the economy as a whole, in particular low revenues from gas exports and delayed growth in industry and services, imply that agriculture will remain more important for the foreseeable future than was expected during the optimistic period immediately after independence. Indeed, the latest strategy for socio-economic development of Turkmenistan to year 2010, adopted in December 1999, projects that agriculture will maintain its share of GDP at around 25% at least to year 2004. The efficiency of resource use in agriculture and the impact of policy on sectoral performance is therefore of heightened importance as agriculture's share of the economy remains relatively high.

### **The Macroeconomic Environment for Agriculture**

Changes in Turkmenistan's agricultural sector reflect an approach to reform marked by gradualism, guided by administrative authority, and punctuated by turnover in personnel. As a consequence of the gradualist approach, the degree of administrative control over the sector remains high and retains key elements of central planning, such as administered prices and production quotas. Under present policies a substantial flow of resources is extracted from agriculture, as argued below in this report. The present position of agriculture as a net contributor to the rest of the economy is in contrast to the situation in the late Soviet period, when agriculture was a net recipient of resources through investments in land reclamation and irrigation, input subsidies, and subsidized credit, the overall impact of which exceeded the implicit taxation of state orders.

In the early years after independence in 1991, Turkmen authorities expected to benefit from an improvement in terms of trade, as energy exports sold for higher prices on international markets than they had under barter terms of trade in the Soviet system. Although formal terms of trade for energy were more advantageous in international markets, Turkmenistan could not access the more lucrative sales because the gas pipelines linked them with partners within the former Soviet trading

space. With cotton, the situation was reversed. The barter terms of trade for cotton were less advantageous on international markets than they had been in the Soviet system, but cotton could be redirected easily to international buyers who paid cash in hard currency. The switch from ruble trade to dollar trade more than compensated for a decline in the formal relative price of cotton. The country thus entered into independence confident of high economic growth based on exports of energy and cotton. Difficulties related to payments for energy exports were expected to be transitory. The Turkmen manat was introduced in November 1993 at an initial exchange rate of 2 manat to the US dollar.

Between 1993 and 1995 the outlook dimmed. Real GDP declined by approximately 40% and inflation averaged 1,500% annually. The economy's decline was slow for a period in 1995 and early 1996, but then accelerated, spurred by the disastrous harvest of 1996 and sharply lower payments for gas exports. For example, exports of gas fell from approximately 30 billion cubic meters in 1990 to 6.5 billion in 1997. The economy declined by 25% in 1997 alone, and then made a partial recovery in 1998, due largely to a better harvest. Even with the recovery, however, aggregate real GDP remains below that of 1996.

Despite the severe shrinkage of the economy between 1991 and 1998, the government has maintained a major program of public investment, financed largely by foreign borrowing, and to a lesser extent by redistribution of earnings from the agricultural sector. This included constructing new public buildings in Ashgabat, grain storage and milling facilities, a new airport, and modern hotels.

The large amount of foreign borrowing has led to substantial obligations for debt service, and the continuation of the construction program despite the worsening economy places a high burden on agriculture. Direct and indirect taxes on cotton sales and exports accounted for about 9% of budgetary revenues in 1998. This amount is considerably less than the share of the energy sector, at 31% of revenues. A 9% share of budgetary revenues from agriculture may not appear high if the sector in fact contributes about 25% of GDP. Indeed, as noted below, agriculture is exempt from a number of taxes operative for other sectors, such as the value added tax and the profit tax. However, virtually all of the direct tax on agriculture comes from the cotton sector. Moreover, the budgetary revenues from cotton do not reflect the full burden of taxation on agriculture. Taxes on wheat are implicit, and flow directly to consumers through low bread prices without showing in the budget. Thus the aggregate tax burden for agriculture is higher than the government's explicit share reflected in the budget.

The appropriate level and mechanisms for taxation of agriculture could be the subject of a separate and detailed discussion. As a general principle, the overall level of taxation should be adequate to keep the budget deficit within bounds, the tax rate should be roughly equal across sectors to avoid swings in investment flows, and the instruments of taxation should be roughly neutral in the impact on producers' decisions about choice of activities and technology. Taxation of cotton and wheat in Turkmenistan deviates from these general principles. The state purchases wheat under state order prices below international prices, and then passes the benefit to consumers.

The tax burden and the instruments for extracting tax (production and marketing orders) reduce efficiency and earnings of agriculture. Yet with public finance in a perilous state and the budget deficit increasing, reducing the tax on cotton and wheat would require either alternative sources of revenue or substantial cuts in public expenditure. Without either of these measures, a cut in the cotton tax would be inflationary. Inflation hovered around 20% annually in 1997 and early 1998 after a decline from triple digits in 1996, but the monetary expansion in late 1998 could push it higher in 1999. Agricultural producers are locked into production quotas and fixed administered prices for inputs and output, and can do little to protect them if inflation accelerates. Renewed inflation would therefore harm most agricultural producers. They would gain little if the government eased the tax burden on cotton but at the same time fueled inflation. Reduced taxation of cotton would and will require a reassessment of the government's expenditure and investment programs that has not been undertaken to date. As a consequence mandatory production and marketing of cotton and wheat remains a major instrument of public finance.

The dual commitment to gradual economic reform and high rates of public investment has created tension in the economy throughout the period of independence. High rates of public investment necessitate high growth rates to generate revenues and borrowing capacity. Gradual reform brings slow, or in this case, negative growth. The tension has been resolved in part through increased foreign borrowing, and in part through retention of the state order system as a mechanism for taxation of agriculture.

Although public investment is high, investment in essential public goods and services for agriculture is low. Basic maintenance of the irrigation system, investments in agricultural science, and extension activities have been cut back severely. Public investments related to agriculture have been largely to support the government grain program, and have included grain milling capacity, and importation of combines for harvesting. The policies and programs pursued in the 1990s have thus resulted in significant net depreciation of the capital stock in primary production and water management. Private investment in agriculture is low now because earnings are low, and is limited to the household plot, since this is the land for which families have greatest confidence in security of tenure. To the extent that rural households have resources to invest, they concentrate on household plots and housing. One of the potential advantages of transferring agricultural land to private ownership is that land reform serves as a stimulus to private investment in rural areas, as households invest to improve and utilize their enlarged landholdings.

Depreciation of the capital stock occurs in parallel with degradation of land and water quality, due to increased soil salinity, lower quality of water, and more erratic timing of delivery. These trends bode ill for the sector and the economy as a whole. Risks of severe revenue shock like that deriving from the harvest failure of 1996 increase as the resource base deteriorates and the capital stock ages. Yet with higher debt service requirements, the need for revenue rises. Improved wheat yields in 1998 provided some breathing space. Paradoxically, the larger than expected harvest also created difficulties in public finance, since the government had not budgeted adequate resources to procure the large crop. Emission of an extraordinary tranche of centralized credit was needed to finance the larger-than-expected procurement.

## Sectoral Performance Since Independence

Overall, Turkmen agriculture has declined about 40% since 1990, as reported to FAO and to the CIS statistical agency. The reported decline was modest until 1996, when a severe drop in the cotton and wheat crops pushed the sectoral total down dramatically. The decline in Turkmenistan has been roughly equal to that in Kazakhstan and the Kyrgyz Republic, although in the latter growth has resumed from a low point in 1995. Output in neighboring Tajikistan has dropped even more, largely due to eruption of civil strife. Reported output in Uzbekistan has fallen less, about 20% over the same period, although statistical reporting on the rural sector in both countries is imprecise.

Approximately 60% of the value of Turkmen agriculture derives from the crop sector. Cotton is the most important crop, followed by wheat. Preliminary reports indicate that 1998 was a favorable year for production of wheat, and a less favorable year for cotton. Neighboring countries within the region also report good crops of wheat, suggesting that weather conditions have contributed to higher yields of grain in 1998. Wheat production was reported at 1.2 million tons that year, the largest harvest to date. The cotton crop was reported to be about 700,000 tons. This is higher than the exceptionally low crop of 1996 (435,000 tons) and that of 1997 (about 600,000 tons), but it is only about half the level of cotton production reported in the early 1990s.

Within the overall decline in output, the relative importance of various crops has changed substantially. An analysis of the area, production, and yields of key subsectors since 1991 reveals several results (Tables 1.1, 1.2). Total planted area increased about 15% up to 1997 and then dropped back. Over this same period yields declined, suggesting that strong political pressures to expand area could not be sustained and could not be achieved with improved yields. Cotton area declined modestly (by about 11%). Yields remained roughly constant until 1996, when they dropped to about one third of prior levels, then recovered to about half of the earlier yield per hectare.

**Table 1.1: Area Sown to Main Crops in Turkmenistan: 1990-1997 (000 hectares)**

Year	Cotton	Grain	Vegetables and melons	Feed crops	Total cropped
1990	623	187	81	338	1,231
1991	602	240	69	322	1,235
1992	567	335	60	291	1,255
1993	579	435	43	266	1,324
1994	557	598	58	248	1,461
1995	563	657	47	220	1,494
1996	530	628	44	194	1,405
1997	482	573	35	168	1,266
1998	548	705	32	94	1,387

**Table 1.2: Cotton and Grain: Production and Yields for 1991-1998**

Year	Production, 000 tons		Yield, ton/hectare	
	Cotton (raw)	Grain	Cotton (raw)	Grain
1991	1,433	517	2.38	2.15
1992	1,300	737	2.29	2.17
1993	1,341	974	2.32	2.20
1994	1,283	1,106	2.30	1.83
1995	1,294	1,109	2.30	1.68
1996	435	556	0.82	0.88
1997	635	760	1.32	1.33
1998	705	1,290	1.29	1.83

Among the highest priorities of government policy has been increased domestic production of food grain, with the objective to achieve full self-sufficiency in wheat. This policy represents a sharp break from agricultural policy of the Soviet period, when Turkmenistan was required to specialize in production of cotton, and to a lesser extent, horticultural products for the all-union market. With the autonomy in policy making achieved under independence, the government moved rapidly to increase area under wheat at the expense of area devoted to cotton, horticultural products, and feed crops. The main instrument for achieving this objective was mandatory state orders requiring producers to substitute wheat for other crops, supplemented by administrative provision of inputs. The impact of the grain program can be seen in the shifts in planted area shown in **Table 1.1**. The expansion of wheat area has come largely at the expense of feed crops, melons and vegetables, and, to a lesser extent, cotton. Wheat yields declined as area expanded, with a significant drop in 1995 and 1996 and partial recovery thereafter.

**Table 1.3: Livestock Subsector: Herd and Production in 1991-1997**

Year	Cattle, 000 head	Sheep and goats, 000 head	Meat, 000 tons (slaughter weight)	Milk, 000 tons	Milk yield, kg per cow per year
1991	899	5,599	100	458	1,443
1992	1,004	6,265	98	471	1,306
1993	1,104	6,313	110	711	1,712
1994	1,181	6,503	107	716	1,499
1995	1,199	6,574	110	727	1,282
1996	1,155	6,138	111	755	1,291
1997	1,128	5,957	110	755	810
1998	1,438	6,386	129	766	707

Reported animal numbers increased (**Table 1.3**), even though the feed base declined as area under feed crops fell and imports of concentrate feed were cut back. Most of the increase in livestock numbers took place in the household sector. The accuracy of statistical reporting on

livestock may have declined with the increase in production in the household sector, not all of which is officially recorded. Some of this increase is conjectural, and the reported increase is contrary to trends in neighboring countries. For example, under pressures of reduced domestic demand for meat and higher relative prices for feed, livestock numbers in neighboring Central Asian countries experiencing similar economic pressures have declined substantially.

Households in Turkmenistan do not in general have increased access to feed to match the reported increased herd size. The farm-enterprise sector, with its declining animal numbers, retains disproportionate access to feed supply. The deteriorating feed base probably explains much of the reported decline in productivity per animal in production of meat and milk. Since 1991, reported milk yields per cow have declined from the low starting point of 1,443 kg per cow annually to 1,383 kg per cow. The transfer of large numbers of animals without commensurate increase in access to feed has reduced animal productivity, and correspondingly raised costs of production of meat and milk.

Households may have unrecorded sources of feed, and/or production data for meat and milk may be overestimated due to the difficulty of recording production in the household sector. If animal numbers are as large as recorded, feed as scarce as indicated, and most animals held in the household sector, environmental problems associated with overgrazing in rural settlements are likely to be severe and worsening.

### **State Procurement of Wheat and Cotton**

The government retains state orders for wheat and cotton at levels exceeding recently observed production. Since wheat and cotton account for about 90% of planted area, activity in the crop sector at present is almost as fully administered as it was under the Soviet system. Under the Soviet system, only the approximately 2% of land in the household garden sector was exempt from state production and marketing orders. At present approximately 10% of land appears to be unencumbered by state orders. The state orders target for wheat in 1998 was 1.2 million tons, and for cotton 1.3 million tons. Wheat production is reported to have been at or near the target. In recent years the state has procured about 85% of the wheat crop and virtually all cotton. Cotton production in 1998 was about half of the state order target.

The state sets procurement prices for wheat and cotton. Prices in 1998 remained at the same nominal levels as in 1997, at 400,000 manat per ton for wheat and 1,000,000 manat per ton of medium staple raw cotton (1.5 million manat for long staple cotton). Between 1997 and 1998 the official exchange rate depreciated about 25%, from 4,165 manat/\$ to 5,200 manat/\$. In the third and fourth quarter of 1998 the manat is estimated to have depreciated unofficially a further 50% to 8,000 manat/\$. By March of 1999, when producers still depend on earnings and prices from the 1998 marketing year, the unofficial value of the manat had fallen to 17,000 manat/\$. The producer price for wheat in 1998 is thus approximately \$50 per ton at the end-year curb exchange rate, and half of that at the March rate. The cotton price was approximately \$190 per ton (for raw cotton at the farm gate) in fourth quarter 1998 manat, and half that level in March 1999. A farm-level price of \$190 per ton corresponds to approximately \$570 fiber equivalent. The export price for cotton fiber f.o.b. at the Turkmen border is approximately \$1,550 per ton.

## **Implicit Taxation of Cotton and Wheat Producers**

The low procurement prices for cotton and wheat implies that producers of these products are subject to high implicit taxation. Producers are implicitly taxed when they are required to sell products to the state for less than they could receive if they sold directly to international traders active in global markets. The direction and magnitude of implicit taxation of the sector as a whole and of particular commodities is important when agriculture is undergoing major structural change, as, for example, through land reform. Structural change often implies investment on the part of individuals who are beneficiaries of the programs of reform. Patterns of pricing and profitability will influence the magnitude and distribution of investment. If taxation is very high or if profitability is depressed for other reasons, participants in reform programs may withdraw or fail to fulfill obligations incurred under the programs. Distortions and high rates of implicit taxation, therefore, can make otherwise promising reforms fail to deliver expected benefits.

The question of whether agricultural producers are paying high implicit taxes is directly relevant to the issues of land reform addressed in this report. In other countries of the former Soviet Union, particularly Russia and Ukraine, producers have been given the legal right to assume ownership of land and to establish new productive enterprises. Few have taken advantage of the opportunity, in part because with poorly developed markets and low prices, the value of land transferred through the reform programs is low. In contrast, when land reforms began in China in 1978, producer prices rose in real terms and implicit taxation of agriculture declined. Households moved rapidly to claim land under the household responsibility system because the land had real value under the new economic conditions. In Turkmenistan, as in Russia and in China, the response of rural people to opportunities created under land reform programs will depend on whether the associated reforms in pricing and marketing are undertaken simultaneously. Reforms that increase the value of land, such as changes in marketing rules, can be expected to accelerate land reform.

The beneficiaries of these taxation policies are a diverse group. In particular, bread consumers benefit from low wheat prices, because they are able to buy bread and flour for reduced prices. Since over half of the population is rural, and many of these people are both producers and consumers of bread, many rural people sell wheat to the state and later buy it back in the form of low priced flour or bread. These transactions are not efficient, and simply impose costs through excess marketing and waste. Flour consumers who do not grow wheat benefit from the low prices, although they are likely to meet the problems that are well known and associated with bread subsidies; for example, lines, erratic deliveries, and shortages.

The beneficiaries of low cotton prices are more difficult to identify. The difference between the low domestic cotton price and the international trading price is divided between the cotton marketing agency, the state budget, and the Agricultural Development Fund in proportions that are not transparently displayed. The Agricultural Development Fund was founded in April 1996 to manage centralized investment and repayment of foreign obligations associated with the agricultural sector. The Agricultural Development Fund inherited debts incurred since 1991 on behalf of the Ministry of Agriculture for purchases of equipment for the grain program and also for other projects not necessarily connected to agriculture, such as construction of the Ak-Altyn hotel. The revenues and expenditures of the Agricultural Development Fund are displayed in aggregate in the 1998

budget, and this allows somewhat greater transparency than in the past, although disaggregated accounts of expenditures under the Fund are not yet public.

A portion of the difference between farm gate and export price covers processing and handling costs of the cotton marketing agency. In the cotton industry in the United States, where processors and handlers are subject to competitive pressures, processing and transport margins absorb approximately ten cents per pound, or \$220 per metric ton. Producers in a competitive industry also receive the monetary value of processing byproducts, such as oil and oilcake. Where processors have monopsony power, processing margins tend to be higher because competitive pressures are not exerted to bring them down. Producer prices are correspondingly depressed. In Turkmenistan the cotton marketing agency is not subject to competitive pressures, and thus could be expected to charge relatively high margins. At the same time, the marketing agency provides services, such as extension advice and provision of some agricultural input, that are not provided by cotton ginning and processing firms elsewhere. A full accounting of the marketing and processing margins of the cotton agency has not been made public.

The residual price difference between the low payments to farmers, margins retained by processors, and the export price of approximately \$1,550 per ton is divided between the budget and the Agricultural Development Fund. In the 1998 budget, the direct budgetary revenues from sales of cotton were projected to be 199 billion manat, and another 355 billion manat were projected to accrue to the Agricultural Development Fund from export sales of cotton. Yet according to the calculations shown below, the difference between the value of the cotton crop at the farm level in domestic procurement prices and in international trading prices converted at the end of year exchange rate is approximately twice the amount projected for budgetary revenues from cotton and for the Fund.

Part of the difference is explained by the movement in the exchange rate during 1998, but even at the prior year's exchange rate, the price difference exceeds the projected revenues to the budget and the Agricultural Development Fund. Some or all of this difference is likely to be absorbed by the margins of the cotton processing and marketing agency. With greater transparency of accounting and clarity on how cotton revenues are distributed, producers would be in a better position to lobby for retention of a higher share of export earnings, and thus would have higher retained earnings to invest in improved productivity.

The Agricultural Development Fund manages the debt repayment obligations of the Ministry, and also is responsible for financing subsidies for current inputs, such as fertilizer. For 1998 revenues into the Fund were budgeted at 419 billion manat (approximately \$80 million at the end year official exchange rate), of which 85% were to derive from cotton exports. Expenditures under the Fund were also budgeted at 419 billion manat in 1998 for agriculture and 602 billion manat in aggregate. At this level of revenue and expenditure, the Agricultural Development Fund in 1998 would have accounted for approximately 10% of budgetary expenditures, or about 3% of GDP. Although the 410 billion manat of expenditure is not broken down by category, it presumably includes both input subsidies for the 1998 crop year and debt repayment for agricultural investment in the past. The aggregate expenditure figure may include operating costs of the Fund and debt service for non-agricultural obligations.

Producers of wheat and cotton under state order contracts are entitled to receive a 50% subsidy on purchases of fertilizer, chemicals, fuel, transport, machinery services, and other purchased inputs. Producers also receive a 30% advance payment on contracts for cotton and wheat, with the remainder payable upon delivery. In principle, both the 50% subsidy and the 30% interest free loan represent subsidies to producers of cotton and wheat to offset the implicit taxation of low producer prices. In practice the quantitative flows are difficult to measure, since producers do not necessarily pay for inputs at the time of delivery, or receive payment for output upon delivery. Administrative commands still have greater weight than market signals and payments. Transactions mediated through markets have little impact in these sub-sectors.

Data needed to calculate inter-sectoral flows through subsidies and implicit taxation are incomplete, but estimated calculations suggest that agriculture is subject to severe implicit net taxation (**Table 1.4**). The impact of state order prices appears to be very large by international standards. Nominal rates of protection for cotton and wheat appear to be about equal. The rate in 1996 was very high, at approximately  $-70\%$  for each commodity, implying that seventy percent of the value of the commodities on international markets was redistributed to the budget and to other uses. The official exchange rate did not change much in 1997, but procurement prices for both cotton and wheat increased significantly, resulting in a drop in nominal protection rates to about  $-45\%$ . In 1998 the rate of taxation increased again, to approximately  $-65\%$ , as nominal prices remained fixed, but the exchange rate depreciated. The volume as well as the rate of tax increased in 1998, since the wheat crop was so much larger than in the prior year.

**Table 1.4: Redistribution of Cotton and Wheat Revenues Between Producers and State Budget**

	Cotton			Wheat		
	1996	1997	1998	1996	1997	1998
1 Production, 000 tons	435	632	700	556	760	1,200
2 Value of output in domestic prices, M manat	195,750	632,000	700,000	159,920	346,000	588,000
3 Value of output at international prices, M manat*	765,160	765,160	2,030,000	529,520	613,240	1,358,100
4 Nominal protection rate #	$-74\%$	$-44\%$	$-65\%$	$-70\%$	$-44\%$	$-57\%$

\*Calculated at the official exchange rate for each year.

#Calculated as  $[(2-3)/(100)]$ ; negative NPR implies taxation of agricultural sector.

In partial compensation for the low procurement prices, producers receive subsidies on inputs and do not pay for irrigation services or water. Estimates of the magnitude of subsidies for inputs and water are approximate, but suggest that they only partially compensate for low procurement prices. When transfers for input they subsidies and irrigation subsidies are netted out, the redistribution of resources out of primary agriculture through pricing and procurement of cotton and wheat still appears large, as much as 3% of GDP in 1997 and increasing with the depreciation of the exchange rate in 1998 (**Table 1.5**). Countervailing this large negative transfer are periodic additional subsidies for debt write-off. The available data, although incomplete because of the lack of data on debt write-off, suggest that primary agriculture is a net donor to the rest of the economy. Net transfer of resources out of agriculture most probably contributes to declining productivity in the sector.

Products other than cotton and wheat are not subject to explicit production quotas or procurement orders. Major processing plants for meat, milk, and horticultural products, however, remain publicly owned. Local governments in some cases require processors to provide milk and meat under preferential terms to schools, hospitals, and other local institutions with special status. This implicit price control on a portion of processed products depresses the prices that processing plants can pay for raw materials. As a result, most meat and milk is sold on local markets and fully bypasses the processing sector. Most cattle and a large number of sheep and goats are in the household sector, and can be marketed informally and directly.

**Table 1.5: Net Resource Transfers in Agriculture**

	1997	1998
Taxation through price gap, bill. Manat*	-768	-2,100
Direct input subsidies#	275	300
Irrigation subsidy+	229	235
Net transfer out of agriculture	-264	-1,565
Percent of GDP	3%	11%

\*From Table 1.4.

# Input subsidies for cotton and wheat are estimated from the survey data, as shown in Table 1.6. According to survey data, producers report costs for variable inputs of approximately 500,000 manat per hectare on average for cotton and wheat. The subsidy portion is thus calculated at 50%, or 250,000 manat per ha. Extrapolating to an area of 1.1 million ha planted in cotton and wheat in 1997 and 1.2 million ha in 1998 yields the estimates shown.

+Taken from the corresponding budget expenditure category

**Table 1.6: Estimating Input Subsidies**

	Cotton/wheat breakdown	Total in sample
Total cost of purchased inputs in the sample		42,804 M manat
Total production of cotton and wheat in the sample:		123,747 ton
Cotton	54,808 ton	
Wheat	68,939 ton	
Total area sown to cotton and wheat in the sample:		86,919 ha
Cotton	38,113 ha	
Wheat	48,806 ha	
<b>Unit costs and subsidy</b>	<b>Manat per ton</b>	<b>Manat per ha</b>
Cost of inputs	345,900	492,500
Subsidy component (50% of cost)	173,000	246,250

## Processing

According to a program announced in late 1998, the processing sector will undergo reorganization to increase scope for private ownership and investment. Under the program, enterprises will be corporatized, and minority stakes of shares will be sold to private buyers who express interest. The state will most likely retain control and the industries will remain highly

concentrated. It is too early to tell whether this program will attract the interest of domestic and/or foreign investors. Similar programs of corporatization and partial privatization in other countries have had limited impact either on investment or performance of the enterprises. For example, in Central Europe, where foreign investment in food processing has facilitated entry into international markets on a substantial scale, foreign firms generally take a controlling share of ownership before they are willing to make substantial new investment.

### **Agricultural Inputs**

The state in Turkmenistan is actively involved in allocation and distribution of fertilizer, seeds, agricultural chemicals, machinery, and fuel. Producers working under state orders are entitled to the 50% subsidy on inputs noted above. The private sector is relatively undeveloped and inactive in provision of inputs. Imports of fertilizer and chemicals are managed through the state commodity exchange, and then distributed through a subsidiary firm associated with the exchange.

Turkmenistan had a well-developed and innovative system of biological pest control introduced in the late Soviet period in response to concerns about excessive use of chemical agents for cotton production. The system consisted of a network of laboratories producing biological plant protection agents. The system declined throughout the 1990s, but interest has renewed since the crop failure of 1996 and subsequent recognized outbreaks of pests. In 1998 the government began a program to revive the biological pest control system and made modest progress in the effort. Services for the crop and livestock sectors (primarily plant protection and veterinary services) are now on a cost recovery basis, although the extent to which payment can be collected is still to be tested.

The state pays virtually the entire cost of maintenance and operation of the irrigation system. According to the 1998 budget, expenditures on irrigation and land reclamation (net of cost recovery and earnings of the farms and enterprises operated by the Ministry) were 235 billion manat, slightly up from 229 billion in 1997. Although the legal basis for cost recovery of water charges exists, actual collection is reported to be minimal. Most of the reported revenues of the Ministry of Land Reclamation and Water (43 billion manat in 1998) probably derive from sales of output grown on land allocated to the Ministry by Presidential decree in November 1997 to provide a revenue base for the Ministry. The land was allocated in an effort to make the Ministry financially self-sufficient through production and sale of cotton. The measure was ineffective, since it required the Ministry to undertake activities for which it is poorly suited, and did not provide sufficient resources for the Ministry to do its designated job in the irrigation sector.

### **Credit, Debts, and Arrears**

Financing of agriculture in Turkmenistan throughout the 1990s has involved large and complex flows into and out of the budget, the banking system, and various off-budget funds. A new bank for agricultural lending, Daikhan Bank was created in 1995 with branches in administrative jurisdictions down to the village level. In conjunction with creation of the bank, approximately \$35 million in debts of agricultural producing and processing enterprises were written off, and inter-

enterprise debts of approximately \$128 million were netted out and cleared. Daikhan Bank thus began operations in 1995 without a legacy of bad debt.

As part of the administrative changes in 1996, Daikhan Bank was reorganized into three commodity-specific sub-units: Gallabank serving the wheat sector, Pagtabank serving the cotton sector, and Mallarbank serving the livestock sector. The bank and its subdivisions served in 1997 largely as an agent to distribute 30% advance payments against contracted commitments to produce wheat and cotton under state orders. The bank engaged in little financial intermediation in rural areas.

In 1998 the advance payment system was amended and became a program of directed lending to producers, with the interest rate established administratively at 2% annually, and lending amounts determined according to the state order contracts. The 1998 loans are to individual leaseholders, and are secured by personal property.

Daikhan Bank is also the major financing channel for procurement of the harvest. The Bank's own resources are relatively modest, and insufficient to finance large-scale procurement of the wheat and cotton harvests. In an administrative system where the state is the ultimate customer, the state ultimately provides financing to purchase the crop. In 1998 financing appears to have come from a special emission of directed credit issued at the end of the year and distributed through Daikhan Bank.

\* \* \*

The institutional setting for primary agriculture in Turkmenistan remains highly administered, with little scope for activities in the private sector. Producers of cotton and wheat are subject to rules for production, marketing, and pricing that result in a high level of implicit taxation of their potential earnings. The combination of weak development of the private sector and poor incentives for agricultural production will reduce the willingness of rural people to invest in land even if they are granted secure tenure. As the land reform moves ahead, therefore, changes in the institutional arrangements for input supply and marketing as well as changes in price policy could have a strong impact on the enthusiasm with which rural people seek land ownership, and the investment they are willing and able to apply to their land.



## **2. Historical Background and Chronology of Legal Measures in Land Reform**

Turkmenistan's agriculture is highly intensive in investment. Over the past decades, billions of rubles and manats have been invested in irrigation, land reclamation, and land improvement in order to make a harsh desert flower with cotton, wheat, and other valuable agricultural products. Investments in the past made production possible, but also caused considerable environmental damage, including dramatic reduction of water flow to the Aral Sea and salination of extensive areas, and did not always yield high returns. Nonetheless, under the demanding climatic conditions, agriculture in the future will continue to require significant recurrent investments. Much of the investment will have to come from producers themselves, because they are the one who will reap the benefits, and because the state budget will be unable to finance significant additional investment in the near future.

Rural households the world over have been shown to invest in the land they work, but only if they have secured tenure. They require confidence that they will be able to reap income from their investments, and moreover, that they can sell their land and recover their investment if they choose to leave farming. Without assurance of secure tenure of cropland, families will invest their own savings in their homes and small garden plots. They will not in general choose to invest either savings or labor in land that they perceive to belong to the state or to the collective. Land tenure is thus intimately linked to the productivity of land through the investment process. In many parts of the world, insecure land tenure is the key barrier impeding growth in productivity and quality of land. Because of the fragility and vulnerability of Turkmenistan's land, land tenure and renewed investment in land are of high priority on the reform agenda.

Turkmenistan is the only country in Central Asia in which the constitution formally recognizes private ownership of land. Prior to the adoption of the new Constitution in 1992, all land in Turkmenistan was owned by the state. This exclusive state ownership of land was traceable to the fundamentals of the 1917 Soviet Land Decree, which eliminated privately owned land in the region that would eventually become USSR. The Soviet state granted use rights in land to producers, both collective and individual.

Turkmenistan inherited a typically dual pattern of land tenure from the Soviet Union. Most of the arable agricultural land (over 95%) was in permanent use of large-scale farm enterprises: there were some 500 former state and collective farms, which respectively cultivated 1500 ha-2500 ha of sown land per average farm. In addition, around 2% of arable land was allocated in lifetime inheritable possession to rural households, where farm employees and pensioners used family labor to farm small subsidiary household plots of less than 0.2 ha on average. The land in household plots was almost entirely arable land, orchards, and vineyards, without any pastures and with very little land in hay meadows. The composition of an average household plot was typically 85% arable land and 15% orchards and vineyards.

The large-scale farms produced on average 80% of gross agricultural product during the last decade, while the remaining 20% came from production in small household plots. As is the case in

other former Soviet countries, the share of subsidiary household plots in gross agricultural product is much higher than their share of land. Household plots were significantly increased in the first stage of land reform after independence in all countries of the former union. Because of the scarcity of irrigated arable land in Turkmenistan, the household plots remain quite small even after augmentation (from 0.14 hectares on average prior to reforms to 0.22 hectares at present).

### Growth of Individual Sector

With reforms begun in the late Soviet period and continued after independence in 1991, the share of large-scale farm enterprises in cultivated land in Turkmenistan is shrinking (**Figure 2.1**). The total land holdings of the individual sector increased nearly seven-fold during the last decade: from 36 thousand ha in 1985 to 248 thousand ha in 1998 (**Table 2.1**). The share of the individual sector in cultivated land increased from about 2% to nearly 10%, while the share of the traditional farm enterprises in cultivated land dropped to 90%. The decline of the large enterprises accelerated markedly after 1989. Since total irrigated and cultivated land expanded after independence from 1.2 million ha to 1.7 million ha, the declining share does not imply decrease of total land area cultivated by large-scale farms. However, the rate of growth of collective cultivated area is much slower than the rate of growth of all cultivated land, which accounts for a pronounced decline in the collective share. Cultivated land is shifting from traditional large-scale farms to the individual sector, the share of which in cultivated land has rapidly increased since 1990 (**Figure 2.2**).

Figure 2.1: Decline of Collectively Cultivated Land: 1985-1998

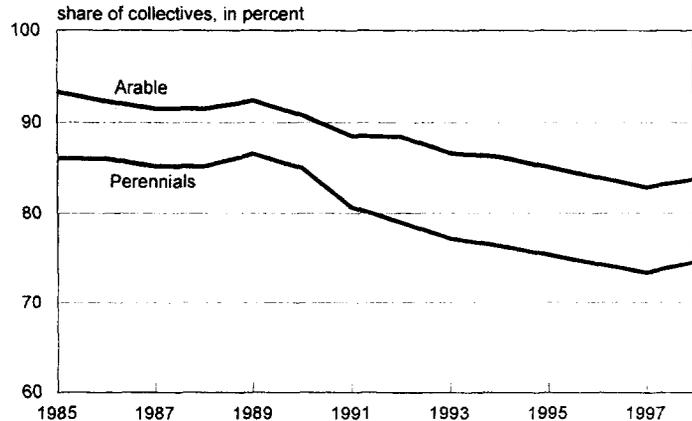
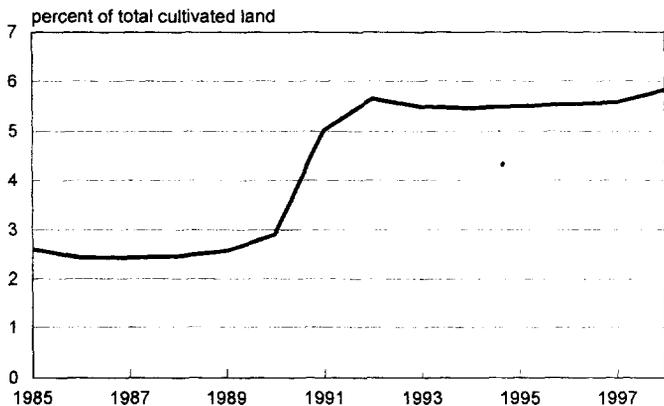


Figure 2.2: Share of Household Plots in Cultivated Land: 1985-1998

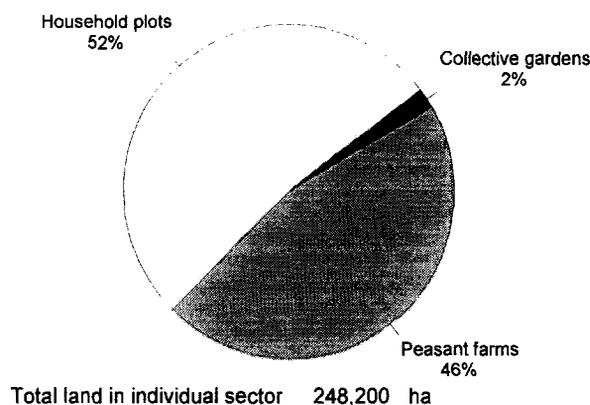


**Table 2.1: Individual Land Use: 1985-1998 (000 ha)**

Year	Household plots	Collective gardens	Private farms	Total in individual use
1985	35.4	0.7		36.1
1986	36.2	0.7		36.9
1987	38.1	0.8		38.9
1988	45.3	1.3		46.6
1989	47.2	3.3		50.5
1990	51.9	3.1		55.0
1991	88.4	4.5	0.1	93.0
1992	101.5	5.4	1.8	108.7
1993	109.9	5.7	31.1	146.7
1994	117.8	5.8	87.3	210.9
1995	119.6	6.4	98.0	224.0
1996	114.4	5.1	105.5	225.0
1997	128.8	4.9	109.6	243.3
1998	131.1	5.0	116.1	252.2

The individual sector today includes three distinct categories of producers (**Table 2.1**). The largest category is still the household plots, which account for more than half of all land in the individual sector. The household plots are cultivated by approximately half a million rural families, mostly employees and pensioners of large-scale farms. Another 60 thousand urban families cultivate gardens and vegetable patches. This category of so-called collective gardens is quite small, however, and represents about 2% of all land in the individual sector. The collective gardens are

established by associations of city workers, usually affiliated with the same work place, who apply as a group to local government for an allocation of land. These urban groups are allocated contiguous tracts of land not far from the city, which are then subdivided into small individual plots for part-time farming by association members. The third category, which began to emerge as recently as 1991-1992, are the private peasant farms (or daikhan farms) established by independent individuals outside all collective frameworks. The number of independent private farms reached 7,000 by the end of 1998. Land in private farms comprised slightly less than half of the land in the individual sector, but this land is not as intensively farmed as land in household plots. Some land in private farms is still in the process of reclamation, and not yet under production. The contribution of private

**Figure 2.3: Structure of Individual Sector (Jan. 1999)**

farms to total output is thus minor. **Figure 2.3** shows the relative weight of the three components of the individual sector in land area.

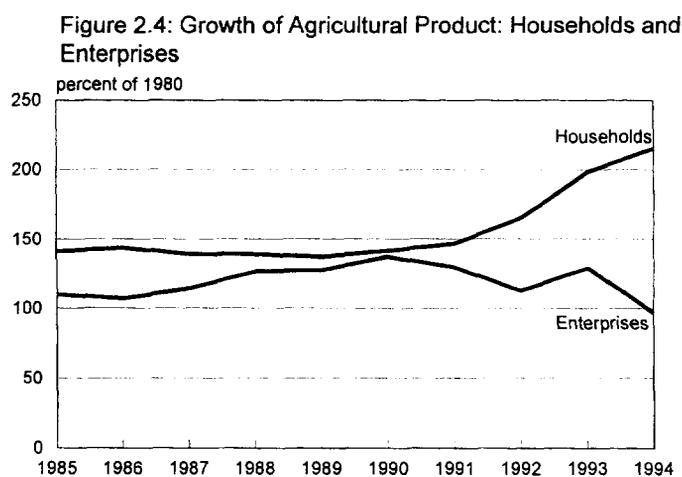
The first stage of land reform in Turkmenistan, as in other post-Soviet countries, was expansion of household plots. The land in household plots doubled within two years, from 52 thousand ha in 1990 to 102 thousand ha in 1992 (see **Table 2.1**). By the end of 1998, it reached 130 thousand ha, or an average of 0.22 ha per family. The share of household plots in cultivated land increased from around 2.5% in the 1980s to nearly 7.5% in 1998 (see **Figure 2.2**). Collective gardens of urban workers registered an even more spectacular growth rate: from a mere 700 ha in 1985 to 5000 ha in 1990, or an average of 0.08 ha per family. Private farmers, the new third component of the individual sector, were allocated 110 thousand ha of land between 1992 and the end of 1998, of which 90 thousand ha are the farmers' property and another 20 thousand ha are leased from the state. An average private farm today is 16 ha.

**Table 2.2: Land Holdings of Peasant Farms: 1991-1998 (000, ha)**

Year	Total land	Privately owned	Leased
1991	0.1	--	0.1
1992	1.8	--	1.8
1993	31.1	25.7	5.4
1994	87.3	69.8	17.5
1995	98.5	83.9	14.6
1996	105.5	89.5	16.0
1997	109.6	90.2	19.4
1998	116.1	93.2	22.9

While household plots and collective gardens comprise mostly irrigated arable land, peasant farms as a matter of policy are established on marginal virgin land. The peasant farmers are expected to convert their marginal land into arable land by preparing it for cultivation and providing irrigation. As of October 1995, only 40% of the land holdings of private farms were classified as arable land (39 thousand ha of the total of 98 thousand ha allocated at that time). In order to start producing before their allocation of private land has

been fully prepared for cultivation, many farmers lease arable land from the local farm enterprise, or peasant association as it is now called. Nearly 20% of land holdings in peasant farms is unutilized land leased from local farm enterprises (**Table 2.2**). Thus, despite the generous endowment of land,



private farmers are currently producing less than 1% of agricultural product, mainly because most of them were established recently and are still not fully operational on their marginal land.

In contrast, the increased allocation of good land to household plots has led to a substantial increase in their contribution to gross agricultural product. The share of households in gross agricultural product rose from around 17% in 1989-1991 to 30% in 1995, and household plots today account for over 60% of the value of livestock production in Turkmenistan (their share of crop products remains below 10%). Household plots are reported to have provided 20% of family incomes on average for Turkmenistan, up from 5% of incomes prior to independence. The agricultural production of household plots in constant prices more than doubled between 1980 and 1994, while the agricultural production of large-scale farm enterprises declined in recent years basically to the level of 1980 (**Figure 2.4**). The change is in fact observed since 1990, when large farms began distributing additional land to households for individual cultivation.

### **Legal Framework of Land Reform**

The legal framework of land reform in Turkmenistan is provided by a long list of presidential decrees and laws, some dating back to the Soviet period in 1990 (**Table 2.3**). The changes in land relations began in the first half of 1991, primarily with the President's letter of April 1991 instructing local councils and ministries to allocate additional arable land for household plots and collective gardens from underutilized land reserves of large-scale farm enterprises. The jump in the share of cultivated land in household plots observed between 1990 and 1991 (see **Figure 2.2**), and the associated increase in agricultural production of households (see **Figure 2.4**), are a direct outcome of this policy decision. The April 1991 decree established a new principle; namely that land originally granted to farm enterprises in perpetuity could be reallocated to other users if not utilized efficiently. This principle has since remained an active component of the land policy.

The augmentation of household plots began before the adoption of the new Constitution of Turkmenistan. At that time, all land was state-owned, as everywhere in the former USSR, and land tenure was governed by the traditional Soviet forms of permanent use (for farm enterprises) and inheritable lifetime possession or usufruct (for individuals). The May 1992 Constitution (article 9) recognized private ownership of land (and other means of production) by individuals. The constitution also allowed corporate ownership of assets, including land, and naturally retained the category of state ownership. Furthermore, it is unique among the constitutions of Central Asian countries (including Kazakhstan) in that it recognizes private ownership of land. The Constitution, however, only sets general principles, and definition of ownership as well as practical implementation is left to laws, presidential decrees, and government resolutions. Both the 1990 Land Code, which remained in force after the adoption of the new constitution, and subsequent legislation unequivocally showed that private ownership of land did not carry with it the usual rights to transact in land: privately owned land may not be sold, given away as a gift, or exchanged.

According to the presidential decree of February 1993, published after the adoption of the new constitution, land in subsidiary household plots and in collective gardens was transferred from the old form of inheritable lifetime possession to private ownership. The decree also legalized long-term leasing of land by individuals and groups of individuals within large-scale farms: land could

now be leased to farm employees for terms of 10 years and longer. In addition, the February 1993 decree made the first step toward expanding individual land tenure to include an entirely new category of producers, the private farms. While the traditional household plots and collective gardens were largely intended for subsistence purposes, and only a small part of their output was sold in local markets, the new private farms were expected to have a commercial orientation.

**Table 2.3: Legislation on Land Reform and Farm Restructuring in Turkmenistan**

1990 October	Land Code of the Turkmen SSR amended May 1991
1991 April	President's letter to local councils of People's Deputies and heads of ministries and authorities "On augmentation of areas for household plots and collective gardens from inefficiently utilized lands"
1991 May	Amendment of the Land Code
1992 May	Constitution of Turkmenistan (article 9: private ownership of land)
1993 February	Presidential decree "On right of ownership and use of land in Turkmenistan"; Regulations on Allocation of Land Use in Private Ownership and Long-Term Leasing to Citizens of Turkmenistan
1993 May	Presidential decree "On increasing economic motivation for increased production and improved quality of agricultural products"
1993 October	Law on Ownership
1994 March	Presidential decree "On restructuring of kolkhozes, sovkhoses, and other agricultural enterprises in Turkmenistan"; Law on Peasant (Daikhan) Farms
1994 May	Presidential decree "On implementation of reforms in agriculture of Turkmenistan"
1995 June	Presidential decree "On creation of peasant associations (daikhan birleshikleri)"; Law on Peasant Associations
1995 September	Standard regulations on peasant association
1995 December	President's program "On deepening of market reforms and socio-economic development of Turkmenistan in 1996"; Presidential decree "On additional measures for reforming peasant associations in 1996"
1996 January	Draft Land Code
1996 December	Law on Allocation of Land in Ownership to Citizens for Commercial Farming
1996 December	Presidential decree "On additional measures for implementation of economic reforms in agriculture"
1997 January	Presidential decree "On increasing economic incentives for production of agricultural products"
1997 July	Directive on normative allotment of leased land per worker varying according to product produced
1998 March	Presidential decree "On subsidized credit to cotton and wheat producers"
1998 June	Presidential decree "On exemption of peasant associations from value added tax"
1998 August	Presidential decree "On some measures for acceleration of agricultural reform"
1998 August	Presidential decree "On subsidized rates of mechanical field works for cotton and wheat production"
1999 January	Presidential decree "On privatization of agricultural, agro-industrial, and construction enterprises in the agro-industrial complex"
1999 February	Presidential decree "On improvement of lease relations in agriculture"

After February 1993, citizens of Turkmenistan could apply to receive up to 50 ha of land in private ownership for commercial farming. This land, however, was not necessarily arable or irrigated land. The presidential decree specifically stipulated that local authorities would allocate land plots for commercial farming from reserve lands, virgin lands, and lands not used by farm enterprises. The new farmers were thus expected to “open” virgin lands by their own efforts and with their own resources. This task would normally involve leveling the rough native terrain, moving away large volumes of sand, trucking in equally large volumes of fertile soil from afar, and providing irrigation ditches or pipes from relatively distant water sources. Yet the new farmers were obliged to start producing within two years, and would lose the land if they failed to start farming commercially within the stipulated period. This was probably an unrealistic stipulation, given the tremendous difficulties that individuals would face in “opening” virgin lands and providing irrigation. Nevertheless, the “opening” of virgin lands by private farmers since 1993 accounts for part of the considerable increase in irrigated land observed during the last years. The land received for private farming, although classified as privately owned, could not be sold, given as a gift, or exchanged.

Despite the physical obstacles and the marginal quality of land allocated to private farming, individuals began to apply in increasing numbers for an independent plot of land outside the collective framework. As of October 1995, 3237 individuals received a total of 80.3 thousand ha of virgin lands in private ownership, and nearly 5000 additional applications were pending. Private farmers managed to “open” 31 thousand ha, or nearly 40% of land that they had received. The growing interest in private farming encouraged the preparation of a special law, the Law of Peasant (Daikhan) Farms, which was passed in March 1994, superceding the February 1993 Presidential decree.

### **The Concept of Private Ownership of Land in Turkmenistan**

The land reform process in Turkmenistan is mainly guided by presidential decrees. The Land Code presently in effect was passed in 1990, and has been overtaken by the new reality in land relations. Several drafts of a new Land Code have been submitted for discussion. According to the current legal conception, every citizen of Turkmenistan has a right to private ownership of land. Foreign citizens may not own land, but may lease it. The concept of private ownership contained in the draft Land Code is limited in that it restricts transactions: “land is granted in private ownership in inheritable lifetime possession, without the right to sell, give as a gift, or exchange.” This formulation is the same as that in the Land Code of 1990, except for the addition of the clause “private ownership.”

Private ownership in the Turkmen context is thus interpreted as secure inheritable tenure. This conception is confirmed in the statement of allowable uses of privately owned land. When listing the legitimate uses for which individuals may be granted land in private ownership (article 57), the draft law says (emphasis supplied): “Citizens of Turkmenistan have the right to receive *in private ownership with lifetime inheritable possession* plots of land for the following purposes: commercial farming, peasant farming, free entrepreneurship, and provision of services to the

population; subsidiary household farming; individual residential and summer-home construction; gardening and vegetable growing; etc.

With regard to private farms, the draft law (article 64) reads:

Citizens of Turkmenistan who wish to establish a peasant farm for crop or livestock production based predominantly on personal labor and labor of other family members will lease land or receive land *in private ownership with the right of lifetime inheritable possession*.

Rights of land owners (*zemlevladel'tsy*) include the right to transfer the land plot or part thereof in temporary use to other juridical or physical bodies (article 47). This presumably includes leasing out land to others. Since no other rights of alienation are mentioned, none are allowed by implication. Land users (*zemlepol'zovateli*) do not have any rights of transfer, even temporary.

Private ownership thus appears semantically and legally indistinguishable from traditional "lifetime inheritable possession," in terms of rights usually associated with land tenure. In the Turkmen context of highly administered agricultural markets, however, private ownership has additional implications for disposition of the products of land. The President has indicated (in Presidential Decree No. 2694 of 28 June, 1996) that producers working privately owned land are not subject to state orders for delivery of cotton and wheat, while those working on leasehold are still subject to the orders. Other countries in transition, with the exception of Uzbekistan, have abandoned state orders. In other countries, therefore, forms of land tenure do not carry implications with regard to marketing rights. In Turkmenistan, however, where approximately 90% of arable area is still subject to state orders for planting and marketing, exemption of privately owned land from state orders can be a meaningful economic distinction, at least in the short run. Producers with privately owned land can sell wheat on the State Commodity Exchange and cotton to the cotton marketing agency at negotiated prices, rather than state order prices. The exemption of privately owned land from state orders may also explain the reluctance of local and national officials to convert leaseholds to private ownership until the operators of the land have achieved high production targets, since local authorities are still responsible for plan fulfillment according to state orders for their regions.

### **Restructuring of Traditional Large Farms**

Large farm enterprises continue to dominate Turkmen agriculture, despite the growth of the individual sector in household plots, collective gardens, and peasant farms (see **Figure 2.1**). Land in the large farms is owned by the state, allocated in use to the farm enterprises, and, in many cases, leased to households that comprises the farm work force.

Internal changes in the structure and organization of large farms began in the late 1980s and early 1990s, when Mikhail Gorbachev's model of intra-farm lease groups or lease contracts was adopted in all parts of the Soviet Union. According to this model, a group of farm workers leased land and equipment from the large-scale enterprise and assumed responsibility for production. In return, the lease group either made a fixed lease payment or shared output with the farm enterprise.

The lease group (*arendnyi podriad* in Russian) consisted either of relatives within an extended family or of workers without any blood relation employed in the same section of the farm enterprise. The intra-farm lease model did not prove particularly successful, because in a command economy the lease groups continued to depend on central farm management for input supply and product marketing, and because their production decisions continued to be dictated by the production plan of the large-scale enterprise. Yet it provided an important experiment in small-group or individual initiative as a departure from large-scale organization and laid the foundation for later approaches to farm restructuring.

Intrafarm leasing was widely adopted in Turkmenistan and retained after independence. Organizing the large farms according to lease brigades was regarded as an instrument to distribute income within the farm and to motivate workers. Measures announced in May 1993, for instance, limited the share of total value of production of lease groups that could be withheld by the collective farm in lieu of lease payments and as a contribution to general expenses of the community (35% of cotton value, 50% of grain, 50% of grapes, and 20%-25% of fruits, vegetables, and potatoes). The rest was to be used to cover production costs and pay group members for their work. The value of the lease contract from which these amounts were withheld was to be based on average yields achieved during the previous 3 years in the corresponding section of the collective enterprise before it was leased by the group. All production in excess of the contractual obligation remained the property of the lease group. The lease group, however, was obliged to sell all its cotton and grain to the state, and only fruits, vegetables, and melons could be sold on local markets.

A more radical attempt to restructure the large-scale farms beyond intra-farm leasing arrangements was announced in March 1994 in Presidential Decree No. 1729 “On Restructuring of Kolkhoz, Sovkhoz, and Other Agricultural Enterprises in Turkmenistan.” Large-scale farms were to be transformed into associations of peasant farms, shareholding societies and partnerships, cooperatives, associations, and other farm enterprises of various forms of ownership. The workers were allowed to choose freely the preferred form of organization. Land was to be transferred in permanent use to the newly created organizational forms, and assets were to be leased with a right to buy. This mechanism did not allow privatization of land, nor did it go as far as distribution of shares in land and assets to individual members. Yet it envisaged a reorganization of existing large-scale enterprises into diverse organizational forms, each exercising direct control of its resources. The decree stipulated that state orders on cotton and grain would remain in force for the new organizations.

The implementation of the March 1994 decree was entrusted to a joint governmental committee, which proposed a list of 58 farm enterprises in all the five provinces that were to be restructured in 1994. Farms chosen for the first round of restructuring were primarily the weak ones under financial stress, plus one or two “stars” included in each province. These “stars” had begun their own program of internal transformation long before the publication of the decree, and they were intended to serve as model examples for other farms in the region. The decision to start with weak farms limited the success of the program. Experience in other countries shows that weak farms are relatively poor candidates for restructuring, since their assets are often of poor quality and prospects of financial success even under better organization are often dim. No data are available on the

results achieved with the March 1994 program. Informal discussions suggest that the program never really got off the ground for a variety of reasons.

The government announced a new farm transformation program in June 1995. The new program was encapsulated in a very short, two-paragraph presidential decree of June 15, 1995 which (a) abolished the existing large-scale farms (kolkhozes, sovkhozes, and interfarm enterprises) and created in their place peasant associations (“daikhan birleshik” in the Turkmen language); (b) transferred the use and management of land and assets from the existing farms to the new associations. The decree was followed by the Law of Peasant Associations (June 15, 1995) with implementation regulations (Sept. 15, 1995). The conversion of enterprises to new associations by stroke of the pen implies that the change was one largely of name. Yet the law and the regulations contain measures intended to move the agricultural sector toward more meaningful and deeper restructuring.

According to the law, a peasant association takes possession of all land and assets previously used by the large-scale farm from which the association is created. The assets are transferred without payment to the ownership of the peasant association, while land remains state property and is given to the association in use. The term for which land is given in use is not specified: neither the law nor the regulations say that land is given in “permanent use,” as was the traditional practice in the past for collective and state farms. According to the State Land Committee, the government has flexibility to take land away from associations if they misuse the land or do not produce with expected efficiency.

The peasant association may create a variety of autonomous internal organizational forms, including lease groups, peasant farms, subdivisions, livestock units, and other formations, all of which should operate on profit principles. The association may also establish profit-oriented agroservice operations. The process of reorganization is not limited in time, and apparently may take place at any point. In the process of reorganization, the ownership of non-land assets may be transferred from the association to the newly created subunits. Alternatively, the subunits may lease the assets from the association, as was the former practice. Land, however, cannot be assigned and can only be leased to the subdivisions. The draft Land Code provides the legal framework for leasing of land by the association to its subdivisions. The draft Land Code states (article 13) that “land owners and land users, regardless of the form of ownership, may give land in use to workers and collectives in the form of intra-farm lease contracts.” This provision is essential to enable allocation of land to autonomous intra-farm subdivisions, because the original 1991 Law on Leasing stipulates that an asset can be leased out only by its owner, which in case of land in large enterprises is still the state.

The association is given rights to manage the entire land area of the former farm enterprise (less unutilized tracts), and is responsible for subleasing. This provision is not commonly found elsewhere in the world, but it is reminiscent of the practice in Israel, where state land is leased in large tracts to the village association (the moshav), which then subleases it to the members. It should be noted, however, that the Israeli practice has increasingly come under attack in recent years, and it will ultimately be changed to allow direct leasing of land by producers from the state. In Turkmenistan, the association is responsible for assurance that land resources are used as designated

(i.e., for farming), and it is fully accountable for damage caused by inefficient use of land, environmental pollution, and other violations.

Membership in the peasant associations is by law to be completely voluntary. Members have a right of free exit, and they may leave with their personal property and the household plot. However, they do not get a share of the association assets, as these are not divided among the members. Nor would a person leaving the association get a share of the association land, although non-members can apply to lease land if any is available. A member who exits would be more likely to apply for a plot of land in virgin areas and other unutilized reserves.

The Law of Peasant Associations creates a framework within which the new organizations can undergo significant internal restructuring. Households or small groups could achieve a large measure of autonomy within this context if the associations became autonomous and less controlled by procurement directives. The associations remained subject to state orders, however, both at the time of passage of the law in 1995 and at present. Moreover, associations, rather than their members, are responsible for fulfillment of the orders. Thus, although the 1995 law created possibilities for change, the economic and administrative environment in which the associations were created did not encourage change, and little actual restructuring followed passage of the law in 1995 and throughout most of 1996.

The emphasis on expanding intra-farm lease arrangements is reflected in the President's program on deepening of market reforms and socio-economic development of Turkmenistan in 1996 (announced in the President's New Year speech on Dec. 27, 1995) and in the presidential decree "On Additional Measures for Reforming Peasant Associations in 1996" based on this program. The draft decree instructs the Ministry of Agriculture and the local authorities to speed up agricultural reforms by basing in 1996 all intra-farm production relations on contracts with autonomous subdivisions and families. The land and assets of peasant associations are to be assigned on long-term leases for not less than 10 years, a time period intended to ensure sufficient security of tenure. Ten years has been found in other parts of the world to be an insufficient period of time to stimulate investment in land or perennial plants. Thus, although ten years is a longer period of leasehold than was permitted in Turkmenistan in the past, the economic impact of leasing for that period of time may not be significant. Moreover, in practice, the size of holdings leased for the ten year period has been reported to be adjusted in response to the household's success in managing the land. Some of the area leased in relatively large holdings of ten hectares or more to households producing wheat has been reallocated where families were perceived to lack sufficient labor to manage the holding successfully. The reallocation in 1997 and 1998 raises questions as to the security of tenure even on a ten-year leasehold.

Under terms of the 1996 program, growers of vegetables, melons, fruits, and grapes paid fixed lease payments (in cash or in kind) per unit land area and were allowed to sell their output at free market prices. Cotton, grain, milk, and meat remained subject to state orders. State orders for meat and milk were removed later in 1996.

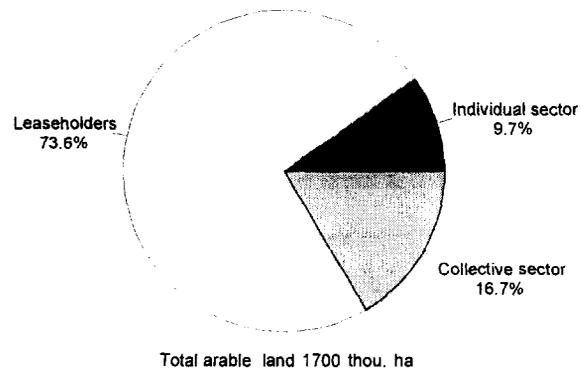
The expansion of leasing in early 1996 was followed by additional changes in the program later in that year. In December 1996, the Law on Allocation of Land in Ownership to Citizens for

Commercial Farming (December 20, 1996), stipulated that members of peasant associations are entitled to receive land in private ownership for commercial farming. The December 1996 announcements came after the very poor harvests of wheat and cotton during that year, and represented the most significant change in policy regarding land tenure and farm structure of the entire decade. According to the law, leased land can be converted to private ownership certified by official documents after a 2-year probationary period. During the two-year period, the household cultivates under leasehold, and must demonstrate good performance. The presidential decree attached to the law directs the peasant associations to start distributing land to member families on 2-year leases preparatory to its transfer into private ownership, and establishes supervisory organs on different levels that are required to report on the progress of the new reform measures at 10-day intervals. Under the December 1996 law and decree, the concept of private ownership remained unchanged, but the scope of eligibility to become owners broadened to include virtually the entire agricultural labor force. In contrast to the earlier programs of intra-enterprise leasehold, the family or household was designated as the primary leaseholding unit. Households that did not perform well were to be granted an extension of the leasehold, during which period they could continue to apply for ownership. Leaseholders within associations were to pay 20% of the value of gross output to the association; 12% for common expenses and 8% for taxes.

The peasant association is expected to manage input supply, machinery, equipment maintenance and repairs, and other support activities, although leaseholders pay for the inputs and services. The structure that emerges from the 1996 law and decree is not unlike the Israeli moshav, an association of individual producers supported by a village-level cooperative that provides a variety of farm services to the members. In Israel, however, the producers are not (and have never been) subject to state orders, and are allowed to make free production and marketing decisions.

As of January 1999, lease contracts had been signed with 363.4 thousand leaseholders in peasant associations, who had been allocated 1,261.9 thousand hectare of irrigated land for cultivation. According to latest reports, a total of 145 leaseholders have been given 658 ha of irrigated land in private ownership in recognition of their satisfactory performance in 1997-1998. The leaseholders in peasant associations today cultivate 74% of irrigated land in Turkmenistan, while another 16% remains in collective cultivation (**Figure 2.5**). Yet the large leaseholder sector still cannot be regarded as an extension of the individual sector (which controls about 10% of irrigated land), because leaseholders continue to be subject to state orders and are effectively managed and controlled by the peasant association.

Figure 2.5: Distribution of Cultivated Land Among Different Users (1999)



## Land Titling

Recent legislation has created three main categories of land users:

- Nearly 600,000 rural and urban residents with small household plots and gardens, totaling over 120,000 ha.
- A few thousand private farmers, each with up to 50 ha of land from virgin areas or unutilized reserves (a total of around 80,000 ha in 3500 farms as of the end of 1995).
- Some 500 peasant associations (former kolkhozes and sovkhozes) control 35 million ha of land.

Land in household plots, gardens, and private farms is classified as privately owned in the sense of the 1992 constitution. As such, more than half a million landowners are entitled to receive an official document confirming title to this land. Before the title document is issued, the specific land plot has to be surveyed, mapped, and officially registered. The surveying and registration process is handled by provincial and district arms of the State Land Committee, which also issue a simple certificate of title. The certificate shows schematically the location of the land plot in relation to the adjoining territory and an outline of the borders and dimensions. The certificate is signed by the head of the district land management and surveying department, which also keeps track of the individual titles.

The wording of the certificate highlights the inherent ambiguity toward private ownership of land in the Turkmen legislation. The certificate confirms “private ownership of land ... with a right of lifetime inheritable possession”. This formula is a mixture of two forms of property rights, which are usually kept as distinct categories in successor Soviet legislation. Legislation in Russia and Ukraine, following the Soviet Civil Code, distinguishes between private ownership (*sobstvennost*) and lifetime inheritable possession (*vladenie*). The actual rights of landowners in Turkmenistan are similar to those of holders of land in lifetime inheritable possession according to the Soviet Civil Code. Turkmen legislation does not distinguish between these two forms of tenure, and in a unique manner combines them into a single category.

Land allocated to private farmers receives a more formal title document (a state “akt”), which is issued by the State Land Committee and registered in the Registry of State Titles to Right of Possession and Right of Use of Land. The landowner receives one copy of the title document, and the other copy is filed at the district level. The title document includes a fairly detailed two-page map, drawn to scale and certified by the district land committee, and also space for listing outside owners and future changes in ownership and use. The preprinted part of the title document does not use the term “private ownership” (*sobstvennost*) at all: it only uses the terms “permanent possession” (*postoiannoe vladenie*) and “use” (*pol'zovanie*). The filled-in handwritten part usually contains the same formulation as the certificate for household plots: “The land is given in private ownership in lifetime inheritable possession.” The front page of the title document contains some excerpts from the 1990 Land Code (**Table 2.4**).

Peasant associations created on the basis of former collective and state farms are to receive new title documents from the State Land Committee conferring use rights to their land. These use

rights are not indefinite, contrary to the traditional use rights of former collective and state farms. The State Land Committee is conducting a full-scale survey of association lands in order to identify utilized and unutilized land, a process that is expected to take up to four years. The unutilized land will be extracted into the state reserve for redistribution, and the peasant associations will only retain the use of the remaining land. The official opinion is that this procedure will be simplified by the fact that the use rights of peasant associations under the new law are no longer permanent.

**Table 2.4: Excerpts from 1990 Land Code Printed in Title Document**

<p>Land is the property of the peoples residing on the territory of Turkmenistan, and is owned by Turkmenistan.</p> <p>Every citizen of Turkmenistan has a right to a plot of land.</p> <p>Landowners and land users are responsible for efficient use of land in accordance with its designated purpose, for increasing its fertility, for applying nature-conserving production technologies, for preventing exhaustion of natural resources and deterioration of the environment in the region as a result of their activity.</p> <p>Ownership and use of land in Turkmenistan requires payment.</p>
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Source: 1990 Land Code

The State Land Committee faces an important task, as land titling is essential in a market economy. The four-year overall land survey project is a relatively standard job for the Land Committee with its various institutes. Titling of hundreds of thousands of individual landholders is something entirely new for the system, but it seems to be progressing without undue delays. Under the system as it is designed today, title documents and the registry are kept at the district level, which is probably entirely sufficient at the present stage. It is desirable to develop a standard title document for all plots, instead of two different documents in use today (one for household plots and one for peasant farms). Even if this is not done, the household plot certificate preferably should also include a page for listing ownership changes, like the peasant farm "akt." In the future, a central registry will have to be developed to pool and duplicate the data stored on the district level, without eliminating the district systems. Creation of a central registry will allow transactions to be initiated and handled from a location outside the specific district center where the records are kept, an important consideration in a country with a geographically dispersed population.

### 3. The Peasant Association: Managers' Perspective

The chapters that follow report on the findings of a farm survey carried out in the autumn of 1998. At that time, a large number of members of peasant associations had been working under leasehold contracts for almost two years. They had received their leased allotments under the program announced in December 1996, and implemented in early 1997. They were therefore drawing to the close of the first two-year probationary period, at which point the land reform commissions would have made a determination as to whether or not to convert their tenure to private ownership. The criteria for conversion of tenure were never clearly developed, and the process therefore entailed a high degree of ambiguity. One of the objectives of the survey was to develop an empirical understanding of what the 1996 program meant in practice to those working under leasehold, and what their expectations were with regard to land tenure. The findings of the survey are presented in two separate chapters, bringing out the view of the changes in peasant associations from the perspective of the association managers and the leaseholders' perspective.

Of the 42 peasant associations participating in the survey, 71% were originally collective farms (*kolkhozes*) and 26% were state farms (*sovkhoses*). Only one-third of managers report that their farm enterprise has an officially approved reorganization document or order (*Proekt reformirovaniya*), yet all are now considered to be peasant associations. The transformation of collective and state farms into associations most probably proceeded in response to the Presidential decree of June 1995 and the President's program on deepening of market reforms and socio-economic development in 1996 (see **Chapter 2**).

#### Land and Labor in Peasant Associations

The mean size of peasant associations in the sample is 58,000 hectares, of which 3,300 hectares, or less than 6%, represents irrigated land (3,200 hectare of arable land and 100 hectare of orchards and vineyards). The remaining 54,700 hectares are desert pastures.

The total population of the average peasant association is about 6,000 people, of which 2,000 are permanent workers (now mainly cotton/wheat leaseholders and their families) and 500 are pensioners. The remaining 3,500 people are mainly children, as well as some individuals who work outside the association (in government or services).

Households control two-thirds of the irrigated land in the average peasant association (**Figure 3.1**): 8% of the land is in traditional small household plots and 58% is cultivated by households under the new leaseholding arrangements. Yet individual cultivation is not the only form of production in peasant associations. About 18% of irrigated land is allocated to collective leasehold groups and 7% is retained in collective cultivation by various subdivisions in the association. The remaining 9% is characterized as land of poor quality unsuitable for farming; it also remains under collective control.

Land is not the only object of leasing. Much of the livestock is also leased by the association to households and small collective groups. **Table 3.1** shows the proportion of livestock leased out by the association to its members. Three-quarters of the poultry and half the cattle and sheep are now in households.

Leasing of assets, although allowed, is not widely practiced. The association either transfers the assets to state agencies, as prescribed by law (see below), or retains them in joint use, presumably serving all leaseholders centrally. Although 70% of associations report some leasing out of assets, this activity covers only 7% of the balance sheet value of fixed property. The main objects of leasing are livestock and poultry buildings, as well as farm machinery and other equipment.

Figure 3.1: Allocation of Irrigated Land to Different Users in Peasant Associations

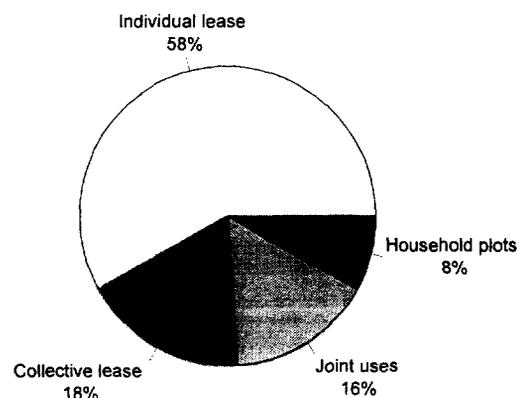


Table 3.1. Proportion of Livestock Leased Out by the Association to Households

	Percent of entire herd
Cattle	52
Sheep and goats	52
Poultry	77
Camels	60
Pigs	25

### Leasing Terms and Rights of Leaseholders

On average, about 700 lease contracts are signed per peasant association. Of these, 98% are individual contracts with families, and only 2% are collective lease contracts with representatives of groups of families. Since individual leaseholders account for 58% of irrigated land and collective leaseholders for 18% of irrigated land, collective leases are much larger than individual. A rough estimate for all peasant associations in the sample indicates that the average collective lease contract is written for 35 hectare of irrigated land, whereas the average individual contract is for less than 3 hectare. There are significant differences in leasehold sizes across velayats depending on availability of land: the average leasehold decreases from 6.7 ha in Akhal, to 4.1 ha in Mary, and 3.6 ha Lebap. Most leaseholders receive their land in one parcel, and only 6% of managers report allocating two parcels per leaseholder. Leaseholders with two parcels, however, get a substantially larger amount of land than the rest: 6.5 hectare compared with 4.5 hectare.

Lease contracts are linked to production targets and generally prescribe narrow ranges of crop production (**Table 3.2**). Managers report that 70% of individual leaseholds in peasant associations are for cotton and 20% for wheat. Among collective leaseholders, the distribution of cotton and wheat contracts is much more even (one-third in each category). Livestock production is exclusively practiced by collective leaseholders, 27% of whom report livestock leasing, compared with only 2% among individual leaseholders. Vegetables and other “unregulated” crops are grown by 6% of both individual and collective leaseholders.

Leaseholds are assigned to families (69% of associations), individuals (60% of associations), or groups of families (38% of associations). In 20% of associations, land is leased out to whole brigades. The practice is mixed in all associations, with no clear preference for a particular group of leaseholders. Based on managers' responses, half of lease contracts are signed by men and half by women. The leasing program thus emerges from this survey as gender-neutral. Opportunities for women to lease land could have a very positive impact on the distribution of land ownership by gender when leaseholds are converted to private ownership, as provided for in the 1996 Presidential decree.

**Table 3.2: Specialization Profile of Individual and Collective Leaseholders (percent of respondents)**

	Individual lease contracts	Collective lease contracts
Cotton	71	32
Wheat	22	35
Livestock	2	27
Other	6	6
Average number of leaseholders per association	690	16

The basic leasing decisions were made by a special internal committee of the association, generally without involving the local authorities or the management. In two-thirds of associations land was allocated to each household depending on the number of adults of working age. In about 20% of associations land was allocated based on the request of each household. The actual distribution of land plots to leaseholders was generally decided by the same internal committee (70% of associations), although in about 30% of associations land plots were apparently distributed by lottery.

The lease term is typically 10 years (43% of associations) or longer (38%). Only 20% of association managers report lease terms shorter than 10 years. All leaseholders have an official lease contract, which always specifies the lease term and the rights and obligations of the leaseholder and the association. In around 80% of associations the lease contract contains a sketch of the plot showing its area and side lengths, or an outline of plot boundaries. Association managers report that the lease contract is usually signed with a representative of the family (80% of associations), but in about 20% of associations each adult family member signs the contract.

Some cancellations of lease contracts are reported in more than 50% of peasant associations. The average number of canceled contracts is around 30 per association (or 4% of the total number of leaseholders), most of them canceled at the initiative of the leaseholders, not the management. The

exact reasons for cancellation are not clearly specified, but lack of profitability is definitely not one of them. In those few cases when lease contracts were canceled by management (less than 20% of cancellations), the main reason was the leaseholders' failure to meet the contractual production targets.

**Table 3.3. Evaluation of Leaseholder Performance by Association Managers: What Percentage of Leaseholders Will Get Their Leasehold in Private Ownership Within the Next Two Years?**

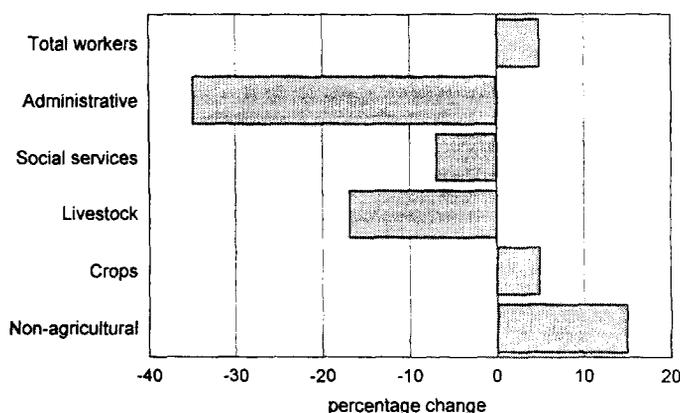
Proportion of leaseholders entitled to receive land in private ownership	Percent of associations
Nobody	8
Less than 10% of leaseholders	25
From 10% to 25% of leaseholders	24
From 25% to 50% of leaseholders	33
More than 50% of leaseholders	5
Everybody	5

Nearly 90% of association managers are aware that the leaseholders have the right to receive their leasehold in private ownership after two years of successful performance. The managers do not give a very favorable evaluation of their leaseholders' performance: only 10% of managers report that more than half the leaseholders will be entitled to get their land in private ownership in the year 2000 (Table 3.3). Despite the unfavorable prospects of leaseholders to receive their land in private ownership, managers overwhelmingly support the option in principle (over 90% of managers).

### Impact of Reform

Two-thirds of association managers indicate that the financial situation has improved as a result of reorganization and the production volume has increased with the transition to leasing arrangements. The work discipline also has improved in virtually all farms (80% of respondents). Improved performance is probably due to the stronger individual incentives under the new contractual arrangements, as the conditions for input supply and financing are reported not to have improved. Thus, about half the managers indicate that the conditions for purchasing farm inputs and for raising credit have substantially deteriorated under the new arrangements (Table 3.4). Only the conditions for marketing farm products have improved (85% of respondents).

**Figure 3.2: Change in Labor Force by Activity: 1995-1998**



The reorganization has affected the employment in peasant associations. While the total number of employed changed little, the mix of workers shifted across specializations. The administrative staff decreased in all associations with the transition to leasing arrangements. The number of livestock workers also decreased universally, largely due to the reduction in organized herds. The emphasis on cotton and wheat resulted in an increase of crop workers in 50% of the associations (**Table 3.4**). On average, the administrative staff declined from 53 people to 34 people after the creation of associations (35% down), livestock workers declined from 118 to 99 (17% down), and crop workers increased slightly from 874 to 914 (an increase of 5% “before” and “after”). The relative importance of non-agricultural production activities also increased significantly, from 700 to 810 workers (an increase of more than 15%). The changes in employment are illustrated in **Figure 3.2**. These shifts in labor specialization do not necessarily imply that workers are employed full-time in the reported activities.

Practically all managers (90%) believe that the best way to increase the profitability and well being of leaseholders is by allowing them to sell their products at free market prices, without government-imposed constraints. Other factors, such as improvement of farm services or better irrigation, are judged to be of marginal relevance.

**Table 3.4. Impact of Reform on Various Operating Dimensions of Peasant Associations**  
(% of all respondents)

<i>Farm performance</i>	Increased	Decreased	Unchanged
Financial situation of association	62	26	12
Production volume	67	21	12
<i>Labor</i>	Increased	Decreased	Unchanged
Work discipline	81	10	9
Administrative staff	0	100	0
Livestock workers	2	95	2
Crop workers	50	43	7
<i>Environment</i>	Better	Worse	Unchanged
Sale of farm products	83	2	14
Purchase of farm inputs	29	48	24
Access to credit	21	55	24

The leaseholders today enjoy greater independence than in the past, when they were salaried workers on collective farms (**Table 3.4**). Yet this independence is only partial and is still severely curtailed by the association management and local authorities. Thus, only 50% of managers report that leaseholders have independence in planning and managing their own production or in hiring and firing their workers. Even a smaller proportion of association managers indicate that leaseholders have independence in selling their products and buying farm inputs. The most significant attributes of the new status include the ability to have a personal bank account (over 80% of respondents) and to negotiate credit (60% of respondents).

The limited independence of leaseholders is complemented by major responsibility that the association retains for crucial aspects of farm operation, such as assisting leaseholders in organizing

production, providing professional services, managing product sales for leaseholders, providing farm services and farm inputs to leaseholders, and even managing relations with banks and other financial institutions on behalf of leaseholders (**Table 3.5**). In addition to these leasehold-level functions, the association also acts as the representative of the state procurement authorities and the enforcing agency: it allocates cotton and grain targets to leaseholders and monitors the contractual obligations of the leaseholders. Finally, the association has retained the traditional responsibilities for public services, such as maintaining and developing the social infrastructure in the village, implementing soil amelioration programs and opening of new lands for cultivation, planting orchards, and also enforcing law and order in the village (**Table 3.5**).

**Table 3.5. Functions of Association Management (percent of managers)**

<i>Leasehold-level functions</i>	
Assist leaseholders with organizing production	93
Provide management services to leaseholders	86
Manage product sales for leaseholders	67
Manage relations with banks and financial institutions for leaseholders	57
Provide farm services to leaseholders	45
Provide farm inputs to leaseholders	36
<i>Central enforcement functions</i>	
Coordinate the production activity of leaseholders	93
Allocate cotton and grain state orders to leaseholders	88
Monitor the contractual obligations of leaseholders	86
<i>Public services</i>	
Maintain law and order in the village	83
Maintain and develop the social infrastructure in the village	71
Plant orchards	67
Implement soil amelioration programs and opening of new lands	62
Manage processing and other industries in the village	7

**Table 3.6. Farm Services Provided by Associations to Leaseholders (percent of association managers)**

Transport for farm needs	76
Sale of farm products	64
Farm machinery for cultivation	62
Consulting services	62
Veterinary services	55
Land for cutting hay and grazing animals	41
Purchase fuel	26
Purchase other farm inputs	12
Provide credit	2

As part of the new leasehold arrangements, associations continue the tradition of providing a wide range of farm support services to households. The most common forms of assistance include transportation, marketing of farm products, and provision of farm machinery from the common pool. Consulting and veterinary services, as well as purchase of fuel and other farm inputs for leaseholders are also reported by a substantial number of association of managers (**Table 3.6**). Only 14% of managers in the sample did not provide any farm services to their leaseholders.

### Transfer of Assets

Government regulations relating to reorganization of peasant associations prescribed transfer of assets to various newly created state agencies. Ownership of livestock was to be transferred to Turkmenmally livestock-management organization, ownership of farm machinery to Obakhyzmat agroservice organization, and the social infrastructure to district authorities.

Of the livestock, only sheep and goats have been transferred in significant numbers to the ownership of Turkmenmally (**Table 3.7**). Thus, 42% of association managers report that their sheep herds have been transferred; yet 57% report that no transfer has taken place yet. The transfer of cattle is in a very rudimentary stage: 90% of association managers report that their cattle has not been transferred to Turkmenmally, perhaps because the original Turkmenmally charter focused on sheep only.

The transfer of farm machinery and mechanical workshops from peasant associations to Obakhyzmat is very advanced (**Table 3.7**). Similarly, more than 50% of peasant associations report that they have transferred the social infrastructure to the district government. About one-quarter of peasant associations have shed the responsibility for irrigation and drainage networks. Most managers indicate that they are planning to complete the transfer of productive and social assets to government agencies in the near future. Contrary to other FSU countries, few managers report that the transfer is delayed by the inability or unwillingness of the respective agencies to take possession of the earmarked assets.

**Table 3.7. Transfer of Productive Assets and Social Infrastructure to Government Agencies (% of managers)**

<i>Productive assets</i>		<i>Social infrastructure</i>	
Sheep and goats	42	Kindergartens, schools, clinics	57
Cattle	10	Recreation and culture	55
Farm machinery	86	Utilities (gas, telephone, electricity, water, heat)	52
Mechanical workshops	69	Shops	36
Irrigation and drainage networks	26	Housing	10
		In-farm roads	2

Overall, peasant associations shed direct responsibility for half their assets (by balance sheet value). About 40% of assets were transferred to state agencies and 7% was leased out. Only 1% of assets in this sample was privatized. The remaining 50% of assets continue to be operated by the association for a variety of joint uses and direct services to leaseholders.

Because associations have retained control of half the original pool of assets, over 40% of managers report that they carry out at least some mechanical field works using their own machinery. Yet Obakhyzmat agroservices are an established force in the Turkmen village, as virtually all managers report using their machinery services.

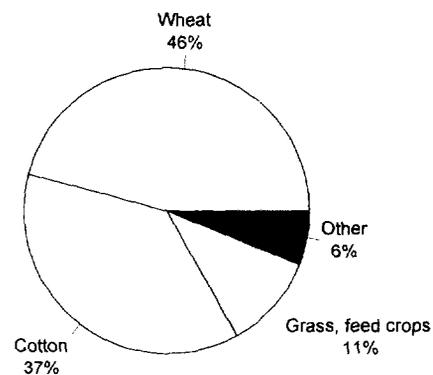
### Irrigation

Two-thirds of managers are satisfied with water delivery in terms of both timing and quantity received. There is apparently no accurate metering of water flow to farms, as only 14 of the 42 managers reported their annual water usage (8.5 million cu.m, or 2,150 cu.m per hectare). Water use is free, but a very small number of managers (8 out of 42 respondents) report some service-related payments to the state water management agency. The irrigation equipment is owned by the peasant association (67% of respondents) and by the local branches of the state water management agency (50%). The actual day-to-day tasks of irrigation are mainly undertaken by the association (83%), and the water management agency is involved in these tasks only according to 24% of managers. Leaseholders own the irrigation equipment and are responsible for irrigation tasks only in 2% of associations.

### Production

The peasant associations are mainly wheat and cotton producers. Over 80% of land is under these crops (**Figure 3.3**), and the average association produces about 1,500 ton of wheat and 1,500 ton of cotton. Wheat has overtaken cotton as the main crop by sown area (the cropping pattern observed in the sample is consistent with national data). Fruits, grapes, vegetables and melons are grown in most associations, but they occupy a relatively small area and their harvest is typically less than a hundred ton (**Table 3.8**). These products are mainly in the domain of household production.

Fig. 3.3. Cropping Pattern of Peasant Associations



The associations in the sample achieved very low yields for the two main crops -- both cotton and wheat yielded 1.3-1.4 ton per hectare. This is consistent with the national averages in 1997, but is substantially lower than the past record of 1991-1995, when wheat yields were around 2 ton per hectare and cotton yields around 2.3 ton per hectare. As noted in Chapter 4, individual leaseholders report higher yields at approximately the national average.

All associations are diversified crop and livestock producers. However, livestock production accounts for only 14% of sales revenue. Practically all associations keep sheep and cattle (7,000 head of sheep and 600 head of cattle per association on average). Pigs, poultry, and camels are marginal in the sample. The livestock herd declined considerably over the three years between 1995 and 1997

(Table 3.9). The cattle are still mostly owned by the associations, whereas about 40% of sheep and goats have been transferred to the ownership of Turkmenmallyary.

**Table 3.8. Crop Production and Yields in Peasant Associations**

	Percent of producers in sample	Median harvest per producer farm, ton	Yield, ton/ha
Wheat	100	1,400	1.4
Cotton	86	1,400	1.3
Grasses and hay	83	900	7.8
Silage corn	60	500	12.4
Vegetables and melons	90	90	7.7
Grapes	71	30	4.4
Fruits	76	15	1.2

**Table 3.9. Change in Livestock Herd: 1995-1997**

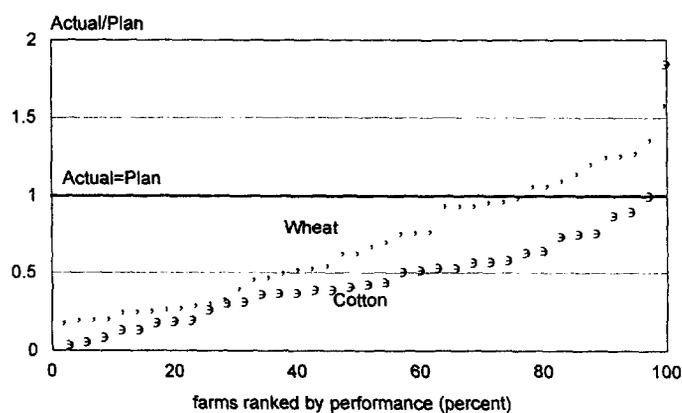
	Number of associations	Number of animals		Percentage change 1995-1997
		1995	1997	
Sheep and goats	41	8,700	6,600	-25
Cattle	40	940	610	-35
Pigs	25	350	80	-80
Camels	30	240	170	-30
Poultry	27	2,600	730	-70

## State Orders

State orders for wheat and cotton are allocated to leaseholders by the association manager, who continues to monitor and enforce the production contracts (see Table 3.5 above).

The average state order in 1998 was 2,600 ton for wheat and 3,400 ton for cotton. There was significant shortfall in actual production, with yields of about 1,600 ton per association for both crops. On average, cotton production was about 50% below target, and wheat production about 40% below. If we assume that peasant associations allocated to wheat and cotton the physical areas prescribed by plan (about 1,100 hectare per association for each crop), this essentially means that the actual yields were about one-

**Fig. 3.4. Ratio of Actual Performance to Plan: Wheat and Cotton**



half of the target yields used for the preparation of the production plan. According to the aggregate figures at the national level, however, the wheat production target was met at 1.2 million tons. The sample data as reported by the managers thus suggest high dispersion of performance in the wheat sector.

**Figure 3.4** shows the ratio of the actual harvest of wheat and cotton to the state targets as reported by managers in the sample. The region below the horizontal line at level 1 corresponds to under-fulfillment of targets, whereas the region above 1 corresponds to farms that exceeded the target. Virtually all the cotton growers failed to meet the target, and 60% of the farms produced less than half the cotton plan. The wheat growers showed a somewhat better performance: 40% of farms achieved the target or exceeded it, and only 30% of farms produced less than half the wheat plan.

The main reason given for failure to meet the production targets was insufficiency of farm machinery and capital (75% of association managers). It was closely followed by the argument that the low state prices for these commodities deprived the producers of the incentives required to meet the targets (50% of managers).

### Marketing and Supply Channels

As production shifted from the collective farm to individual leaseholders, the association largely lost its traditional role as marketer of farm products. Although 67% of association managers report that they still have a role in product sales (see **Table 3.5**), an analysis of the sales pattern for each commodity produced in the association reveals a very prominent role for direct sales by leaseholders and a reduced role for sales through the association. Thus, wheat and cotton are sold directly by the leaseholders in 80% of associations. This is understandable, because leaseholders have direct contracts with state procurement agencies for these state-controlled commodities. But even “unregulated” products, such as grapes, fruits, and vegetables are directly marketed by leaseholders in half the associations.

**Table 3.10. Sales of Farm Products by Leaseholders and by the Peasant Association**  
(percent of associations producing respective commodities)

Commodity	Sold by leaseholders	Sold by association
Wheat	79	17
Cotton	75	19
Grapes	50	40
Fruits	47	38
Vegetables	42	37

The role of the peasant association as a supplier of inputs, while still quite prominent, is also reduced compared to the role of the collective farm in the past (**Table 3.11**). The main beneficiaries of farm supply services are the leaseholders, although household plots are also served, especially by provision of farm machinery for cultivation, veterinary services, young livestock, animal feed and even construction work. Provision of services outside the association is minimal, and is basically restricted to construction, farm machinery rental, and veterinary services to private farmers.

The peasant associations obtain farm inputs mainly from state sources. Private commercial firms still play a marginal role, mainly as a source of spare parts and construction materials (reported by 19% and 14% of associations, respectively). Own production is an important source of feed and young animals (70%-80% of associations). Veterinary and construction services are also often sourced on-farm (12% of associations). About 40% of association managers report that they have no difficulties with purchase of farm inputs, and another 40% complain of high prices as the main difficulty. Difficulties with availability of inputs are reported only by 15% of managers.

**Table 3.11. Peasant Associations Acting as Suppliers of Farm Inputs and Services**

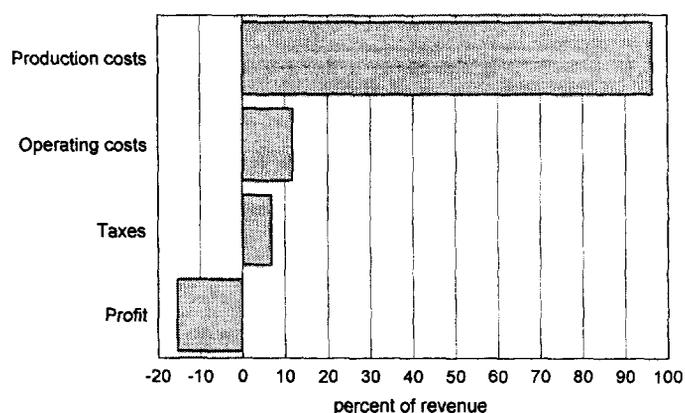
	Percent of associations that provide the input	Percent of associations providing respective input to		
		Leaseholders	Household plots	Private farmers
Seeds, seedlings	83	97	17	0
Animal feed	62	96	31	0
Young animals	52	91	41	0
Fertilizers	79	97	3	0
Herbicides	50	100	5	0
Machinery, equipment	69	100	10	0
Repair services	60	100	4	0
Spare parts	52	100	5	0
Fuel	69	100	4	0
Mechanized field work	86	97	39	6
Veterinary services	62	81	42	4
Construction services	19	63	50	13

### Farm Finances

The peasant associations hover around breakeven in their production activities, but administrative expenses, the burden of social infrastructure, and taxes push them into losses. Total revenue slightly exceeds production costs (2.6 billion manat revenue and 2.5 billion manat production costs per association). After operating costs and taxes, however, associations report an average loss of 0.4 billion, or 16% of revenue (**Figure 3.5**). Of the 42 associations in the sample, only 9 reported accounting profits in 1997, and 33 associations reported losses.

The profitable associations had profit margins that ranged between 4% and 25% of revenue, whereas most of the unprofitable associations had losses ranging up to 50% of revenue (**Figure 3.6**).

**Fig. 3.5. Costs and Profit in Peasant Associations**

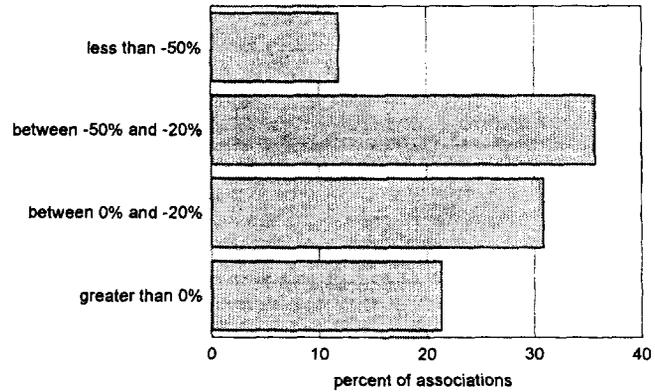


Over 85% of the association's revenue derive from sale of farm products. Payments from leaseholders for various services and contributions to administration and the social sphere average 12% of revenue. The structure of costs and expenses is shown in **Table 3.12**. Although operating expenses and the cost of maintaining the social infrastructure are relatively modest, at less than 10% of total costs, they are large enough to wipe out the gross profit from farm production and to push the associations into losses.

While the actual production has shifted from the association to leaseholders and the actual flow of payments is now directly between Daikhan Bank and leaseholders, bypassing the association, survey results imply that all production accounts – both costs and revenues – are still reflected in the association's financial statement. Payments to leaseholders for labor, i.e., de facto wages that leaseholders receive directly from Daikhan Bank, are also reported among the expenses of the association, accounting for 55% of total costs.

The average association has 950 million manat in outstanding debt, most of it to state agencies for supplies and to the government in taxes (**Table 3.13**). The debt burden is thus equivalent to 4 months of sales revenue. This is a fairly light debt burden in itself, but the actual situation is even better: accounts receivable (i.e., moneys owing to associations) average 400 million manat (of which 130 million manat are due from leaseholders and 250 million manat from state procurement agencies). The net obligations are thus reduced to 550 million manat. This level of obligations can be discharged with as little as 2.5 months of sales revenue.

Fig. 3.6. Margin of Profit on Sales



**Table 3.12. Structure of Production Costs and Operating Expenses in Peasant Associations**

	Percent of total costs	Percent of production costs
Total costs (3,028 million manat)	100%	
Production costs	84%	100%
Labor (including leaseholders)		55%
Fertilizers and chemicals		8%
Seeds		4%
Feed		5%
Fuel		7%
Farm services from outside suppliers		11%
Water		0%
Other production costs		10%
Administrative costs	3%	
Social services and infrastructure	3%	
Other operating expenses	4%	
Taxes	6%	

**Table 3.13. Structure of Outstanding Debt in Peasant Associations**

Total debt	952 million manat
State agencies for supplies	51%
Tax arrears	10%
Banks	9%
Other creditors	30%
Total receivables	402 million manat
Net obligations	550 million manat

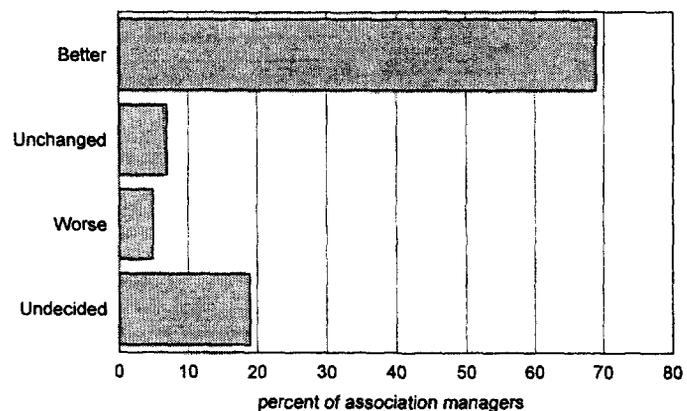
Respondents failed to provide any information on their borrowing in 1997-1998, presumably because of the very limited access to the banking system and the shift to direct financing of leaseholders, rather than associations, by the Daikhan Bank. The reorganization procedures did not provide specific instructions for debt restructuring or rescheduling. Nearly 70% of association managers report that the outstanding debt was left "as is" in the process of reorganization, i.e., remained the responsibility of the association. Less than 15% indicated that the responsibility for debt was transferred to leaseholders and 5% reported that their debt was written off.

The peasant association is practically not involved in supplying working-capital credit to leaseholders. Nearly 90% of the managers report that leaseholders receive credit directly through Daikhan Bank or the procurement organizations (76% from the Daikhan Bank and 12% through marketers). Only about 10% of associations are still active in extending credit to leaseholders, but even these mostly in conjunction with Daikhan Bank, and not as the sole source of financing.

Despite the generally unprofitable situation, lack of internally generated funds, and inadequate access to the banks, managers have fairly ambitious investment plans for the next two-three years. Thus, over 80% of managers report that they have plans to purchase machinery, 70% have plans to plant new orchards and vineyards, and between 50% and 60% intend to buy processing equipment, erect new farm buildings, or even purchase livestock (contrary to the overall decline in livestock in past years).

**Fig. 3.7. Managers' Expectations for the Future**

Again, despite the lackluster financial performance, the managers are quite optimistic about the future (Figure 3.7). Almost 70% of managers expect the financial situation of their association to improve next year, and only 5% indicate that the financial situation will probably deteriorate. The degree of uncertainty is of course quite high, and nearly 20% of respondents find it hard to predict what the future will bring.



## Social Sphere and Standard of Living

Provision of social services by the association to leaseholders appears to be fairly restricted. The most common service is transport, reported by three-quarters of association managers (**Table 3.14**). This result is consistent with observations in other former Soviet republics, where to this day the former collective continues to be a major provider of transportation services.

About half the managers indicate that the association is responsible for supplying water, electricity, and medical care to the population. These are normally functions of local or central government, and it is not clear whether the associations act as proxy for government or indeed as independent providers of these services. About 20%-30% of managers provide heating fuel, subsidized food products, and subsidized consumer services to households. Association-owned housing exists in one-quarter of the associations. Other subsidized services and support functions are provided in fewer than 15% of associations.

In addition to the standard social services and benefits, households also enjoy access to farm machinery for cultivation of the household plot and access to hay meadows and pastures for their cattle. In the past, these were specific forms of assistance that collective farms provided to member households. Under the new leasehold arrangements, the boundary between household plots and leasehold farms has become blurred and it is difficult to differentiate between direct assistance to households and assistance extended by virtue of leasehold agreements.

**Table 3.14. Social Services and Benefits Provided by the Association to Its Members**

	Percent of managers providing service/benefit
Transport services	74
Water	50
Electricity	41
Medical care	38
Heating fuel	33
Food at subsidized prices	31
Use of enterprise housing	24
Subsidized consumer services	21
Salary increments due to price increases	17
Pension augmentation	14
Subsidized childcare	14
Subsidized vacation	14
Help with construction and repair of housing and farm buildings	12
Help with purchase of manufactured goods	10
Subsidized school services	5
Stipends to students	5
Child allowances	2

The cost of maintaining the social sphere averages only 3% of total association costs. Managers are uncertain which way these costs may move next year: 52% of respondents could not give a definite answer to this question, 26% thought the costs next year would be higher, and 20% indicated that the costs would be unchanged or even lower.

The average monthly wage earned by leaseholders is about 120,000 manat. All managers are of the opinion that this is too low for a normal standard of living. In their judgment the average monthly wage should be around 400,000 manat, or more than three times the actual amount. Leaseholders receive their wages directly from Daikhan Bank and the marketers: the association is no longer involved in making the actual payments. In one-quarter of the cases, however, leaseholders can receive advances from the association until their final accounts are settled by the financial institutions (which may take anywhere from 1 to 4 months).

Pension arrears are not a major problem in Turkmenistan. Fewer than 25% of association managers reported delays with pensions, mostly of not more than 1 month. There are relatively few pensioners among the rural population due to the high birth rate (the average association reports about 500 pensioners in a population of 6,000).

\* \* \*

Peasant associations as viewed in the sample differ from the predecessor farms largely by higher frequency of assigning identified plots to households on intra-farm leasehold. This is not a revolutionary departure from the past, but it constitutes a significant and incremental extension of practices that were followed on a smaller scale already under the Soviet regime. The association continues to be subject to state orders, and acts as an enforcer of their fulfillment by leaseholders. Accounting practices have changed little, and association accounts still record leaseholders as earning wages.

Peasant associations in Turkmenistan are thus an intermediate form of farm enterprise. They are not yet voluntary associations of economically and financially independent smallholders. Nor are they unreformed collective enterprises of the past. They have potential to move in either direction, i.e., back toward their collective and rigidly administered predecessors or forward to more genuinely voluntary and commercially oriented associations of independent small-holders. The actual direction in which the peasant associations move in the near future will depend on the degree of autonomy granted to leaseholders and on the schedule for phasing out state orders.



## 4. The Peasant Association: Leaseholders' Perspective

As noted in **Chapter 2**, intra-farm leaseholding was practiced in Turkmenistan even during the late Soviet period. With the publication of the Presidential decree of December 1996 encouraging widespread intra-farm leasing and eventual conversion of leaseholds to private ownership, leaseholding became the predominant form of land management within the collective enterprise. The survey covered 840 leaseholders, selected at random among the leaseholders of record in 42 peasant associations in the velayats of Akhal, Mary, and Lebap.

### Demographics and Organization

The average household in the sample has six people. Family members typically live in a detached house owned by the family. The leaseholder and the spouse are both relatively young (39), and only 3% of leaseholders are older than 60. The age distribution is practically the same for both the leaseholder and the spouse, with most respondents aged between 20 and 50 (**Figure 4.1**).

Of the 840 respondents in the survey, nearly one-third date their leaseholds to the end of 1996 and over one-half signed the leasehold agreements in 1997. Most respondents have either individual or family leaseholds (56% and 42%, respectively). Collective or group leases are unpopular (less than 2% of respondents). The dominant organizational form is the single-family leasehold (95% of respondents), although some family and individual leaseholds are based on two or three families. The small number of reported collective leaseholds includes farming operations organized by multiple families (from 2 to 30).

Two-thirds of respondents had been production workers in the peasant association before they became leaseholders; another 14% had been managers, specialists, or administrative staff in the association. About 6% of leaseholders had been students, pensioners, or unemployed, so that the new arrangement provided employment to a small additional segment of the rural population. Among the

Fig. 4.1. Age Distribution of Leaseholder and Spouse

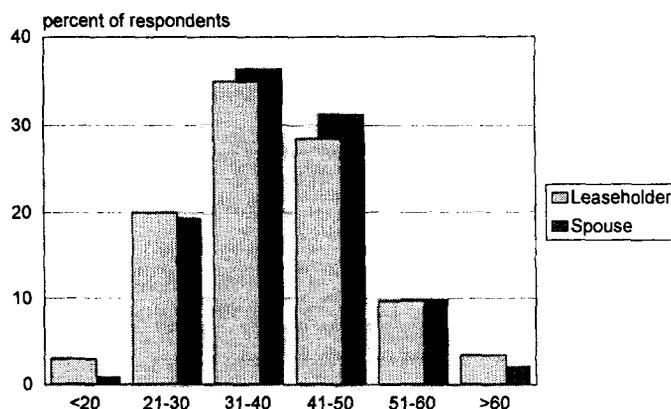
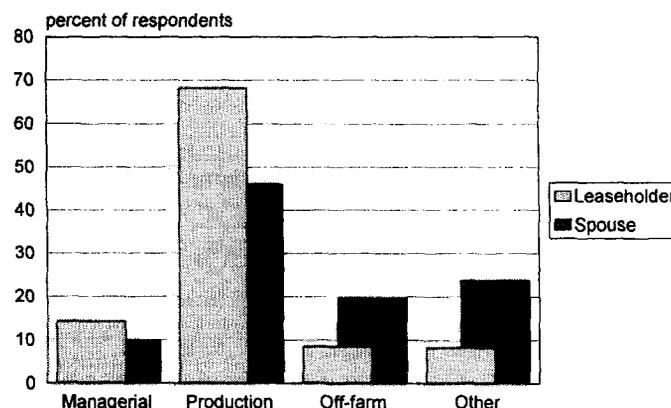


Fig. 4.2. Former Occupation of Leaseholder and Spouse



spouses, fewer had worked in the peasant association (50%), and nearly 20% had been employed in the social sphere and in other off-farm occupations; for fully 15% of spouses the former occupational status is characterized as unemployed, which probably describes a homemaker without a salaried job. The distribution of former occupations is shown in **Figure 4.2**.

Practically all leaseholders (85%) work full time on their lease farm, and in addition devote a part of the day to the household plot. As a result, few leaseholders (less than 20%) work off-farm. Among the spouses, on the other hand, two-thirds devote only a part of their working time to the lease farm and the household plot, and 35% manage to work off-farm. This may reflect the limited labor requirements of the lease farm, which generally needs the full-time attention of the leaseholder but leaves the spouse relatively free to seek off-farm jobs.

Off-farm work provides a kind of insurance through diversification of sources of family income. Outside the lease farm, the leaseholders work mainly in the local peasant association (70%), largely in managerial and administrative positions (40%). Among the spouses who work off the farm, on the other hand, over 50% hold jobs outside the association, including social services in the village (**Figure 4.3**).

Fig. 4.3. Off-Farm Occupation of Leaseholder and Spouse

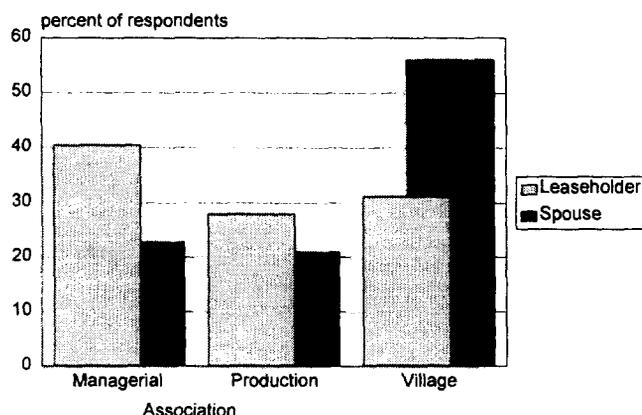


Table 4.1. Education Level of Leaseholder and Spouse, by Gender (percent of respondents)

	All sample		Male		Female	
	Leaseholder	Spouse	Leaseholder	Spouse	Leaseholder	Spouse
Higher	11	11	17	19	4	4
Secondary technical	18	16	21	25	13	9
Secondary general	62	59	52	44	75	71
Other	9	14	10	11	8	16

A high percentage of leaseholders are women (43%). The gender breakdown is mutually consistent. Since respondents were technically unlikely to become confused in their answers between the leaseholder and the spouse, the leasehold arrangements in Turkmenistan appear to be gender-neutral.

There is, however, a definite difference by gender in the educational endowment of leaseholders and their spouses (**Table 4.1**). The proportion of individuals with post-secondary or higher education is significantly higher among men than among women. As a result, more women have secondary education than men do. Yet women mostly report general secondary education, whereas among men technical or vocational secondary education is more frequent. As shown in

**Table 4.1**, the educational attainment in general is lower in households where the leaseholder is a woman, and higher where the leaseholder is male.

### Land Holdings

The average leasehold farm in the sample is 6 hectare; practically all of it irrigated arable land. In addition, households continue to cultivate their traditional plots of 0.2 hectare, which in most cases are immediately adjacent to the house. Less than 10% of respondents report an additional household parcel at the periphery of the village. Accordingly, 85% of leaseholders have only two land parcels: the 6 hectare lease farm and the 0.2 hectare plot around the house; another 10% report three parcels, with a somewhat larger household plot of 0.25 hectare split between the house and the periphery.

All leaseholders have an official document certifying their new status, which is issued by the internal reform committee in the association (78% of respondents) or the manager (19%). In most cases the document contains a map showing the boundaries of the land given in leasehold (68% of respondents); in one-quarter of the cases, however, the respondents state that the document does not show the map of their leased land. Three-quarters of respondents indicate that their leasehold land has clearly marked boundaries in the field. In addition to the leasehold document, all families have certificates of private ownership for their household plots.

The leasehold land is usually close to the village. For half the respondents the distance to their leased land is less than 3 km, and for another 35% the distance is between 3 km and 10 km. Over 85% of respondents are convinced that they will continue to cultivate their present plot in the future. This conviction is based on past experience: nearly 60% of leaseholders leased land in the past, and three-quarters of this group actually leased the same plot that they are leasing today.

Fully 85% are satisfied with the quality of their leased land. Half the respondents report that soil amelioration work is being carried out on their leased land, mainly by the association and the state. One-third of leaseholders manages the amelioration work themselves, which may be a sign of confidence in the future.

More than half the respondents would like to increase their lease farm, mainly because the income they receive from their present holding is insufficient for the family needs and because they hope the profitability will improve on a larger plot. The desired augmentation is 9 hectare. The leaseholders are thus aiming at an optimal farm size of 15 hectare, 2.5 times the present size.

The term of the leasehold is 10 or 15 years (87% of respondents). The long-term nature of the lease contracts appears to guarantee security of tenure: over 80% of respondents indicate that they cultivate the same plot year after year, and only 14% report annual redistribution of land. Practically everyone expects to receive his or her leased land in private ownership. For about 60% this is expected to happen in the year 2000 or later; 25% are more optimistic, expecting to get their land in private ownership next year (1999). The leaseholders do not agree on who will actually decide on transfer of leased land to private ownership: 40% think the transfer will be decided by an internal committee in the peasant association and another 40% think the power rests with the local

administrator or the state land reform committee. It is clear to everybody, however, that the decision will not be made by the association manager or by the general assembly of the leaseholders.

### Rights and Obligations

Land distribution to leaseholders was managed by an internal committee in the association (86% of respondents) or the management (9%). The leaseholders generally were not given an opportunity to choose a preferred plot. In half the cases, the leaseholders were offered a specific plot by the committee and simply signed for it. In 40% of the cases, the plots were allocated by lottery.

Leaseholders pay 20% of their gross product for the right to work under the new system. Of this, 12% is paid to the association for the services it provides to leaseholders and rural residents and 8% is a state tax intended for the government budget. There is virtually no variability in the two rates as reported by the respondents. This means that everybody knows how much has to be paid, and the payment rate is fixed for everybody all over the country.

The actual payments are practically equal to the amounts prescribed by the lease contract. No other payments to the association or the budget are reported. The 20% lease payment translates on average into 1.6 million manat per leasehold unit. The variability in absolute amounts is considerable, with payments ranging from 3,000 to 30 million manat. The amount of lease payments is positively correlated with the amount of irrigated land in leasehold units. As a result, collective leaseholds cultivating about 70 hectare of irrigated land pay 5-6 million manat, whereas individual and family units cultivating about 5 hectare in leasehold pay 1.5 million manat. If lease payments are indeed set at 20% of the value of output, these numbers seem to indicate that the smaller individual and family leaseholds produce four times more output per hectare than the larger collective leasehold units (**Table 4.2**).

**Table 4.2. Lease Payments and Productivity for Leaseholds of Different Types**

	Lease payments, million manat	Irrigated land, hectare	Estimated output per hectare, million manat*
Individual leasehold	1.56	5	1.6
Collective leasehold	5.25	72	0.4

\*Assuming lease payments are at 20% of actual output.

Lease contracts typically specify the production targets for cotton or wheat (both by area and by quantity); a substantially smaller percentage of contracts specify production targets for other commodities, such as vegetables, fruits, or livestock products (**Table 4.3**). Only 4% of respondents do not report any production targets in their lease contracts. Most leaseholders (70%) actually sign a separate annual production agreement with the association in addition to the basic lease contract giving right to a plot of land.

While specifying production targets for leaseholders, the lease contract also promises supply of farm inputs and services, the most important being mechanized field services, seeds, and fertilizers (**Table 4.4**). More than half the leaseholders report that, in addition to input supply, they also enjoy state support or subsidies for transportation and credit. On the whole, the state meets its

obligations for delivery of inputs and services to leaseholders: three-quarters of respondents report that they received their quota of inputs and services in full, and another 20% report partial fulfillment of the obligations by the state.

**Table 4.3. Frequency of Lease Contracts with Production Targets**

Commodity	Percent of leaseholders
Cotton	58
Wheat	35
Vegetables	2
Grapes	1
Fruits	1
Other crops	4
Meat	4
Milk	1
Other livestock products	5

**Table 4.4. Commitment to Delivery of Inputs and Services to Leaseholders as Reflected in Lease Contracts (percent of respondents)**

	Promised by lease contract	Leaseholders reporting receipt of inputs and services
Mechanized services	93	91
Seeds	89	88
Fertilizers	87	76
Chemicals	43	
Veterinary services	6	--
Other inputs	9	--
Transportation costs for products and inputs	--	64
Credit from Daikhan Bank	--	47
Credit from marketers	--	8

## Labor and Resources

An average lease farm employs 2.4 workers year round and another 3.3 seasonal workers. The labor is mainly provided by family members: 95% of the permanent labor force and 70% of the seasonal workers. The seasonal labor needs are satisfied by hired help and the extended family: 20% of seasonal labor are hired workers and 10% are relatives and friends.

Practically all households surveyed (95%) lease land for crop production. Livestock leasing is reported by a mere 5% of households. The two groups of crop and livestock producers in the sample are disjoint: crop producers have no animals, and livestock producers have land only for growing animal feed, if at all (40% of livestock producers report that they lease land for feed). While

there is hardly any leasing of livestock in the sample, 85% of respondents have private livestock on their household plots.

**Table 4.5. Availability of Assets in Leasehold Farms (percent of leaseholders)**

	Own	Leased
Livestock buildings	72	4
Farm buildings	34	2
Farm machinery	4	4
Vehicles	16	1
Farm equipment	15	1
Other	3	1
Leaseholders with farm assets of any kind	78	8

Leasing arrangements do not extend beyond land (and in some case livestock). Only 8% of households lease other productive assets from the association. Leaseholders prefer to accumulate their own assets, and nearly 80% of respondents actually own productive assets of one kind or another. **Table 4.5** presents data on assets owned or leased by leaseholders. Farm and livestock buildings are reported fairly frequently. Mechanical equipment, on the other hand, is rare: 4% of leaseholders have tractors (the only kind of farm machinery available) and 3% have trucks (most of the vehicles reported by leaseholders are cars).

### **Production in Leasehold Farms**

Of the leasehold farms, nearly 95% specialize in crop production, without any livestock and 4% specialize in livestock without crops (other than feed crops). Only 2% are mixed farms, with both crops and livestock. These findings refer to leasehold farms as distinct from the household plots, most of which report livestock. Land allocation is given as the main reason for not having animals in the leasehold farms: according to 70% of respondents land was allocated for crop production, and their lease contract obligates them to produce crops, not livestock; another 15% indicate that there is not enough land and thus not enough feed for livestock. Hardly anybody gives low profitability as the reason for not going into livestock production. Livestock is a relatively more popular occupation among collective leaseholders: nearly 40% of collective leaseholders have some livestock, compared with about 15% among individual leaseholders. The total number of collective leaseholders in the sample is small, however, and so the overall importance of livestock production in this sample is low. For the very few leaseholders that report milk production data, milk yields are very low, at around 900 kg per cow per year (compared with 1,500 kg specified in the livestock lease contract). This is substantially lower than the milk yields achieved by households with their private cattle (1,200 kg per cow per year), although this yield too is very low by international standards.

The land received in leasehold from the peasant association is overwhelmingly under wheat and cotton (**Table 4.6**). Averaged over all farms in this sample, 73% of cropped land is under wheat, 21% under cotton, and only 6% is under other crops. The sample of leaseholders is thus biased toward wheat producers, as among the peasant associations in the survey (and also nationally) wheat accounts for 46% of cropped land and cotton for 37%. Cotton is grown in the sample only on

irrigated land, whereas wheat is also grown on land without irrigation. Crops other than wheat and cotton are reported only by farms with irrigated land, but even on these farms other crops account for less than 10% of cropped land. Irrigated wheat yields are much higher than the yields achieved without irrigation (2,400 kg per hectare compared with 900 kg per hectare; see Table 4:6), but are low by international standards for irrigated wheat. On the whole, cotton and wheat yields achieved by leaseholders are around the long-term averages historically reported for Turkmenistan.

Both cotton and wheat are reported profitable by 85% of leaseholders. In line with this assessment, about 60% of growers would like to increase the areas under wheat and cotton and another 30% plan to leave the area unchanged. Very few respondents indicate that they would like to reduce the area under the two main crops.

**Table 4.6. Land Use in Leasehold Farms**

	All farms		Farms with irrigated land		Farms without irrigated land	
	percent of leasehold	percent of cropped	percent of leasehold	percent of cropped	percent of leasehold	percent of cropped
Total in leasehold	6,714 ha		4,640 ha		2,074 ha	
Total cropped	88	100	100	100	63	100
Wheat	64	73	65	65	63	100
Cotton	18	21	27	27	0	
Other crops	6	6	8	8	0	
Not cropped	12		0		37	
Wheat yield	2,300 kg/ha		2,400 kg/ha		900 kg/ha	
Cotton yield	2,400 kg/ha		2,400 kg/ha		--	

Wheat and cotton are mutually exclusive crops grown by over 90% of leasehold farms. Of nearly 800 farms that report growing cotton or wheat, only 28 grow both crops. These are specialized farms that do not grow anything other than the main crops. There is also a clear size differentiation among farms growing wheat and cotton. Cotton farms average 2.5 hectare, with sizes ranging from 0.4 hectare to 27 hectare. Wheat farms, on the other hand, average 10 hectare on irrigated land and over 60 hectare without irrigation. The average wheat farm in the survey has 17 hectare, with sizes ranging from about 1 hectare to over 200 hectare. In the small group of farms that grow both wheat and cotton, the area under cotton is the same as in cotton-specializing farms. All these findings suggest that leaseholders are rigidly assigned one of the two main crops (perhaps allowing for the leaseholder's wishes or perhaps by arbitrary administrative decision), and the land allocation is then practically fixed by the choice of the crop.

Given the farm sizes and the yields in the sample, the average wheat farm harvests 23 ton of wheat and the average cotton farm harvests 6 ton of cotton lint. Farms that grow both wheat and cotton harvest on average 19-ton wheat and 4 ton cotton. Wheat farms are reported to generate larger revenue and, more importantly, a larger net farm income than cotton farms (Table 4.7). As a result, the total family income of wheat farmers is higher than that of cotton farmers: 7.5 million manat per family compared with 5.5 million manat.

Among the small remainder of farms that grow neither wheat nor cotton, half specialize in potatoes, vegetables, and grapes, and the other half grow mainly grasses, hay, and maize silage for animals. The vegetable and grape farms are very small leaseholds of 1 hectare on average, and they generate proportionately low levels of sales and farm income. The farms specializing in feed crops cultivate large areas (over 100 hectare in a number of cases) and manage to generate relatively large net incomes from the sale of their output. It is interesting to note that despite considerable variation in volume of sales and net income across farms of different specialization, income from all non-farm sources combined contributes about 3 million manat per family in all cases: this is the difference between reported family income and farm net income in **Table 4.7**. Households thus differ by farm income, and are relatively homogeneous by their non-farming income.

**Table 4.7. Comparative Characteristics of Wheat and Cotton Producers**

	Wheat only	Cotton only	Wheat + cotton	Vegetables, grapes	Other
Percentage in the sample	34%	54%	3%	5%	4%
Farm size, ha	17	2.5	11	1	25
Harvest, ton	23	6	19 (wheat) + 4 (cotton)	--	--
Farm sales, M manat	9.4	5.8	13.7	2.8	34.6
Farm net income, M manat	3.8	2.8	5.0	1.0	8.2
Family income, M manat	7.4	5.6	6.7	4.0	11.2

## Sales

Leaseholders deliver their farm products to state marketers in accordance with the contract. This practice is reported by 90% of respondents. Only 5% of households sell most of the farm output through their own efforts, and about 5% sell through the association.

The output of the two main products in leasehold farms, cotton and wheat, is sold in its entirety. State marketing organizations are the dominant sales channel for these commodities, and the producers report that they have no option of choosing a buyer for cotton and wheat. Other products are consumed in varying degrees by the family (from 10% to 50% of the output) and the surplus is sold, but sales are reported by a very small percentage of leasehold farms.

The producers' main complaint is that the prices they receive for cotton and wheat are too low. The difficulty with prices is raised by 75% of cotton producers and 85% of wheat producers. A lower but still significant percentage of producers complain about delays in receipt of payments from the marketers (50% of cotton producers and 20% of wheat growers).

## Input Supply

Leaseholders use the standard range of purchased inputs and farm services, including seeds, fertilizers, mechanized fields services, and transport (**Table 4.8**). Inputs specific to livestock

production are purchased by a relatively small subgroup of respondents, as livestock production is not widespread in the sample. Similarly, inputs associated with the use of farm machinery (fuel, maintenance and repairs, spare parts) are purchased relatively infrequently, as most mechanical services are provided on contract by the association or state agencies. Instead of these inputs, virtually all leaseholders report that they purchase mechanized field services for their farms.

**Table 4.8. Purchase of Farm Inputs and Services by Leaseholders**

	Respondents purchasing the input, %	Source of supply (percent of those who buy the specified input)*				Difficulties with purchase of inputs (percent of those who buy the specified input)		
		State supplier	Association	Own production	Private firms	No difficulties	High prices	Not available
Seeds and seedlings	95	87	9	3	0	86	10	2
Mechanized field services	92	85	21	1	2	47	36	2
Fertilizer	90	93	7	1	1	46	49	6
Herbicides	50	93	4	0	0	36	44	4
Farm machinery	53	85	20	0	2	40	34	6
Fuel	31	83	18	0	0	52	30	2
Repairs, maintenance	26	82	16	2	0	43	38	7
Electricity	26	73	27	0	0	71	7	0
Spare parts	25	77	18	0	6	37	42	13
Transport	78	67	42	1	0	58	26	4
Veterinary drugs	10	23	67	1	4	31	49	2
Veterinary services	8	40	66	2	0	46	35	0
Feed	7	2	68	55	0	55	26	6
Young animals	6	0	7	91	2	44	24	0
Manure	75	5	20	71	3	71	8	3
Construction materials	4	43	54	3	23	0	71	23
Construction services	4	10	73	17	0	20	40	0
Bookkeeping, financial services	96	58	48	1	0	86	5	4
Expert consulting	90	22	87	1	0	46	49	6

\*May add up to more than 100% because leaseholders use multiple sources of supply.

State agencies and the association are the main suppliers of all inputs and services. They are mutually complementary in their role as suppliers: some inputs are supplied primarily through state agencies (e.g., mineral fertilizers, herbicides, mechanized field services, seeds), while other inputs are supplied primarily by the peasant association (veterinary drugs and services, construction, consulting by experts). Private individuals and commercial firms are still of marginal importance as suppliers of farm inputs. Own production is an important source only for manure, young animals, and animal feed, which are anyhow used only by a small proportion of leaseholders.

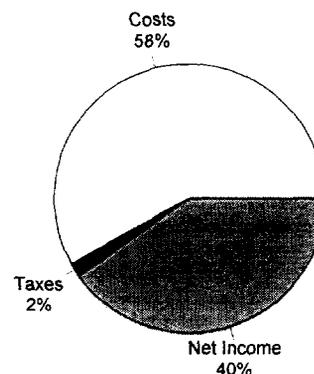
On the whole, leaseholders report that they do not have major difficulties with purchasing farm inputs and services (**Table 4.8**). Availability does not appear to be a problem (except to a certain extent for construction materials and spare parts), and high prices are the main complaint.

### Finances

Virtually all leaseholders provided detailed data on farm revenues and costs. Cash receipts from sales of farm products averaged 8.4 million manat per leasehold farm. Farm costs ran at 60% of sales, leaving a net margin of 40% or 3.4 million manat per farm. Tax deductions were reported by less than 10% of leaseholders, and their average impact on farm income was negligible (**Figure 4.4**).

The main components of farm costs are lease payments for land and labor, which jointly account for 42% of the total (**Table 4.9**). Charges for mechanized field work carried out by state service organizations or the association account for an additional 14%. Fertilizer costs represent another 12% of the total, but there is practically no expenditure on plant protection chemicals (herbicides and insecticides). Water use is free at this stage.

Fig. 4.4. Farm Costs and Net Income in Leasehold Farms  
(in percent of sales)



Average sales per farm 8.4 million manat

Table 4.9. Structure of Farm Costs

	Percent of total costs
Labor	16
Land lease payments	26
Livestock lease payments	4
Lease payments for other resources	0
Mechanized field works	14
Transport	3
Fertilizer	12
Plant protection chemicals	0
Feed	8
Hay	8
Veterinary services and drugs	1
Water charges	0
Other costs	8
Total farm costs	100

Farm income is only one component that contributes to the family budget. It is supplemented by salaries received from other sources, pensions, social support payments, and of course net cash income from the household plot and from non-farming activities. On average, the total family income per household surveyed was 6.5 million manat, and net farm earnings accounted for 54% of this amount. Combined with cash income from the household plot and income from non-farming business activities, the entrepreneurial income reached 70% of total family budget. The remaining 30% of family income is derived mainly from salaries. The structure of family income is shown in **Table 4.10**. The table also shows the percentage of households reporting income from each source. While income from the leasehold farm is reported by all families, cash income from the household plot is reported by less than half the families, and income from non-farming activities is reported by about one-quarter of the families. Salary income is reported by 55% of families surveyed.

**Table 4.10 Structure of Family Income**

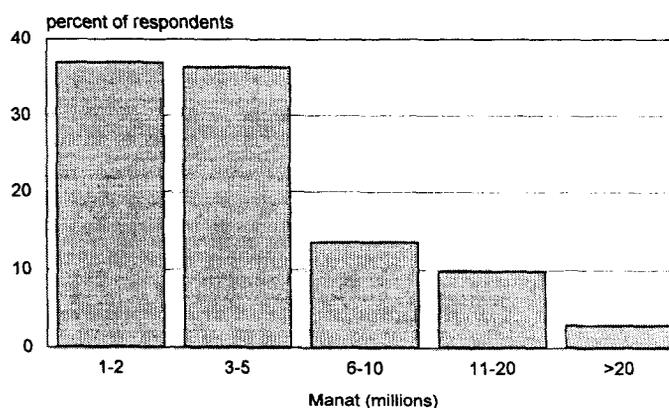
	Percent of total family income	Percent of households reporting income from this source
Net farm income	54	99
Net cash income from household plot	11	46
Net income from non-farming activities	5	24
Salaries	25	55
Pensions and social support payments	5	20
<b>Total</b>	<b>100</b>	
	6.5 million manat	

## Debt

Only 12% of leaseholders report outstanding debt. In most cases, this is informal debt to relatives, friends, and neighbors (8% of respondents) or to the peasant association (2%). Debt to Daikhan Bank and to state service and marketing organizations is reported only by 2% of leaseholders. These are the main sources of advances for working capital to leasehold farms, and perhaps respondents did not regard such advances as debt.

Despite the low frequency of outstanding debt, two-thirds of leaseholders indicate that they will need credit for farm operations next year. The mean expected borrowing is 7 million manat, but 75% of respondents expect to need between 0.5 and 5.5 million manat; the relatively high mean is attributable to about 10% of leaseholders who expect to borrow between 10 and 250 million manat (**Figure 4.5**). The desired borrowing

**Fig. 4.5. Demand for Credit by Leaseholders**



term is typically 12 months (50% of respondents) and the acceptable interest rate is between 2% and 5% percent annually in nominal terms (70% of respondents).

Despite the significant demand for credit on concessional terms, 70% of leaseholders state that they do not have any sources for borrowing. Less than 15% indicate possibilities of access to formal borrowing channels (banks or the peasant association), while another 15% believe they can borrow from informal sources (relatives, friends, and neighbors).

Payment arrears for goods and services delivered by leaseholders do not appear to be a problem. Only 20% report receivables, which average 2.1 million manat. The average sales revenue for these farms is 9.2 million manat, and arrears are thus equal to about 80 days of sales, or less than three months. The peasant association is cited as the main debtor, responsible for 60% of all payments due to leaseholders. State marketers owe about 20% of leaseholders' receivables.

These rough calculations of the number of days in arrears are inconsistent with the information on payment delays provided by the leaseholders in response to a direct question. About 20% of leaseholders report the number of months that payments are in arrears from the peasant association and other purchasing organizations. Unfortunately, this group only partially overlaps the 20% that provided information on the amounts in arrears. Here 30% complain of

Delays of up to 3 months, 30% of delays between 3 and 6 months, 30% of delays between 6 and 12 months, and 10% of delays exceeding 12 months (between 1 and 3 years). These delays are much longer than previously deduced, but the overall incidence of delays in the sample is small.

### **Production and Income from the Household Plot**

While the leasehold farm is a commercial operation, the household plot provides food for subsistence as well as some cash income from sale of surplus. Moreover, the product mix of leasehold farms is rigidly prescribed by the lease agreement with the association, which in turn is determined by the system of state orders. Families, on the other hand, are free to produce what they wish on their household plot, be it vegetables, fruits, or livestock.

The small household plot, averaging less than 0.2 ha, is primarily divided between three crop products: potatoes and vegetables (38% of the average plot), fruits and grapes (25% of the plot), and grain for livestock feed (28%). While leasehold farms primarily emphasize crop production, virtually all households (85%) keep some livestock on their private plot. The average household plot supports 2 cows, 1 bull, and about 10 sheep. Poultry is not particularly widespread, and only one-quarter of households in the survey report any chickens.

On average, the family consumes three-quarters of household production and the remaining one-quarter is sold (**Table 4.11**). Vegetables, melons, and grapes are the main cash crops from household plots: nearly 50% of the output of these crops is sold.

**Table 4.11. Production and Sales from Household Plots**

Commodity	Number of households*	Average output, kg	Percentage of output consumed by the family	Percentage of output sold
Vegetables, melons	586	732	54	48
Milk	581	1582	75	26
Fruits	356	203	84	16
Grapes	352	313	58	46
Meat	345	286	76	29
Potatoes	315	726	75	25
Wheat	292	368	93	6
Eggs	204	311	66	21
Wool	136	42	47	54

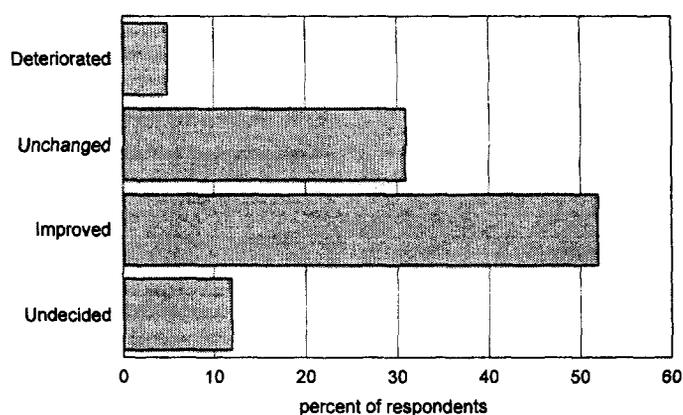
### Standard of Living

Leaseholding families earn income from various sources, including the leasehold farm, off-farm employment, and transfers. In addition to income from commercial sales of commodities produced under the leasehold contract, leaseholding families earn supplementary cash income from sales of farm products produced on their household plot. Nearly half the households report some sales of products

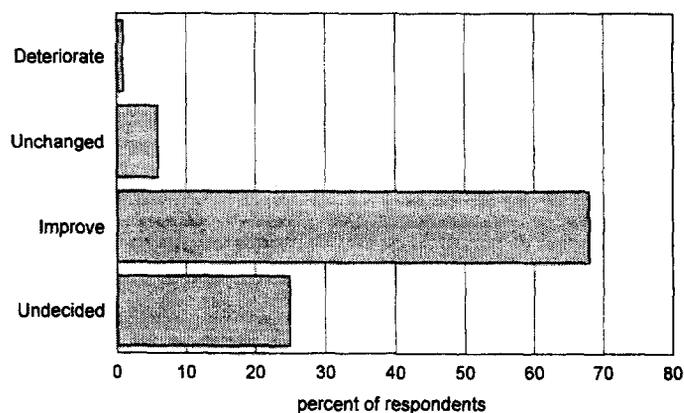
from their household plots. Families sell between one-quarter and one-half of the output of some products, such as vegetables, grapes, milk and meat (see **Table 4.11**). The products from the household plot are sold directly to consumers in the market. Cash revenue from these sales provides 11% of family income.

Leaseholders report that their family incomes increased over the period when leaseholding arrangements became more prevalent in Turkmenistan. Thus, 50% of

**Fig. 4.6. How Did the Family Standard of Living Change in Recent Years?**



**Fig. 4.7. How Will the Family Standard of Living Change in the Future?**



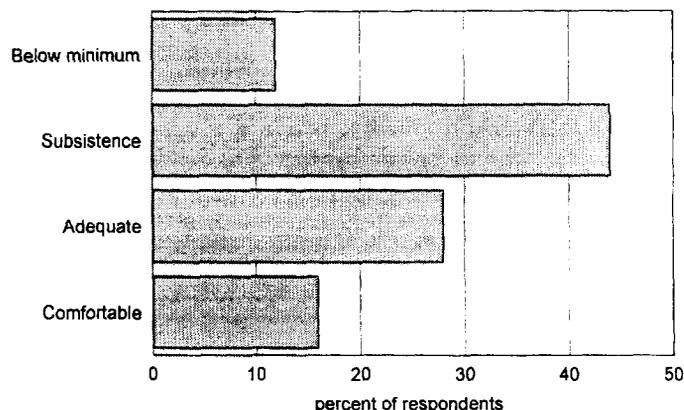
respondents report that the family's standard of living improved during the last three years and another 30% say that it did not change (**Figure 4.6**). The hopes for the future are also quite optimistic, as nearly 70% of leaseholders in the sample expect the material situation of the family to change for the better and only 1% have a negative outlook (**Figure 4.7**).

The family's standard of living was assessed according to four qualitative categories, based on leaseholders' perceptions. In **Figure 4.8**, "below minimum" is the category representing families whose income is not sufficient to buy all the food they need. For families in the "subsistence" category income is sufficient to meet their food needs, and for those in the "adequate" category income is sufficient to buy food and other daily necessities, including clothing; the "comfortable" category describes families that do not experience material difficulties at present. Based on this qualitative scale, family income is sufficient to satisfy the daily needs for three-quarters of households, 16% of respondents report that their families at present have no material difficulties, and 12% indicate that their family income is insufficient to buy all the food they need. The assessments of past changes and future expectations presented in **Figure 4.6** and **Figure 4.7** above are closely correlated with this assessment of the family's standard of living. The higher the standard of living, the more optimistic are the expectations for the future and the more positive the evaluation of changes in recent years.

The actual family income in the sample was 6.5 million manat per year. The mean desired income judged sufficient to maintain a "normal" standard of living was 17.7 million manat, a gap of 2.7 times relative to the actual income. The gap between the desired and actual income is greatest for families whose standard of living is below the necessary minimum and smallest for families without material difficulties (**Table 4.12**). For a family of 6, an annual income of 17.7 million manat translates into about \$590 per person per year at the official rate of exchange. In other parts of the world where domestic prices reflect international prices, this level of income would be considered poverty. In Turkmenistan, \$590 per person per year is considered sufficient and exceeds present actual levels by a large margin, suggesting that the domestic price structure is still highly distorted relative to international prices.

There are two additional indications of financial optimism among leaseholder families. First, about half the respondents indicate that they intend to build a new house within the next two years. Second, three-quarters of respondents plan to buy machinery and equipment for their leasehold farm within the next two years. Both findings are an expression of confidence in the future, but they are difficult to reconcile with reported actual income levels.

Fig. 4.8. What the Family Budget Buys



**Table 4.12. Actual and Desired Family Income (in million manat)**

Assessment of the family's standard of living	Actual income	Desired income for "normal" standard of living	Desired-to-actual income ratio
Below minimum: income not sufficient to buy all the food the family needs	3.4	22.2	6.6
Subsistence: income sufficient to buy food and daily necessities	6.0	18.7	3.1
Adequate: income sufficient to buy clothing, shoes, etc. in addition to food and daily necessities	6.7	17.5	2.6
Comfortable: family does not experience material difficulties	10.0	12.4	1.2
All sample	6.5	17.7	2.7

Leaseholders report that further improvement in their standard of living could be achieved by allowing wheat and cotton to be sold at free market prices (50% of respondents) and by letting the producers themselves decide what to grow, without state orders (30% of respondents). Leaseholders thus appear to have an understanding of policies that reduce their income, but do not yet perceive the extent to which domestic prices for inputs and services are distorted relative to international prices.

### Social Services and Benefits

Contrary to the practice of the past, it is now the state, and not the association that emerges as the main provider of social benefits and services in the village (**Table 4.13**). Medical care, heating fuel, subsidized utilities and consumer services are provided by central and local government to a large segment of the population. Government-subsidized food is enjoyed universally: this probably refers to the state program of providing bread and salt for free or at greatly reduced prices.

The association plays a certain role (alongside government) as a provider of transport services to the rural population. Nobody reports receiving assistance with housing construction or maintenance; nor does anybody report subsidized vacations or trips to resorts. These benefits had been traditionally provided by collective farms to their employees, and they were probably eliminated with the transition to peasant associations based on leasehold arrangements. Income support in the form of child allowances or subsidies to childcare and schools also appear to have been virtually eliminated. There is no basis for comparison with the pre-reform period, but the percentage of rural residents enjoying various social services and benefits in Turkmenistan today is substantially lower than in other former Soviet republics.

Somewhat surprisingly, only 22% of households report that the association assists them with the household plot. Among these households, the most important areas of assistance include provision of mechanized field services and farm machinery and equipment (about half the households that report assistance). Somewhat surprisingly, only 22% of households report that the association assists them with the household plot. Among these households, the most important areas

of assistance include provision of mechanized field services and farm machinery and equipment (about half the households that report assistance).

**Table 4.13. Provision of Social Services and Benefits to Leaseholders**  
(percent of respondents)

	Government	Association
Subsidized food	95	--
Heating fuel	52	5
Subsidized utilities and consumer services	39	--
Medical care	79	--
Transport	12	15
Association housing	--	5
Housing: building and repairs	--	--
Subsidized vacation	--	--
Pensions	21	--
School subsidies	12	--
Children allowance	6	--
Pre-school subsidies	2	--
Student stipends	2	--

\* \* \*

Leaseholders give a favorable assessment of their standard of living and of the changes that have taken place since the introduction of leaseholding arrangements on a large scale. Indeed, family incomes may be sufficient to provide most of the daily needs under the present conditions. Yet in absolute terms the rural population in Turkmenistan is quite poor and would live poorly if domestic prices reflected international prices. While producers clearly understand that they are getting much below world prices for their wheat and cotton, they may not grasp the full extent to which the entire cost structure in the country is distorted and below world levels.

Leaseholders enjoy very limited autonomy in their operating decisions. The lease contracts rigidly prescribe the area to be sown to each crop and the specific crops that the leaseholders must grow. The contractual conditions are monitored and enforced by the association, and the leaseholders have practically no freedom of decision in production matters outside their small household plots. Similarly, all sales of cotton and wheat are channeled through state procurement, and all inputs are received from state sources. Transactions with private firms and suppliers are minimal. Although leaseholders are provided easy access to financing through special arrangements with Daikhan Bank, they have no opportunity to act as responsible decision-makers in a market-oriented environment.

The introduction of leaseholding, as experienced at the time of this survey, appears to have both positive features and shortcomings. On the one hand, leaseholders are reported to support the program and to have high expectations about its future. Incomes have risen and production has

grown, albeit from very depressed levels in 1996 and 1997. Most leaseholders want to receive their land in private ownership and expect conversion of tenure to happen soon. On the other hand, the objective conditions as described in this survey may not warrant such optimism. Managers are much less confident that tenure will or should be converted soon. Income levels in dollar terms are among the poorest in the world. Leaseholders are still firmly limited by decisions others make regarding what to produce and how to market their output.

With respect to the degree of autonomy of small-holder producers, Turkmenistan differs markedly from other countries in the post-Soviet region that have undergone significant reform of land tenure and in which small-holder agriculture predominates. These countries are Armenia, Georgia, and Moldova, where family farms are independent operations not subject to any state orders. As a result, former collective and state farm employees have evolved in a relatively short time into diversified producers who grow several different crops and mix crop production with livestock. This is in contrast to leaseholders in Turkmenistan, who mainly operate as monoculture farms. Family farmers in Armenia, Georgia and Moldova sell and buy directly in the market, completely bypassing former state channels. Moreover, small-holders in these countries do not enjoy the financial umbrella of a specialized agricultural bank. They may find it more difficult to finance their farming operations, but on the other hand by forgoing state-directed financial support they gain the freedom of decision and choice, which is crucial for the development of market-oriented business entities.



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