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Kyrgyz Republic

Strategy for Rural Growth and Poverty Alleviation

Mohinder S. Mudahar

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Mohinder S. Mudahar

The World Bank
Washington, D.C.

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ISSN: 0259-210X

Cover photo of Kyrgyz Mountains by International Cinema Video Centre, Bishkek.

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Library of Congress Cataloging-in-Publication Data

Mudahar, Mohinder S.
Kyrgyz Republic : strategy for rural growth and poverty alleviation / Mohinder S. Mudahar.
p. cm. — (World Bank discussion paper ; 394)
Includes bibliographical references (p.).
ISBN 0-8213-4326-2
1. Agriculture and state—Kyrgyzstan. 2. Agriculture—Economic aspects—Kyrgyzstan. 3. Kyrgyzstan—Rural conditions. I. Title. II. Series: World Bank discussion papers ; 394.
HD2065.24.Z8M83 1998
338.1'85843—dc21 98-42156
CIP

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FOREWORD

Agriculture is the lead sector of the Kyrgyz economy. It accounts for almost half of GDP and employment. About 75 percent of the population (excluding Bishkek) lives in rural areas, and almost two-thirds of the rural population is below the poverty line. Accelerating agricultural growth and alleviating rural poverty are clearly the main development challenges facing the policymakers in the Kyrgyz Republic. Agricultural production bottomed out in 1995, but the overall recovery of the rural economy remains weak. While substantial progress has been made in implementing agricultural reforms and achieving macroeconomic stability, much more needs to be done to consolidate reforms and remove constraints in order to improve the efficiency, profitability, and sustainability of the agricultural sector.

This report outlines a rural development strategy that, if properly implemented, is designed to promote agricultural growth, alleviate rural poverty, and improve natural resource management. The proposed rural development strategy consists of four elements: deepening policy reforms, increasing public investment, promoting institutional development, and strengthening the information base. The strategy is designed to reduce government intervention, improve the efficiency and delivery of public good activities, and facilitate the development of private farmers, traders, and entrepreneurs to promote private agriculture and agribusiness. The strategy is also relevant for other transition economies of the former Soviet Union that are facing similar constraints and policy environment.

An earlier version of this report served as a basis for the Second International Agricultural Conference held in Bishkek on December 2-4, 1997. This conference provided an excellent opportunity to discuss the conclusions and recommendations of this report and receive useful comments from various stakeholders involved in agricultural and rural development. The World Bank's Country Assistance Strategy for the Kyrgyz Republic from 1999 to 2001 emphasizes agriculture and rural development as priority sectors to promote economic growth and alleviate poverty. This report provides a framework and an approach to improve the efficiency of the agricultural sector, which is fundamental for achieving these national objectives. We believe this report will be useful to the agricultural leaders, policymakers, private sector, NGOs, and other stakeholders and the international donor community involved in the Kyrgyz Republic and other transition economies.

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PREFACE

This Agricultural Policy Review is based on the findings of a World Bank mission to the Kyrgyz Republic in July 1997 by Mohinder S. Mudahar (mission leader), Peter Bloch (land reform), John Moore (agricultural marketing), Gian Sahota (fiscal policy), F. E. Schultze (irrigation), and Evgeny Polyakov (agricultural trade and statistical analysis). Sarina Abdysheva, Dinara Djoldosheva, and Asyl Undeland from the Resident Mission facilitated discussions with the government and provided operational support. The World Bank wishes to thank the central and regional authorities of the Kyrgyz Republic for their cooperation, contributions, and support. We are also grateful to the donors, particularly ADB, IFAD, TACIS, USAID, the British Know-How Fund, GTZ, and the Swiss Agency for Development and Cooperation, for providing access to their work and for helpful discussions on agricultural policy reform in the Kyrgyz Republic.

Experts from the Agrarian Academy provided excellent support to the mission by conducting farm surveys in all six oblasts. The experts were Abdybek Asanaliev (coordinator), Bolotbek Biybosunov, Asel Bokoeva, Dinara Choibekova, Joldoshbek Dadybaev, Alymbek Erdolatov, Nazarbek Ibraimov, Abdukhakim Islamov, and Nurbek Osmonbaev. Valuable comments were received from Nancy Cooke, Edward Cook, Jean-Charles Crochet, Ramesh Deshpande, Gary Fine, Philip Goldman, Peter Hansen, Carol Hoppy, Joma Mohamadi, Helga Muller, Michael Rathnam, Pedro Rodriguez, Kinnon Scott, Jitendra Srivastava, Aynur Sumer, Willem van Tuijl, and Barnabas Zegge of the Kyrgyz Country Team; Derek Byerlee and Csaba Csaki, peer reviewers from the Environmentally and Socially Sustainable Development Network; Christine Jones, Chief Economist's Office of the Regional Vice President; and Chandra Ranade, of the Economic Development Institute. The report was processed by Sharifa Kalala and Rathna Chiniah, and edited by Meta de Coquereaumont. The work was carried out under the general supervision of Laura Tuck, Joseph Goldberg, and John Hayward (sector leaders), Kevin Cleaver (sector director), and Kiyoshi Kodera (country director).

The findings and policy recommendations of the draft report were discussed with the government and other stakeholders in December 1997. The draft report (which was widely distributed in both English and Russian) formed the basis for the Second International Agricultural Conference held in Bishkek on December 2-4, 1997. The conference was jointly sponsored by the Kyrgyz Government, the World Bank, ADB, and the Swiss Agency for Development and Cooperation. Government officials, representatives of other national stakeholders (farmers, nongovernmental organizations, agricultural institutes and the private sector), and donors participated in the conference. In addition to an exchange of ideas on a strategy for accelerating rural growth and alleviating rural poverty, the conference resulted in Government Resolution No. 773, "About Measures on Implementation of the Recommendations of the Second International Agricultural Conference," of December 31, 1997, the production of a video on the progress and prospects of agricultural reforms in the Kyrgyz Republic. Furthermore, a Presidential Decree was issued declaring 1998 as the year of rural development and fighting poverty. This is a revised version of the report. It incorporates additional analysis, new information collected during a December 1997 mission, and comments received during the conference.

ABSTRACT

This report examines the current state of Kyrgyz agriculture and the status of agricultural policy reform program during its transition to a market economy. It outlines a strategy for rural development based on deepening policy reforms, increasing public investment, promoting institutional development, and strengthening the information base. The priority agenda for policy reforms consists of six components: deepening land reform and farm restructuring, reforming the agricultural marketing system, developing a commercial rural credit system, strengthening fiscal management of agriculture, revitalizing irrigation and rural infrastructure, and revamping inputs, technology, and support services. The proposed rural development strategy is designed to promote agricultural growth, alleviate rural poverty, and improve natural resource management. The report is intended for agricultural leaders, policymakers, private sector, NGOs, donors, and other stakeholders involved in agricultural and rural development in the Kyrgyz Republic and other transition economies.

ABBREVIATIONS

ADB:	Asian Development Bank
APEAC:	Agricultural Privatization and Enterprise Adjustment Credit
ASSP:	Agricultural Support Services Project
CAS:	Country Assistance Strategy
CGIAR:	Consultative Group on International Agricultural Research
CIS:	Commonwealth of Independent States
CLAR:	Center for Land and Agrarian Reform
CRI:	Crop Research Institute
CSNT:	Commission on Science and New Technology
DEBRA:	Debt Resolution Agency
DWR:	Department of Water Resources (MAWR)
EBRD:	European Bank of Reconstruction and Development
FAO:	Food and Agricultural Organization of the United Nations
FINSAC:	Financial Sector Adjustment Credit
FPRI:	Forage and Pasture Research Institute
FSU:	Former Soviet Union
GDP:	Gross domestic product
GKI:	State Property Committee
IBRD:	International Bank for Reconstruction and Development
IDA:	International Development Association
IFAD:	International Fund for Agricultural Development
IFC:	International Finance Corporation
IMF:	International Monetary Fund
IPM:	Integrated Pest Management
KAFC:	Kyrgyz Agricultural Finance Corporation
KSRII:	Kyrgyz Scientific Research Institute of Irrigation
LRF:	Land Redistribution Fund (initially NLF)
MAWR:	Ministry of Agriculture and Water Resources
MOFE:	Ministry of Finance and Economy
NGO:	Nongovernmental organization
NLF:	National Land Fund
PESAC:	Privatization and Enterprise Sector Adjustment Credit
PIP:	Public Investment Program
PKII:	Institute of Technical Design, Water Measurement, and Automation
PSRMAC:	Public Sector Resource Management Adjustment Credit
RCLAR:	Republican Center for Land and Agrarian Reform
SCRA:	Scientific Council on Research in Agriculture
SFCOP:	Small Farmers' Credit Outreach Program
TACIS:	Technical Assistance to the CIS (EU)
USAID:	US Agency for International Development
USSR:	Former Union of Soviet Socialist Republics
VAT:	Value added tax
WTO:	World Trade Organization
WUA:	Water Users Association

GLOSSARY

Agroprombank:	Agricultural Bank
Ail Okmotu:	Village Government
Gosplan:	State Planning Agency
GOST:	National grades and standards; adopted by the FSU
Goszemagenstvo:	State Agency for Land Tenure and Land Resources
Jogorku Kenesh:	Parliament
Kolkhoz:	Collective farm
Kombinats:	Large conglomerates of enterprises
Kyrgyzdanazyk (KDA):	State-owned bread conglomerate (being privatized)
Kyrgyzmamzherresurstary:	State Institute for Land Resources and Land Engineering
Natskomstat:	National Statistical Committee of the Kyrgyz Republic
Oblast:	Administrative region; a constituent part of the Kyrgyz Republic
Rayon:	Administrative district; a constituent part of theoblast
Sovkhoz:	State farm

WEIGHTS AND MEASURES

Metric System

FISCAL YEAR

January 1 - December 31

CURRENCY EQUIVALENTS
(after May 10, 1993)

Currency Unit	=	Som
1 Som	=	100 Tyins

EXCHANGE RATE

SOM PER US$1.0

Year	Average Period	End of Period
1993	5.04	8.04
1994	10.84	10.60
1995	10.82	11.15
1996	12.80	16.90
1997	17.39	17.38
1998[1]	18.24	19.87

[1] From January 1 to June 6, 1998

EXECUTIVE SUMMARY

Agriculture, which accounts for almost half of GDP and employment, will remain the engine of growth and the main source of household income in the foreseeable future, particularly in the rural areas where two-third of the population resides. The Kyrgyz Republic has made a significant progress in implementing agricultural reform and achieving macroeconomic stability. Agricultural production, which bottomed out in 1995, grew over 10 percent in 1996 and 1997. While it would be very difficult to sustain such high growth rates in the long run, prospects for recovery are good. The likely sources of growth are improvements in efficiency and productivity derived from knowledge-based agriculture focused on high-value specialty crops, livestock activities, and agro-industry designed to meet domestic and export demand, particularly in neighboring countries. However, realizing this growth will require deepening policy reforms, increasing public investment, promoting institutional development, and strengthening the information base.

RURAL DEVELOPMENT CHALLENGES

Rural development in the Kyrgyz Republic faces two daunting problems during the transition and beyond: the need to reverse the decline in agricultural production and sustain its recovery at desirable long-term annual growth rate and the need to reverse the recent increase in rural poverty and sustain the rural poor's participation in agricultural growth.

Slow Growth in Agriculture

Agriculture is the lead sector of the Kyrgyz economy. Productive agriculture and a vibrant rural economy are critical for raising farm income and rural employment, reducing rural poverty, and promoting participatory economic growth. In 1996 agriculture accounted for 47 percent of GDP and 49 percent of employment. Agriculture and agro-industry constituted 38 percent of exports and 23 percent of imports. Food's share in the household budget is large and rising — from 30 percent in 1990 to 57 percent in 1996. About 65 percent of total population and 75 percent of the regions' population lives in rural areas. Thus accelerating agricultural growth is the first and the most important development challenge facing the policymakers in the Kyrgyz Republic.

Agriculture production shrank considerably from 1990 to 1995, before picking up again in 1996 and 1997. Crop production has improved for more than livestock production, which still remains depressed. While the decline in agricultural production appears to have bottomed out, the sector continues to face serious constraints to increased productivity and profitability, despite its considerable potential for greater efficiency in agriculture and higher growth in the rural economy. Significant progress has been made in price deregulation, trade liberalization, land reform, and privatization of agro-industrial enterprises, but major problems remain that are slowing the transition to private, market-based agriculture. The challenge facing policymakers is to accelerate and sustain real agricultural growth (while the annual growth potential is 6-7 percent, actual long-term growth is likely to be 4-5 percent or lower) through proper economic incentives and efficiency improvements.

In addition to creating a policy environment that provides positive incentives to the private sector, a handful of other factors also have important implications for efforts to increase growth and improve the productivity, profitability, and sustainability of agriculture. These relate to the country's highly diverse

and less favorable agro-ecological conditions; low rainfall and irrigation-dependent crop agriculture (over 80 percent of arable land is irrigated); water-logging, salinity, nutrient-deficiency, and erosion in soils problems; overgrazing and poor management of pasture land (45 percent of total land area); inadequate number of all-weather roads and lack of efficient transport network; long distances to world markets (the country is land-locked); and the legacy of the centralized system of planning, resource allocation, input distribution, and state procurement of agricultural output.

Increase in Rural Poverty

Poverty alleviation is the second most important development challenge facing the nation, and agricultural and rural development must lead the effort. By any measure, poverty has increased during the transition. Poverty assessment surveys also show that poverty is more severe in rural areas and in the southern oblasts. Other indicators of declining living standards are the increase in the incidence of malnutrition, particularly among children, the greater difficulty of residents in rural areas in receiving pensions and other social benefits, in part because of the inadequate banking system in rural areas.

Many factors have contributed to the increase in poverty during the transition, including the general economic decline, the fall in production, a breakdown of trade, adverse terms of trade, loss of fiscal transfers, rising unemployment, the shrinking social safety net, and widening income disparities. Because poverty is more severe in rural areas, where agriculture is the main source of livelihood, and agriculture accounts for half of GDP, the core of any poverty reduction strategy must be to increase rural employment and rural growth, with agriculture leading the way. In addition, targeted interventions are needed to provide assistance to the most vulnerable and to strengthen the social safety net.

The Kyrgyz Government has recognized the poverty problem and has declared 1998 "the year of rural development and fighting poverty". It launched the National Program on Poverty Alleviation (Araket), which seeks to increase employment, improve access to basic social services, improve the targeting of social assistance, and ensure the timely payment of pensions. The program recognizes that development of an efficient agricultural sector is fundamental to the alleviation of rural poverty.

Strategic Policy Objectives

Rural development strategy for the Kyrgyz Republic must be designed to achieve the following three strategic policy objectives:

- ***Promote agricultural growth.*** Agriculture is the lead sector of the Kyrgyz economy in terms of its contributions to GDP, employment, exports, and national food security. Thus efficient and profitable agriculture is necessary to promote long-term sustainable economic growth and reduce poverty.

- ***Alleviate rural poverty.*** About 75 percent of the population (excluding Bishkek) is rural, and almost two-thirds of the rural population is below the poverty line. Thus any strategy to reduce poverty must have rural poverty alleviation at its core. Participatory and equitable rural growth is essential to alleviate rural poverty.

- ***Improve natural resource management.*** Long-term rural development depends on proper management of the nation's two important natural resources, land and water. Policies are needed to reduce degradation, erosion, and mining of soil, and to improve the use efficiency and conservation of water resources.

STATUS OF AGRICULTURAL POLICY REFORMS

The Kyrgyz Republic has made significant progress towards macroeconomic stability, which is, by any yardstick, a daunting task. Overall, the Kyrgyz Republic is among the leaders in agricultural sector reform in Central Asia. Government, at the republic and oblast levels, has pursued a reform agenda to privatize and transform the agricultural sector into a market-based rural economy. The reforms, for which there is widespread support, are now irreversible, but the transition to a market economy is not yet complete. While many of the decrees and laws needed to introduce agricultural reforms are now in place, progress on the ground has been slow, particularly in some of the regions. In order to examine the status and progress, agricultural policy reforms are divided into six broad categories: land and farm restructuring; price, trade, and market liberalization; privatization and enterprise restructuring; the rural credit system; fiscal management; and institutional development.

Land and Farm Restructuring

Before reform, all land was owned by the state and cultivated by about 500 state and collective farms. The Government has now put in place a legal framework to establish private family farms or restructured large farms with 99-year land use right. Land certificates (mostly temporary) have been issued to about 85 percent of the 800,000 farm families in the country and state acts have been issued to nearly 40,000 farm enterprises. A pilot program is evaluating a system for registering private land titles. A land-leasing market is in the process of being established. A Land Code is awaiting Parliamentary consideration, and other land legislation is pending. The private farming sector is growing (there were 38,000 private farms on July 1, 1997), and the number of state and collective farms is dwindling rapidly (there were only 22 unrestructured state and collective farms on July 1, 1997). The bulk of livestock production is now in the private sector.

Price, Trade, and Market Liberalization

In the centralized system, agricultural prices, trade, and marketing were controlled by the government. Input and output prices have now been deregulated, and major adjustments in the context of Central Asia and the global economy are under way. Foreign trade has been substantially liberalized, and the Kyrgyz Republic is in the process of joining the World Trade Organization (WTO). While the system of state procurement has been officially eliminated, markets are far from being fully developed and competitive, with considerable administrative interference at the local level.

Privatization and Enterprise Restructuring

A large number of state-owned enterprises in the agro-industrial complex have been privatized, including the bread complex (Kyrgyz Dan Azyk) and agro-processing complex (Kyrgyz Tamak Ash). Over 20 of the remaining large state-owned agro-industrial enterprises, that have been selected for case-by-case privatization method, are in the process of being privatized. Privatization has created a large number of private entrepreneurs and has reduced the Government's obligations to loss-making enterprises. It will take some time, however, before the privatized enterprises are restructured and made more efficient. In some cases, such as fertilizer and farm machinery, public monopolies have become defacto private monopolies.

Rural Credit System

The Government has introduced reforms to gradually replace the old rural credit system of directed and subsidized credit, with frequent write-offs, with a new commercial credit system. Agroprombank has been liquidated, old debts (both Agroprombank and budgetary) are being recovered, commodity credits are being phased out, and interest rates have been increased. Kyrgyz Agricultural Finance Corporation (KAFC) — an independent, nonbanking, public financial institution — has been established as part of the World Bank-supported Rural Finance Project, and credit unions are being established as part of the Asian Development Bank-supported Rural Credit Project. However, credit to finance working capital and investments remains a critical constraint, and the commercial credit system is at a very early stage of development.

Fiscal Management

The old centralized economic system was based on highly distorted accounting prices, large direct and indirect subsidies, very little cost recovery, and investment decisions unrelated to economic and financial viability criteria. Today, the direct subsidies have been virtually eliminated, but indirect subsidies through input prices (particularly electricity and irrigation water) remain high. While overall cost recovery has increased, there is substantial scope for further improvement. The scope for raising tax revenue from agriculture is considerable, but realizing it will have to wait until agriculture is more profitable. The Government has institutionalized the preparation of public investment program, but public investment, even for critical public good agricultural projects, has declined. And although the budget preparation process is being improved, further rationalization is needed.

Institutional Development

The institutions of the centralized, planned economy that dominated the old Soviet system are gradually being dismantled, privatized, or transformed into institutions that serve private agriculture in a market economy. The legal and regulatory framework required for private ownership and a market economy is being put in place. The Ministry of Agriculture and Water Resources is gradually shifting from owner operator to regulator, service agency, and policymaker. Staff are being trained in the skills required for a market economy.

SECTORAL PERFORMANCE AND IMPACT

Crops, livestock, and agro-industry are all experiencing major adjustments in responding to the agricultural reforms that are under way. Agricultural production appears to be recovering. The livestock sector, once sustained through large subsidies, has shrunk in size. Farmers are pleased with their 99-year use rights for land, though they would prefer outright private ownership. Large farms are being restructured into smaller private farms. Private traders are emerging in agricultural input and output markets, but market structures are often still far from competitive. But while farm restructuring has led to private entrepreneurship, it has been accompanied by short-term growing pains — from inexperienced farmers, and inappropriate farm machinery, to a radical drop in input use and decline in rural social services. In the longer term, however, farm restructuring should result in improved efficiency, higher work effort, less agricultural waste, and lower budgetary subsidies. The impact of reforms in terms of sectoral production performance and structural change is summarized in Table 1.

A remaining problem (due to limited arable land) is how to reconcile very small household farms with the greater efficiency to be derived from relatively larger farms. Production cooperatives are one

popular means of achieving a larger cultivated areas; but they have rarely succeeded anywhere they have been tried. There is also too much farm labor for the available arable land in the country. Not all the work force can be productively absorbed in agriculture. Some of the work force needs to be absorbed in off-farm income-generating activities so that the remaining work force can have larger farms and can reap economies of scale.

Crops

Recovery, though still fragile, has begun in crop production, especially in wheat, potatoes, and sugarbeets. The sugarbeet crop is recovering from a disease which devastated the crop in the 1980s. Good weather has also played an important role in 1996 and 1997. Average yields for most crops appear to have recovered and even increased in 1997 over 1995, though overall yields remain very low due to a decline in the use of critical agricultural inputs, particularly fertilizer.

Wheat production has grown 164 percent since 1990 due to an 185 percent increase in sown area; average yields have declined 8 percent. Area under winter wheat has almost doubled (from 183,000 hectares in 1990 to 360,000 hectares in 1997), while that under spring wheat has increased 18- fold (from 11,000 hectares in 1990 to 193,000 hectares in 1997). This expansion in wheat area replaced barley, corn, and fodder crops. The expansion in wheat area, driven in part by the collapse of international and domestic trade and an implicit national policy of self-sufficiency in wheat, may have been justified during the critical years of rural transition since wheat is a staple food and easy to store for longer periods. However, with a limited land base, the Kyrgyz Republic cannot afford to allocate almost half of its total sown area to one crop that is not highly competitive internally (as compared to crops such as potatoes, vegetables, sugarbeets, oilseeds, and cotton) or externally (in regional or global markets). As markets become more articulated, and as the policy emphasis shifts from food self-sufficiency to food security, the area under wheat is likely to shrink. Incentives should not be distorted in favor of wheat, and farmers should not be forced to plant wheat beyond their preferences.

Livestock

Despite a comparative advantage in livestock production, production has declined for all livestock products since 1990, as both livestock inventories and livestock productivity fell. The decline has been particularly serious for poultry products, sheep and goat (for both meat and wool), and pigs. High input prices and inadequate availability of animal feeds during winter have caused drastic reductions in livestock inventories, productivity, and profitability.

Prior to the reform, consumption of livestock products was very high in the Kyrgyz Republic relative to per capita income, a level made possible through subsidies and distorted prices. With deregulation of prices and reductions in subsidies, both consumption and production have declined to levels that are consistent with the country's new economic realities. But the decline in livestock inventories, particularly in sheep and goats, (from 10.5 million head in 1990 to 3.7 million head 1997) may have come too far. Furthermore, there is growing evidence that breeding stock is being slaughtered in large numbers to supplement household income. This is likely to affect livestock productivity and the long-term contribution of livestock to agricultural GDP. About 45 percent of land area in the Kyrgyz Republic is pasture land and it is particularly suitable for grazing sheep and goats. While unprofitable livestock production must not been kept going through direct or indirect subsidies, there is a need to improve the quality and productivity of livestock through the development and transfer of technology for improved feeding, breeding, animal health, processing, and sustainable management of pasture land

(common property). This will only improve the competitiveness of livestock production and increase the positive contribution of livestock to agricultural growth and rural poverty reduction.

Agro-Industry

The agro-industrial subsector is in serious crisis. Annual production fell more than 90 percent from 1990 to 1996 for most processed food commodities, largely because of low efficiency, poor product quality, poor packaging, loss of market, declining demand, lack of credit, and reduction in raw material supply. Revitalizing agro-industry is critical for modernizing the agricultural sector, creating rural employment, and alleviating rural poverty. Consequently, the problems facing agro-industry need to be addressed through private and public sector partnership and the elimination of unnecessary regulations. Participation by foreign joint ventures is needed to get access to capital, technology, management, and export markets. Privatized enterprises need to be restructured further to make them more competitive, and the remaining state-owned enterprises need to be privatized and given appropriate post-privatization support. However, state-owned enterprises that cannot be rehabilitated and made financially viable should be closed.

Agricultural Exports

The volume of agricultural exports (both primary agriculture and agro-industry) increased from 1993 to 1997. The Kyrgyz Republic went from being a net importer of primary agricultural products in 1993 to being a net exporter in 1997, and from being a net exporter of processed agricultural products to being a net importer. The decline in exports of processed agricultural products resulted from a decline in demand following the break-up of established trade relations with other countries of the former Soviet Union and from a decline in the supply of quality products at competitive prices due to high unit costs, the use of obsolete technology, and a shortage of raw materials. Increasing exports of agricultural commodities is an important component of the rural development strategy. However, exporters report experiencing such problems as high domestic and international transport costs, high tolls, extortion, and local government control over free passage of goods. These issues need to be addressed promptly to promote exports of food and agricultural commodities.

Farmers' Perceptions About Agricultural Reforms

A July 1997 survey of large farm managers (30), private farmers (60), and household plot owners (90) across all regions of the Kyrgyz Republic provides some insights into the perceptions of various groups of farmers about agricultural reforms. Nearly two-thirds of the large farm managers and private farmers interviewed support the reforms, but the household plot owners are equally divided among "satisfied" "not satisfied" and "no opinion". When asked about the most important agricultural problems they faced, farmers in all regions mentioned similar concerns. The most important agricultural problems, in order of severity, appear to be: unfavorable prices, difficulties in output marketing, lack of rural credit, shortage of fuel and machinery, lack of chemical fertilizers, shortage of agricultural land, irrigation water supply problems, lack of quality seed, reductions in the social safety net, and high taxes.

Agricultural Growth Prospects

With the slow recovery in the livestock and agro-industrial sub-sectors, the main burden of growth in agricultural GDP will fall on the crop subsector, at least in the near term. There, the likely sources of growth are small increases in crop area (new land, more area under irrigation, and possible multiple cropping); shifts in cropping pattern, particularly shifts in favor of high-value specialty crops;

large increases in crop productivity (better seeds, plant protection, plant nutrition, efficient water use, appropriate farm machinery); improvements in product quality (better varieties, plant protection, and harvesting machinery); and reductions in losses (better harvesting, transportation and storage facilities). There is also a need to increase the efficiency of livestock production (in terms of numbers, productivity and quality) through better animal breeds, health, feed, and sustainable pasture management. Similarly, the agro-industrial enterprises need to be restructured, with a focus on higher efficiency, high capacity utilization rate, improved product quality, better packaging, and low unit costs.

There are three fundamental constraints to increasing agricultural and rural growth: ***land constraint*** (low land/person ratio), ***demand constraint*** (low effective demand because of low population growth and low per capita income), and ***geographical constraint*** (a land-locked country with high transportation costs). The land constraint can be relaxed by improving land management and pursuing knowledge-based agriculture, with a focus on high-value specialty products in which the country has comparative advantage. The demand constraint can be relaxed by increasing per capita household income, and expanding exports of high-value primary and processed agricultural commodities. The geographical constraint can be relaxed, to some extent, by expanding trade relations with neighboring countries (Russia, Kazakhstan, Uzbekistan, and China) and specializing in high-value and high-quality commodities, such as seeds, flowers, vegetables, fruits, and processed crop and livestock products.

Growth in crop, livestock, and agro-industrial production will occur on private farms and factories. To make this happen, however, will require increased effort by the Government on at least four fronts. ***Policy reforms*** are needed to increase incentives for the private sector to improve efficiency, productivity, profitability, and sustainability. ***Increased investment*** is needed in public good activities and in activities that facilitate more private investment. ***Institutional development*** needs more attention, particularly the legal and regulatory framework, training and technical assistance, and the reorientation of public institutions (including the Ministry of Agriculture and Water Resources) to serve private agriculture and agro-industry. Finally, the quality of and access to agricultural ***information base*** needs to be improved.

ELEMENTS OF A RURAL DEVELOPMENT STRATEGY

Deepening Policy Reforms

The Kyrgyz Republic is a leader in agricultural reform in Central Asia. There is no room for complacency, however. Reforms must be deepened to complete the transition from a planned to a market economy and to provide economic incentives to the private sector to increase rural growth and alleviate rural poverty. The priority agenda for deepening agricultural policy reform consists of six vital components: deepening land reform and farm restructuring; reforming the agricultural marketing system; developing a commercial rural credit system; strengthening fiscal management of agriculture; revitalizing irrigation and rural infrastructure; and revamping inputs, technology, and support services. There is also a need to examine laws and decrees dealing with the rural sector and to remove any inconsistencies, contradictions, and overlaps. The status of reforms and proposed actions for the Kyrgyz Republic are summarized in the agricultural policy matrix (Table 2).

Land reform and farm restructuring. Accelerating the development of land markets and farm restructuring will be facilitated by enacting the Law on Registration of Rights to Immovable Property, the Mortgage Law, and the Land Code; establishing a proper land registration system; finalizing objectives and guidelines for auctioning land in the Land Redistribution Fund to ensure efficiency, equity, and transparency; issuing a Government Resolution on standard forms and procedures for transactions in land

shares; accelerating the program of demarcating individual land parcels and issuing land share certificates to all who do not yet have them; completing the delineation of cadastral blocks for land parcel registration; reviewing and determining best practices for pasture management; incorporating the ability to serve small parcels into rehabilitation work on irrigation systems; amending the Constitution to permit private ownership of land; and educating the public on the individual rights granted by the land reform program and on the working of land markets.

Reforming agricultural marketing system. Policies for developing a competitive agricultural marketing system include eliminating informal internal transportation barriers and interference in the functioning of markets at the local level; establishing at least two wholesale markets, one in the north (Bishkek) and one in the south (Osh); updating the Law on Competition and legislation regulating joint-stock companies; establishing a nationwide market information system; formulating agricultural export promotion strategy with the CIS countries, particularly in the context of a Customs Union; simplifying registration procedures and reducing the number of permissions required to build agro-processing joint ventures; completing accession to the World Trade Organization; completing the case-by-case privatization of the large agro-industrial enterprises; and providing better access to commercial credit by agro-industry for working capital and capital investment by increasing the capacity of Kyrgyz Agricultural Finance Corporation (KAFC).

Developing a commercial rural credit system. Policies to facilitate the development of a commercial rural credit system include accelerating implementation of KAFC and Small Farmers Credit Outreach Program, both components of a Rural Finance Project (World Bank) designed to foster a climate conducive to commercial credit; developing rural credit unions as part of the Rural Credit Project (ADB); phasing out budgetary transfers for agricultural credit in 1999; charging interest rates on budgetary credit that are no lower than that those charged by KAFC; and completing the recovery and resolution of outstanding farm debt to Agroprombank, budgetary debt, and interenterprise arrears by June 1999.

Strengthening fiscal management of agriculture. Policy recommendations for strengthening fiscal management of agriculture include shifting to program budgeting for the Ministry of Agriculture and Water Resources and other line ministries; introducing a development-oriented approach to budgeting, with a clear distinction between current and capital budgets; requiring all ministries to submit an annual report highlighting accomplishments, sector status, and plans along with their budgets; revising the land tax rate annually to increase tax revenue and promote intersectoral equity; gradually increasing irrigation water charges and collection rates to improve cost recovery; increasing electricity tariffs to improve cost recovery and reduce economic losses; and further rationalizing public expenditure and increasing budget allocations for priority public good investment projects for the rural sector.

Revitalizing irrigation and rural infrastructure. Policy recommendations for revitalizing irrigation and other rural infrastructure include establishing clear priorities for the rehabilitation of primary and secondary irrigation systems; developing a strategy for rehabilitation, development, and cost recovery in lift irrigation and for the possible conversion of pumped schemes to gravity, particularly in the context of higher electricity tariffs; establishing water users associations to manage, operate, and maintain the irrigation schemes; gradually increasing water charges to improve cost recovery for operations and maintenance and new investment (particularly on-farm investment) in the irrigation system, with the option of having the water users associations operate and maintain the system; clarifying the water resource management role of various ministries, state agencies, design and research institutes, and water users associations; and preparing an overall irrigation and water management strategy and

action plan and a strategy for the development of rural infrastructure (roads and transport network, rural markets, telecommunication system, rural electricity, and social infrastructure).

Revamping inputs, technology, and support services. The policy recommendations for revamping critical agricultural inputs, technology, and support services to promote knowledge-based agriculture include preparing a strategy for the sustainable development and use of marginal rainfed and irrigated lands and common property pasture land; stimulating the development of a competitive input marketing system through competitive import financing, private dealer development, and farmer education about the benefits of best practices; establishing a legal framework for regulating the production, distribution, and use of pesticides; promoting the use of integrated pest management; establishing a legal framework to promote the development of leasing companies and custom service stations for farm machinery in the private sector; privatizing seed production farms and implementing the Seed Law and the Law on Plant Breeder Protection Rights; issuing a decree formalizing the establishment of a rural advisory and development service, based on the lessons learned from various pilot schemes; and establishing a legal framework to promote the development of veterinary clinics, a regulatory framework for surveillance of animal diseases, and a research/knowledge transfer system.

Increasing Public Investment

Cost recovery, effective tax collection, efficient allocation and utilization of resources, and strategic public investment are essential to strengthen fiscal management of agriculture and the rural economy. Public investment in agriculture is far below the desirable level for developing the potential for improved agricultural productivity and facilitating investment by the private sector. Other sources of finance for new investments are not yet capable of contributing adequately to agricultural investment. Farmers' ability to finance new investments is very limited given the current illiquidity of the agricultural sector and low savings rates. The high risks in agriculture, relative to other investments, make it a low priority for financing by the domestic private sector, including commercial banks. Similarly, foreign investors do not find it profitable to finance most agro-industrial projects, while regulations are too cumbersome and offer inadequate economic incentives to foreign direct investment.

That leaves the Government and multilateral donors (such as IBRD/IDA, IFAD and ADB) as the main sources of funds for financing agricultural projects in the public sector and EBRD and IFC in the private sector. IDA's assistance strategy for the rural sector has consisted of policy-based operations in support of structural reforms and investment lending operations in support of sectoral investments. Among IDA operations in support of structural reform in agriculture are a Privatization and Enterprise Sector Adjustment Credit for price and trade liberalization and improvement of the regulatory framework; an Agricultural Privatization and Enterprise Adjustment Credit to deepen market and price liberalization in agriculture; and a Financial Sector Adjustment Credit that included support for the liquidation of Agroprombank. IDA's investment lending operations include a Sheep Development Project supporting the privatization and export-orientation of the sheep industry and a Rural Finance Project supporting the development of a commercial rural credit system. Two other IDA investment projects for agriculture were negotiated in March 1998 and were approved by the Board in May 1998: an Agricultural Support Services Project; and an Irrigation Rehabilitation Project. Two new IDA investment projects for agriculture are also in the works: a Land Registration Project and an On-Farm Irrigation Project. As a follow-up, the Government has asked IDA to consider a Livestock and Pasture Development Project and a Rural Infrastructure Project.

IFAD co-financed the Sheep Development Project and has agreed to co-finance the Agricultural Support Services Project. ADB has approved a policy-based Program Loan and a Rural Credit Project

and is also planning to finance two Area Development Projects focusing on rural infrastructure and institutional development. In addition, IDA, ADB, IFAD, TACIS, USAID, GTZ, British Know-How Fund, the Swiss Agency for Development and Cooperation, and the Dutch and Japanese governments have been providing funds, commodity credit, training, and technical assistance for agricultural activities that have direct implications for rural growth and poverty alleviation.

While an accurate estimate of total public investment requirements for the rural sector is difficult to make, it is clear that the funding requirements to finance even the priority public sector investments are large: rural infrastructure, including the irrigation network; agricultural research, training, and education; institutional development, including the legal and regulatory framework; agricultural support services; rural credit; and sustainable development of natural resources (land and water). The public investment program for 1998-2000 includes projects for rural infrastructure, credit, and advisory services. To reduce duplication of efforts, improve efficiency, and achieve synergy in addressing the twin development challenges of rural growth and poverty alleviation, the Government plans to more actively coordinate donor assistance, including training, technical assistance, and investment.

Promoting Institutional Development

Institutional development is a slow and difficult process, even under normal conditions. The major rural transition under way in the Kyrgyz Republic makes the process even more difficult, but it is vital for the successful transition to a market economy. Global experience indicates that public actions and investment in four areas have particularly high payoffs in the long-run: establishing necessary legal and regulatory framework for private ownership and a market economy; dismantling or transforming the institutions of the command economy; creating new institutions that serve private agriculture and market economy; and providing education, training, and technical assistance for the staff involved in formulating and implementing policies and investment projects. The Government should therefore accord institutional development the highest priority.

Significant progress has already been made on the policy front in these four areas and in defining the appropriate roles for the public and private sectors, but there has been much less progress on the ground. Kyrgyz leadership has taken bold steps to design, create, and strengthen the institutions that serve private agriculture and is ready to move on to complete the transition to a productive, profitable, and sustainable agricultural sector that is adapted to the emerging global economy. Donors have supported this process of institutional development, and their support needs to be strengthened and better coordinated to address the development challenges of rural growth and poverty alleviation.

Strengthening Information Base

A major constraint in formulating agricultural policies is the lack of statistical data, economic information, and analytical studies. A knowledge management system for the agricultural sector is critical for enabling timely actions to address strategic policy issues. Natskomstat, the National Statistical Committee, is responsible for collecting, processing, and disseminating agricultural information. Data requirements, sources of data, and need for rapid dissemination have changed drastically during the transition from a command economy to a market economy, but Natskomstat has not yet caught up. Strengthening Natskomstat to meet the challenges of a market economy will require its reorganization and the introduction of modern statistical sampling techniques, modern data processing facilities, and a knowledge management system. Training and technical assistance for staff are also needed. Donors can play an important role in supporting this process so that Natskomstat can meet the data requirements of policymakers, researchers, farmers, traders, and enterprises in the new market economy.

IMPLEMENTING RURAL DEVELOPMENT STRATEGY

Government

National and oblast governments have primary responsibility for effective and timely implementation of the proposed rural development strategy. Government initiates the policy reforms, provides budgetary support, and enforces laws and regulations. The Ministry of Agriculture and Water Resources, with support from other government agencies and regional administrations, has overall responsibility for formulating and implementing a rural development strategy, including formulation and implementation of agricultural policy and regulations, provision of agriculture information and support services, development of public infrastructure, and other public good activities such as agricultural research and development. Government should stay out of decision-making on agricultural production and marketing, which should be left to farmers, traders, and other entrepreneurs.

Nongovernmental Organizations

Nongovernmental organizations (NGOs) and other organizations of civil society and the private sector should work to see that the agreed rural development strategy is being implemented on the ground, the costs and benefits are being equitably distributed, use and management of natural resources are sustainable, all stakeholders and population groups are appropriately represented, and implementation is decentralized, with full participation by local governments and various interest groups. NGOs should also be involved in implementing selected pilot projects. Government should seek out their views and support their active involvement in implementation.

Donors

International donors can contribute to the rural development by providing financial resources and independent expert advice, thus helping to avoid missteps in the design or implementation of rural development strategy. Mistakes could be costly in terms of wasted resources and lost time and, more important, lost goodwill and support by the rural population. Donors have provided training, technical assistance, and financial resources during the transition. In future, they should continue to do so in priority areas that promote rural growth, poverty alleviation, and natural resource management.

Table 1: Agricultural and Rural Transition in the Kyrgyz Republic

Indicator	Beginning of the reform process (1990/91)	Status at present (1996/97)	Percentage change
Share of agriculture in GDP (percent)	32	47	47
Share of agriculture in employment (percent)	33	49	48
Share of family budget spent on food (percent)	30	57	90
State/collective farms (number)	518	22	-96
Private farms (number)	0	38,218	--
Share of arable land under private farms (percent)	0	39	--
Share of wheat in total sown area (percent)	15	46	207
Share of fodder crops in total sown area (percent)	50	25	-50
Share in sown area (percent)			
Large enterprises	96	44	-54
Household plots	4	13	225
Private farms	0	43	--
Crop production (000 tons)			
Grains	1,573	1,612	2
Wheat	482	1,272	164
Barley	592	151	-75
Corn	406	170	-58
Sugarbeets	2	208	104 times
Cotton	81	62	-23
Tobacco	54	26	-52
Potato	365	678	86
Vegetables	487	479	-2
Wheat yield (tons per hectare)	2.5	2.3	-8
Share of irrigated area in sown area (percent)	80	80	Unchanged
Fertilizer use (000 tons)	490	16	-91

Table continued on the next page

Indicator	Beginning of the reform process (1990/91)	Status at present (1996/97)	Percentage change
Livestock production (000 tons)			
Milk	1,185	905	-24
Eggs (millions)	714	162	-77
Meat (carcass weight)	254	180	-29
Wool	39	11	-72
Annual milk yield (kg/cow)	2,438	1,933	-21
Livestock inventory (000 heads)			
Cattle	1,214	848	-30
Cows	507	460	-9
Pigs	445	88	-80
Sheep and goats	10,483	3,715	-65
Poultry	15,207	2,122	-86
Food Industry production (000 tons)			
Meat products	114	4	-96
Bread and bakery	244	70	-71
Milk and milk products	258	9	-97
Vegetable oil	14	3	-79
Sugar	380	167	-56
Percent Share of agriculture and food industry in			
Exports	20	38	90
Imports	17	23	35

Notes:

1. In 1996, the total population was 4.6 million; (65 percent of it rural), and GNP per capita was $550.

2. Total area is 20 million hectares of which 10.78 million hectares is agricultural land. The agricultural area consists of 9.1 million ha (85 percent) pasture land and 1.4 million ha (13 percent) arable land. The arable land is further divided into plowed (83 percent), hay (12 percent), and tree crops (5 percent).

3. In 1996, key export commodities were white sugar, cotton, ethyl spirits, cattle skins and tobacco; and key import commodities were raw sugar and molasses, wheat and wheat flour, fuel (gasoline and diesel) and fertilizer.

4. The share of livestock in agriculture has declined; it was about 40 percent in 1996.

Source: Derived from The National Statistical Committee of the Kyrgyz Republic.

Table 2: Agricultural Policy Matrix: Status of Reforms and Proposed Actions

Issue	Status of Reforms	Proposed Actions
1. **Macroeconomic framework for agriculture**	**Markets, prices, and the trade regime have been liberalized, but distortions remain at the local level. Market structures are not yet developed, competitive, or integrated.**	**Remove remaining distortions in the markets, prices, trade regime, and incentive system; develop fully functioning, competitive, and integrated markets for agricultural inputs and outputs.**
A. Prices/subsidies	Agricultural producer and consumer prices have been deregulated. Notable exceptions are irrigation water, electricity, and railway tariffs.	Eliminate any interference in the functioning of markets at the local level.
	Agricultural producer and consumer subsidies have been abolished. Notable exceptions are some remote areas and some agricultural inputs.	Phase out or properly target any remaining subsidies to increase effectiveness and reduce fiscal cost.
	Social safety net in the rural areas is inadequate and not very effective.	Improve targeting and delivery of social services to the rural poor, particularly in remote areas.
	Irrigation water and electricity for agricultural use remain subsidized.	Increase irrigation water charges to increase cost recovery of or transfer operations and maintenance responsibility to users.
	Prices for most agricultural outputs are below world prices, and prices for most agricultural inputs are at or above world prices.	Increase electricity tariffs to improve cost recovery and reduce economic losses.
	Input and output markets remain very weak due to poorly developed infrastructure, institutions and information.	Establish competitive input and output markets, with a primary focus on infrastructure, institutions and information.
B. Trade policies	Trade regime is generally liberalized but there are still many nontariff barriers to trade.	Eliminate inappropriate nontariff barriers to trade.
	Accession to WTO in progress.	Complete the accession to the WTO.
	Member of Customs Union (Russia, Belarus, Kazakhstan, and the Kyrgyz Republic), but the union does not seem to be working.	Make the Custom Union work to promote free trade among members.

Table continued on the next page

Issue	Status of Reforms	Proposed Actions
C. Taxation	Effective January 1, 1997, several agricultural taxes have been consolidated into one land tax.	Re-assess and revise the land tax rate annually to improve tax revenue and intersectoral equity.
	Tax burden (particularly in the agro-industrial sector) is very high, but collection rates are generally low.	Rationalize tax rates to improve tax revenue, incentives, and equity; improve tax collection.
2. Land reform and farm restructuring	**Significant progress has been made in land privatization and farm restructuring, but the process is not yet complete.**	**Complete the legal framework of land laws needed to develop fully functioning land markets and accelerate farm restructuring.**
	Legal framework has been put in place to establish family farms or restructure large farms with 99-year land use right. Several pieces of land legislations are now in progress.	Enact a Land Code, Land Mortgage Law, and Law on Land Registration in accordance with market principles; renew efforts to amend the Constitution to permit private ownership of land.
	A land registration system has been piloted in two oblasts.	Establish a nationwide land registration system.
	The number of state/collective farms has been reduced from 504 to 54, and about 38,000 private farms have been established.	Clarify procedures for registering rights and transactions in land shares and prepare a standard-form contract for the sale and lease of land shares.
	Land privatization and farm restructuring have been accomplished through presidential or government decrees.	Issue "regular" land share certificates to those who do not yet have them.
	Some 25% of arable land is placed in a Land Redistribution Fund, and half of the remaining 75% of arable land was distributed.	Design an overall framework for auctioning land in the Land Redistribution Fund to ensure efficiency, equity, and transparency.
	Pasture land, irrigation infrastructure land and forest land remain state property.	Examine the issue of use rights for common property such as pasture land, irrigation infrastructure land and forest land.
	While the public is being informed about the ongoing land and agrarian reform program, more needs to be done to educate the public.	Strengthen public education campaign to emphasize individual rights granted by the land and agrarian reform program.

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Issue	Status of Reforms	Proposed Actions
3. Competitive agroprocessing and services for agriculture	**Substantial progress has been made in privatizing agro-processing and input supply enterprises (over 65 percent of those subject to privatization), but the process has not yet been completed and the privatized enterprises are not very efficient.**	**Complete the privatization of agro-processing and input supply enterprises and close inefficient state-owned enterprises that cannot be privatized and made profitable.**
	Most of the small and medium-scale state-owned agro-processing enterprises have been privatized.	Complete the privatization of all the remaining state-owned agro-processing enterprises.
	The large agro-industrial enterprises are being privatized case-by-case, but the process is slow.	Simplify registration procedures and reduce the number of licenses and permissions required to establish agro-industrial joint ventures.
	The newly privatized enterprises are hampered by obsolete equipment, and technology, lack of credit, poor management skills, and poor understanding of competitive markets.	Provide increased access to commercial credit by increasing Kyrgyz Agricultural Finance Corporation's lending capacity; establish more credit unions; and provide management training for enterprise managers.
	Product quality is very poor, and product quality grades and safety standards (which are not being enforced) are not comparable to international grades and standards.	Improve product quality and packaging through technological improvements, establish product quality grades and safety standards that are comparable to international grades and standards.
	Lack of critical agricultural inputs is a key constraint to increase agricultural productivity.	Establish a competitive agricultural input marketing system through the development of private input dealers.
	Foreign direct investment in the agro-industry remains very low.	Improve the regulatory environment and economic incentives to promote foreign direct investment in agro-industry.
4. Rural finance	**Initial steps to establish a commercial rural credit system have been taken, but lack of credit remains a serious constraint to rural development.**	**Accelerate the development of viable financial institutions serving the rural and agricultural sectors.**

Table continued on the next page

Issue	Status of Reforms	Proposed Actions
	Agroprombank has been liquidated.	Accelerate the implementation of the Rural Finance Project (World Bank) and the Rural Credit Project (ADB).
	Kyrgyz Agricultural Finance Corporation (KAFC) -- an independent nonbanking, commercial public financial institution -- has been established.	Phase out budgetary transfers for agricultural credit in 1999.
	Interest rates have been increased to positive levels in 1997.	Set interest rates charged on agricultural credit through budgetary transfers no lower than those charged by the KAFC.
	Outstanding agricultural debts are being recovered.	Resolve outstanding agricultural debt by June 2000.
	There are very few commercial banks, and none is interested in lending to agriculture.	Support the establishment of dealer credit and trade finance and expand the lending operations of KAFC to provide credit to meet the working capital and capital investment needs of agriculture and agro-industry.
5. Institutional framework	**The institutions of the command economy are gradually being replaced by institutions that serve private agriculture. However, the process is very slow.**	**Accelerate the development of efficient and effective institutions to serve commercial private agriculture and rural sector needs.**
	The Ministry of Agriculture and Water Resources is being reorganized.	Complete the reorganization of the Ministry of Agriculture and Water Resources to serve as the main agency implementing agricultural policy.
	Agricultural research, extension, and education systems have not yet been adjusted to emerging market conditions.	Strengthen agricultural research, extension, and education systems to serve the needs of private agriculture.
	Information system required for market-based private agriculture is not yet in place.	Establish market and technical information systems to collect, process and disseminate information to emerging private farmers.
	The institutional capacity to undertake agricultural policy analysis is very limited.	Strengthen institutional capacity in designing and implementing agricultural and rural development programs, including agricultural policy analysis.

CHAPTER I

RURAL DEVELOPMENT CHALLENGES

Agriculture is the lead sector of the Kyrgyz economy, and some 65 percent of the population lives in rural areas. Productive agriculture and a vibrant rural economy are critical for raising incomes, increasing employment, reducing poverty, and promoting participatory economic growth. Agriculture's contribution to GDP has increased during the transition, from 32 percent in 1990 to 47 percent in 1996 (Figure 1.1; it is projected to decline marginally to 44 percent in 1998, mainly because of the opening of Kumtor gold mine in January 1997). Agriculture accounted for 49 percent of employment in 1996, mostly in rural areas (Figure 1.2). Agriculture's share in exports was 38 percent in 1996 (Figure 1.3). Agriculture also plays a vital role in national food security. With declining real per capita incomes and escalating prices during the transition, the share of income spent on food has gone up dramatically, almost doubling from 30 percent in 1990 to 57 percent in 1996.

AGRICULTURE'S SLOW GROWTH

Agricultural GDP experienced negative annual growth for the five years from 1991 to 1995, but started to recover in 1996 (Figure 1.4). At least three factors contributed to over 10 percent growth rates of 1996 and 1997. One was simply the severe decline in production during 1991-95 so that the bounce back was relatively large. Another was a major shift in sown area from low-value fodder and grain crops to high- value grain (wheat, for example) and nongrain crops. The third was favorable weather. While the annual growth potential is 6-7 percent, actual long-term growth is likely to be 4-5 percent or lower until critical constraints facing agriculture are removed. According to 1998 Country Assistance Strategy (CAS), long-term GDP growth is expected to be about 4 percent per annum.

While the potential to increase agricultural efficiency and growth in the rural economy is large, and the decline in agriculture appears to have bottomed out, the sector continues to face serious constraints to increased productivity and profitability. Thus despite significant progress in economic reforms, major problems remain that have slowed down the transition to an efficient private agriculture based on market principles. These problems include highly diverse and less favorable agro-ecological conditions; low rainfall and irrigation-dependent agriculture (over 80 percent of arable land is irrigated); water-logging, salinity, nutrient-deficiency, and erosion problems of soils; overgrazing and poor management of pasture land (some 45 percent of total land area); lack of an efficient transport network and adequate number of all-weather roads; long distances from world markets for inputs and outputs (the country is land-locked); and the legacy of the centralized planning, resource allocation, input distribution, and state procurement of agricultural output.

The challenge facing policymakers is whether real agricultural GDP can be made to grow at 6-7 percent annually over the long-term and whether they can provide the right economic incentives to the private sector to achieve and sustain this growth. Accelerating agricultural growth is the first and the most important development challenge facing the policymakers in the Kyrgyz Republic.

Figure 1.1: Contribution of Agriculture to GDP, 1990-97

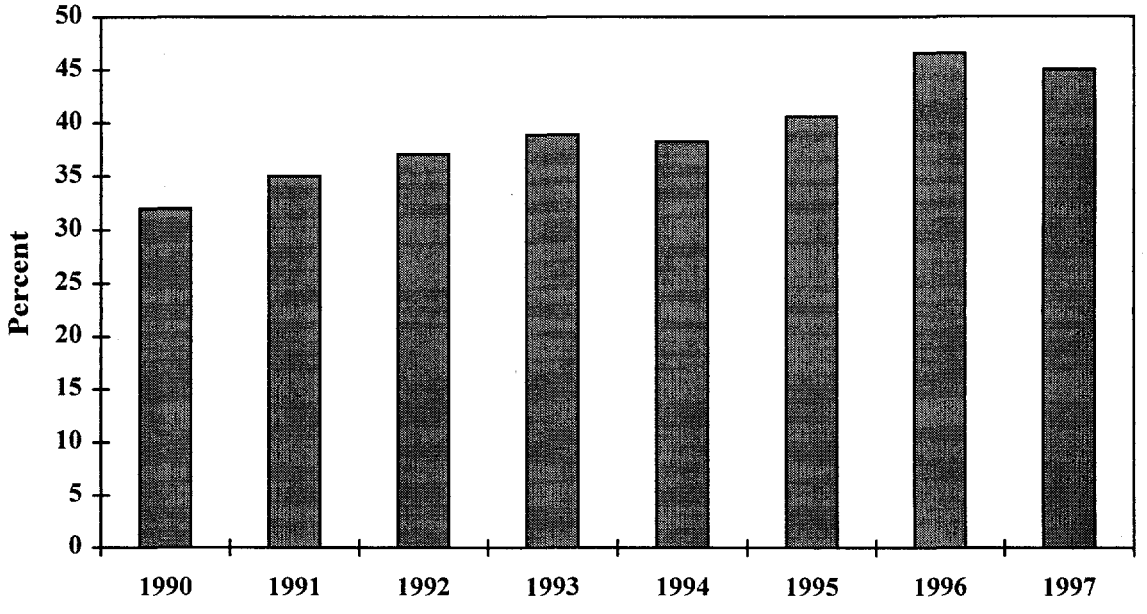
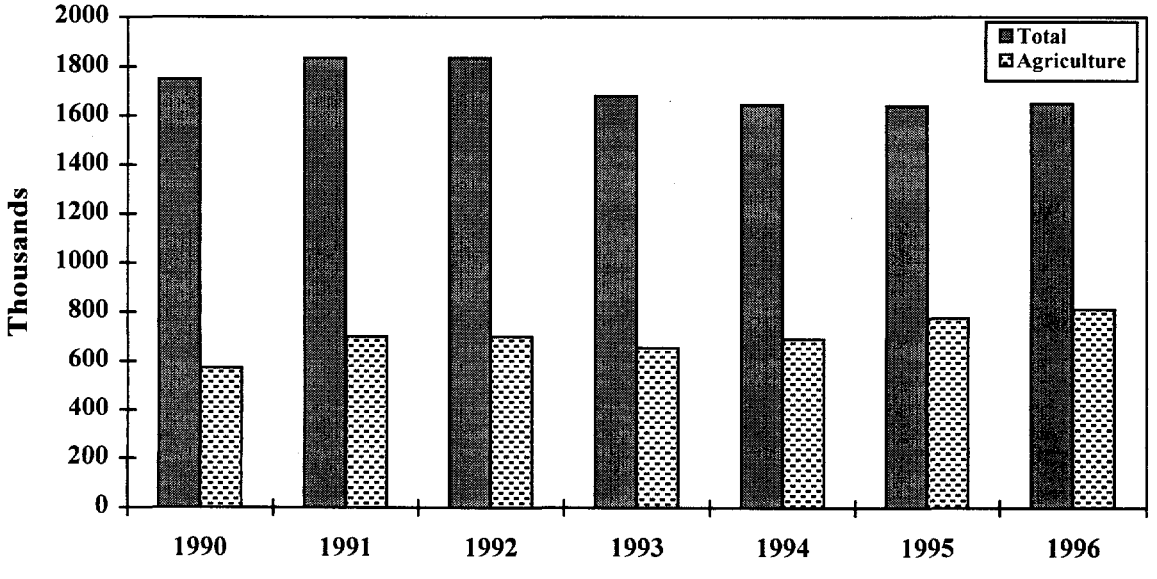


Figure 1.2: Contribution of Agriculture to Total Employment, 1990-96



Source: Natskomstat.

Figure 1.3: Contribution of Agriculture to Exports, 1993-97

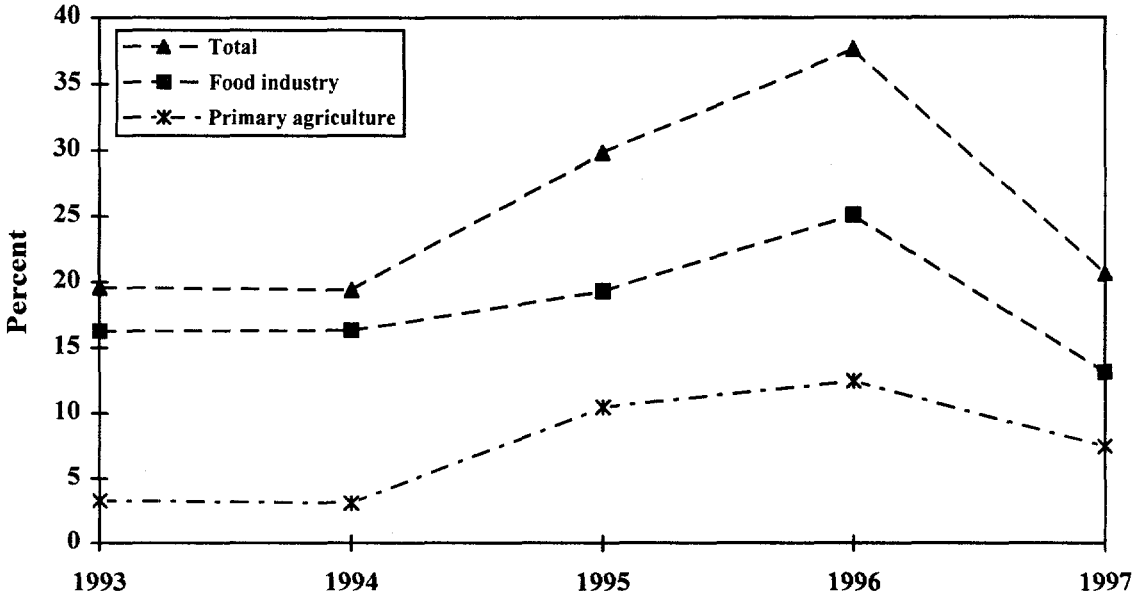
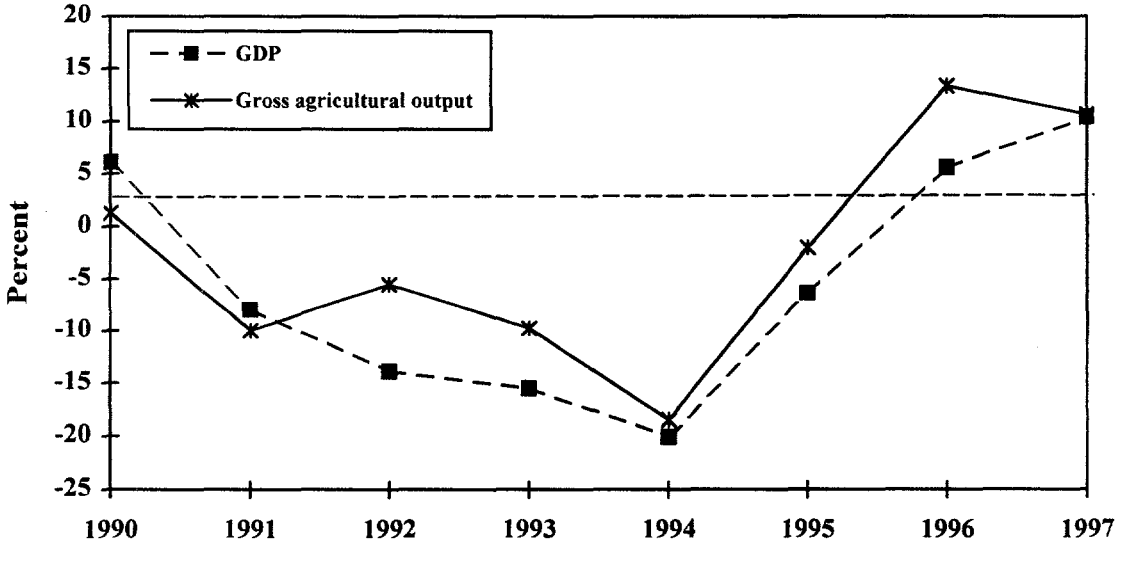


Figure 1.4: Agricultural Growth and Economic Recovery, 1990-97



Source: Natskomstat.

INCREASE IN RURAL POVERTY

Although estimates of the magnitude of poverty may vary, the results of several poverty assessment surveys conducted by Natskomstat, with World Bank support, clearly indicate that overall poverty has increased during the transition (Table 1.1)[1]. The general economic decline, a breakdown of trade, adverse terms of trade, loss of fiscal transfers, increases in unemployment, reduction in the social safety net, and widening income disparities all played a part. The surveys also found that poverty is more severe in the rural areas and in the southern oblasts (Osh and Jalal-Abad) than in the northern oblasts (Chui). The results also show that there has been an increase in the incidence of malnutrition, particularly among children, and that the rural population is experiencing relatively more problems in receiving pensions and other social benefits, partly due to the inadequacy of banking services in rural areas. Clearly, poverty alleviation is one of the most important development challenge facing the nation. Since poverty is more severe in rural areas, where agriculture is the main source of livelihood, and agriculture accounts for about half of GDP, the core of any poverty reduction strategy must be an increase in rural employment and rural growth, with agriculture leading the way. Of course, this must be supplemented by targeted interventions to provide assistance to the needy and to strengthen the rural social safety net.

Table 1.1: Magnitude of Poverty in the Kyrgyz Republic, 1993-96

Region/sector	Percent population (1995)	Incidence of poverty (percent)[a]	
		Fall 1993	Spring 1996
Kyrgyz Republic	100	40	49
Urban	35	29	39
Rural	65	48	58
Naryn	6	54	38
Talas	5	40	54
Issyk-Kul	9	45	53
Chui	17	34	37
Jalal-Abad	18	51	65
Osh	32	47	66
Bishkek	13	20	27

a Results of fall 1993 survey are not quite comparable with those of the spring 1996 survey due to seasonal differences, particularly the impact of fall harvest on household's food expenditure.

Note: Poverty is measured as the number of households below the pre-determined poverty line. (the head-count measure).

Source: Poverty Assessment Surveys, Natskomstat and the World Bank.

[1] The four poverty assessment surveys were conducted in October 1993, March/April 1996, November/December 1996, and November/December 1997. Poverty is defined in relation to a poverty line, which is determined by the cost of subsistence food basket.

The Government has assigned high priority to reducing poverty. It declared 1998 as "the year of rural development and fighting poverty" and has launched the National Program on Poverty Alleviation, "Araket." The program is designed to increase employment, improve access to basic social services, improve the targeting of social assistance, and ensure the timely payment of pensions. The program recognizes that poverty is more acute in the rural areas and that development of an efficient agricultural sector is fundamental to alleviate rural poverty.

UNFINISHED POLICY AGENDA

The Kyrgyz Republic has introduced unprecedented economic reforms to transform centrally planned economy to a market economy, and these reforms have started to pay off. The economy is becoming more stable, inflation has fallen, and recovery has begun. People have become more entrepreneurial and less dependent on the government. There are also signs that major adjustments in response to the agricultural reform program are under way and that agricultural production is recovering. The livestock sector, no longer sustained through large subsidies, has shrunk. Farm restructuring has led to the creation of a large number of private family farms and has had a positive impact on farmer motivation, private entrepreneurship, efficient use of resources, and reduction in budgetary subsidies. This is very positive development, even though it has led to initial problems because of inexperienced farmers and inappropriate farm size, and use of farm machinery, as well as reductions in the social safety net. Private traders are emerging for both agricultural inputs and outputs, but market structures are far from competitive.

While substantial progress has been made in land reform, deregulation of prices, liberalization of trade, privatization of agribusiness, reduction of subsidies, reform of rural finance, and a reduction in the role of government, the reforms now need to be consolidated and deepened. Six critical policy issues need to be addressed in order to improve incentives, efficiency, productivity, profitability, and the sustainability of the agricultural sector: deepening land reform and farm restructuring, reforming the agricultural marketing system, developing the commercial credit system, strengthening fiscal management of agriculture, revitalizing irrigation and rural infrastructure, and revamping inputs, technology, and support services.

RATIONALE AND OBJECTIVES

This *Agricultural Policy Review* defines a strategic development agenda for broadening and deepening agricultural policy reform and outlines a development strategy for rural growth and poverty alleviation. Its objectives and scope are consistent with the FY 1996-98 Country Assistance Strategy (CAS) that is under implementation and the just completed FY 1999-2001 CAS. This *Agricultural Policy Review* is a follow-up to the *Agricultural Sector Review* completed in 1995 and reflects the major policy reform in the sector and the transition to a market economy.

This Agricultural Policy Review is also related to the World Bank-supported agricultural and rural development projects. The Agricultural Privatization and Enterprise Adjustment Credit (APEAC), which has been fully disbursed, addressed issues related to land reform and privatization of agri-industrial enterprises. The Sheep Development Project (SDP) and the Rural Finance Project (RFP) are under implementation. The Agricultural Support Services Project (ASSP) and Irrigation Rehabilitation Project (IRP) were approved by the Board on May 7, 1998. Two investment projects -- On-Farm Irrigation Project and Land Registration Project -- are at different stages of preparation. The *Review* complements these projects and provides an analytical basis and rationale for the Bank's future agricultural portfolio and policy dialogue with the Government.

Cooperation With Donors

The *Review* has benefited from the work of TACIS of the European Union, the Asian Development Bank (ADB), and bilateral donors, particularly USAID, GTZ (Germany), the British Know-How Fund, the Swiss, and the Japanese. This *Review* has also synthesized the findings, and recommendations of the previous studies, wherever appropriate.

Sources of Data

Analysis in this *Review* is based on two sources of data. Most of the published or unpublished data on agriculture were obtained from Natskomstat. These data have problems of consistency, completeness, and relevance to the market economy. Where possible efforts were made to verify the data with the original sources. These data were supplemented by a farm-level survey of 30 farm managers (large farm enterprises), 60 private farmers, and 90 household plot owners carried out in all the oblasts in July 1997 in collaboration with experts from the Kyrgyz Agrarian Academy in Bishkek.

Strategy Policy Objectives

The *Agricultural Policy Review* is designed to address three strategic policy objectives related to agricultural and rural development:

- ***Promote agricultural growth.*** Efficient and profitable agriculture is necessary to promote long-term, sustainable economic growth and reduce poverty in the Kyrgyz Republic, where agriculture is the lead sector in terms of contributions to GDP, employment, exports, and national food security.

- ***Reduce rural poverty.*** Rural poverty alleviation must be at the core of any strategy to reduce poverty. About 75 percent of the population (excluding Bishkek) is rural, and almost two-thirds of the rural population is below the poverty line. Participatory and equitable rural growth is essential to alleviate rural poverty.

- ***Improve natural resource management.*** There are serious problems in the management of land and water, nation's two important natural resources on which long-term agricultural development and rural development depend. Policies are needed that will provide incentives to reduce degradation, erosion, and mining of soil, and to improve the use efficiency and conservation of water resources.

Plan of the Report

The *Agricultural Policy Review* report is divided into three parts. The first part (Chapter 2) examines the status of agricultural reforms, impact on sectoral performance, progress in rural transition, and the need to accelerate the reform process. The second part (Chapters 3 through 8) analyze the impact, summarize the progress, and make specific recommendations related to six critical policy areas. The third part (Chapter 9) briefly outlines a strategy for rural growth and poverty alleviation.

CHAPTER II

AGRICULTURAL REFORM AND SECTORAL PERFORMANCE

MACROECONOMIC REFORM

The Kyrgyz Republic has made substantial progress in vigorously pursuing reforms to achieve macroeconomic stability (see Table A.2.1).

- For the first time since 1990, real GDP grew at 5.6 percent in 1996 and 10.4 percent in 1997. Gold production at the Kumtor gold mine added about 4 percent to GDP growth in 1997.
- Annual inflation has been reduced from 1210 percent in 1993 to 35 percent in 1996 and 14.7 percent in 1997.
- Budget deficit has been reduced to 9.4 percent of GDP in 1997. However, it was still high — almost 3 times the IMF target of 3 percent for 1997.
- The current account deficit remains high but is declining. The current account deficit was estimated at 8.1 percent during 1997, below the IMF target of 9 percent.
- The foreign exchange regime has been fully liberalized, and a floating exchange rate and foreign exchange auction market have been put in place.

These are remarkable macroeconomic achievements, considering the magnitude of the transformations from a planned to a market economy. Now the government needs to intensify its efforts to consolidate these achievements and create conditions that are conducive to accelerated economic growth, poverty reduction and integration with the global economy. While agriculture is the lead sector of the economy, it will not be able to lead in the absence of a liberalized and stable economy.

STATUS OF AGRICULTURAL POLICY REFORMS

The Kyrgyz Republic is among the leaders in agricultural sector reform in Central Asia. Its agricultural policy reforms fall into six broad categories: land and farm restructuring; price, trade, and market liberalization; privatization and enterprise restructuring; reform of the rural credit system; strengthening of fiscal management; and institutional development. However, while many of the appropriate laws are in place, implementation on the ground has been slow.

Land and Farm Restructuring

Before reform, all land was owned by the state and cultivated by about 500 state and collective farms. The Government has now put in place a legal framework to establish private family farms or restructured large farms with 99-year land use right. Land certificates (mostly temporary) have been issued to individual households, and a pilot program is evaluating a system for registering private land titles. A land-leasing market is in the process of being established. A Land Code is awaiting Parliamentary consideration, and other land legislation is pending. The private farming sector is growing,

and the number of state and collective farms is dwindling rapidly. The bulk of livestock production is now in the private sector.

Price, Trade, and Market Liberalization

In the centralized system, agricultural prices, trade, and marketing were controlled by the government. Input and output prices have now been deregulated, and major adjustments in the context of Central Asia and the global economy are under way. Foreign trade has been substantially liberalized, and the Kyrgyz Republic is in the process of joining the World Trade Organization (WTO). While the system of state procurement orders has been officially abolished, markets are far from being fully developed and competitive, with considerable administrative interference at the local level.

Privatization and Enterprise Restructuring

A large number of state-owned enterprises in the agro-industrial complex have been privatized, including the bread complex (Kyrgyz Dan Azyk) and agro-processing complex (Kyrgyz Tamak Ash). Over 20 of the remaining large state-owned agro-industrial enterprises that have been selected for case-by-case privatization method are in the process of being privatized. Privatization has created a large number of private entrepreneurs and has reduced Government's obligations to loss-making enterprises. It will take some time, however, before the privatized enterprises are restructured and made more efficient. In some cases, such as fertilizer and farm machinery, public monopolies have become defacto private monopolies. Clearly, the development of a competitive marketing system is very slow and there are serious impediments to entry.

Rural Credit System

The Government has introduced reforms to gradually replace the old rural credit system of directed and subsidized credit, with frequent write-offs, with a new commercial credit system. Agroprombank has been liquidated, old debts (both Agroprombank and budgetary) are being recovered, commodity credits are being phased out, and interest rates have been increased. Kyrgyz Agricultural Finance Corporation (KAFC) — an independent nonbanking, public financial institution — has been established as part of the World Bank-supported Rural Finance Project, and credit unions are being established as part of the Asian Development Bank-supported Rural Credit Project. However, credit to finance working capital and investments remains a critical constraint, and the commercial credit system is at a very early stage of development.

Fiscal Management

The old centralized economic system was based on highly distorted accounting prices, large direct and indirect subsidies, very little cost recovery and investment decisions unrelated to economic and financial viability criteria. Today, the direct subsidies have been virtually eliminated, but indirect subsidies through input prices (particularly electricity and irrigation water) remain high. While overall cost recovery has increased, there is substantial scope for further improvement. The scope for raising tax revenue from agriculture is considerable, but realizing it will have to wait until agriculture is more profitable. The Government has institutionalized the preparation of public investment program, but public investment, even for critical public good agricultural projects, has declined. And although the budget preparation process is being improved, further rationalization is needed.

Institutional Development

The institutions of the centralized, planned economy that dominated the old Soviet system are gradually being dismantled, privatized, or transformed into institutions that serve private agriculture in a market economy. The legal and regulatory framework required for private ownership and a market economy is being put in place. The Ministry of Agriculture and Water Resources is gradually shifting from owner operator to regulator, and service agency, and policymaker. Staff are being trained in the skills required for a market economy.

SECTORAL PRODUCTION PERFORMANCE

Crops

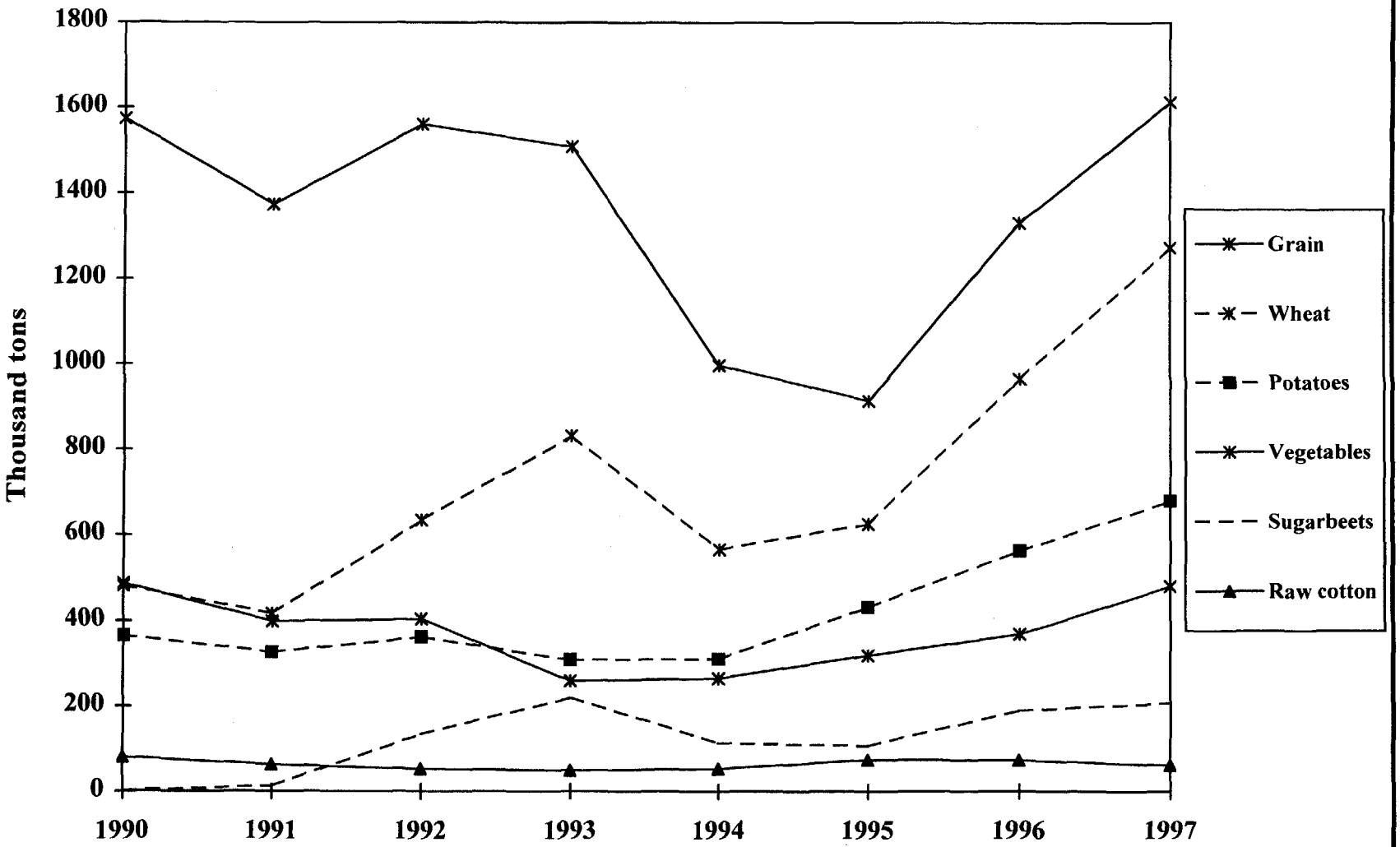
Recovery, though fragile, has begun in crop production, led by wheat, potatoes, and sugarbeets. Average yields appear to have recovered for most crops, with increases in 1997 over 1995. Sugarbeets are recovering from a disease that devastated the crop in the 1980s. Good weather has also played an important role in facilitating the recovery in crop production during 1996 and 1997.

Wheat, potatoes, and sugarbeets have experienced large production increases since 1990, indicating improvements in demand and profitability. The main source of growth for these crops has been an expansion in sown area. Production has declined for all other crops (see Figure 2.1 and Table 2.1). Overall, crop yields have declined and remain very low due to decline in the use of critical agricultural inputs, particularly fertilizer (due to unfavorable price ratios and lack of availability of these inputs). Production bottomed out in 1993 for cotton, potatoes, and vegetables; in 1994 for wheat; and in 1995 for total grain, barley, corn, and sugarbeets. Although the area sown to vegetables and cotton has increased, the increase was not adequate to compensate for the decline in production caused by falling yields. Production of fodder crops continues to decline due to low demand (livestock inventories have dropped significantly) and switching to more profitable crops, such as wheat.

Production of wheat has experienced the most spectacular growth, at 164 percent from 1990 to 1997. The growth is due entirely to an increase in sown area (185 percent increase), since average wheat yields have declined 8 percent during this period (Figure 2.2). Area under winter wheat has almost doubled from 183,000 hectares in 1990 to 360,000 hectares in 1997, while the area under spring wheat has increased almost 18-fold, from 11,000 hectares in 1990 to 193,000 hectares in 1997. This increase in wheat area was due to a shift from barley, corn, and fodder crops. Overall, area sown under wheat has increased from 15 percent of total sown area in 1990 to 38 percent in 1996 and 46 percent in 1997.

This strategy of expanding the area sown to wheat may have been justified during the critical years of rural transition since wheat is a staple food, easy to store for longer periods, and was relatively more profitable than the crops it displaced. Wheat also continues to serve as a medium of exchange in a substantially demonetized barter-economy, particularly in remote rural areas. However, with a limited land base, the Kyrgyz Republic cannot afford to allocate almost half of its total sown area under a crop in which it is not highly competitive internally (as compared to other crops such as potatoes, vegetables, sugarbeets, oil seeds, and cotton) or externally (in regional or global markets). Food security should be emphasized over food self-sufficiency.

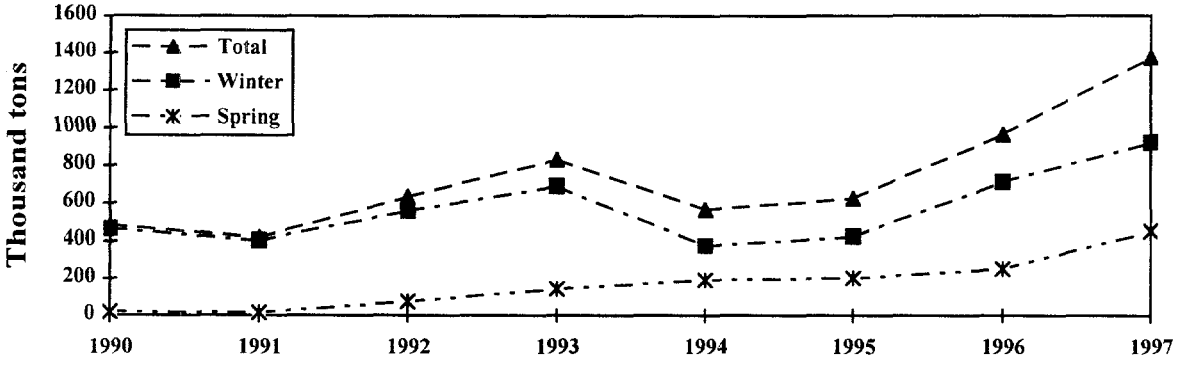
Figure 2.1: Trends in Crop Production, 1990-97



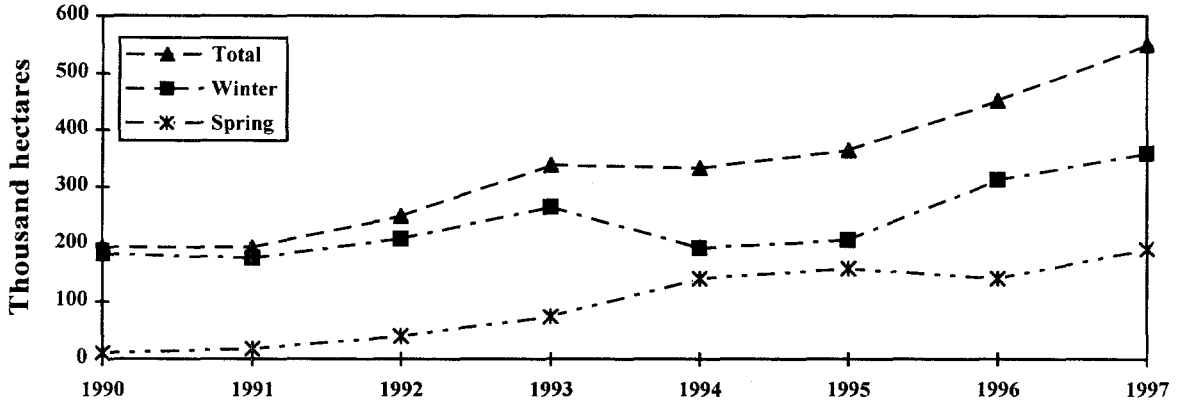
Source: Natskomstat.

Figure 2.2: Wheat Production and Sources of its Growth, 1990-97

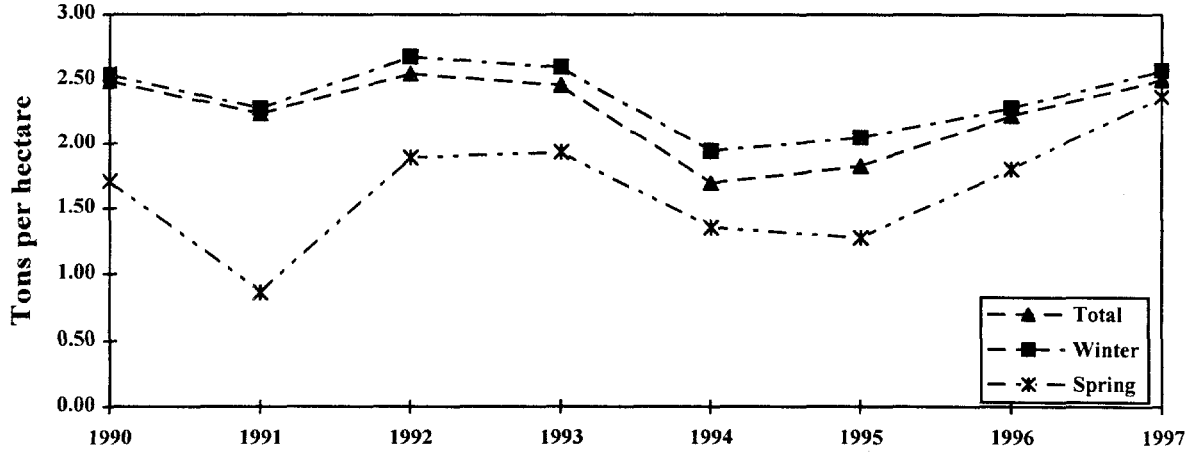
a. Production



b. Sown area



c. Yields



Source: Natskomstat.

Table 2.1: Trends in Crop Production, Sown Area, and Average Yields, 1990 to 1995 and 1995 to 1997 (percentage change)

Crop	1990 to 1995			1995 to 1997		
	Production	Sown area	Average yield	Production	Sown area	Average yield
Wheat	30	88	-27	104	52	26
Barley	-73	-43	-41	-5	-44	38
Corn	-71	-47	-39	47	8	21
Potatoes	18	74	-26	57	28	22
Vegetables	-35	56	-47	50	13	28
Sugarbeets	a	b	-27	93	n.a.	45
Cotton	-8	12	-18	-16	-25	12
Tobacco	-67	-55	-4	46	45	0
Perennial grass	n.a.	-23	n.a.	n.a.	n.a.	n.a.
Corn for silage	n.a.	-56	n.a.	n.a.	n.a.	n.a.

n.a.: Not available.

a Production increased from about 2,000 tons in 1990 to 107,000 tons in 1995.

b Area increased from 100 hectares in 1990 to 13,500 hectares in 1995.

Source: The National Statistical Committee.

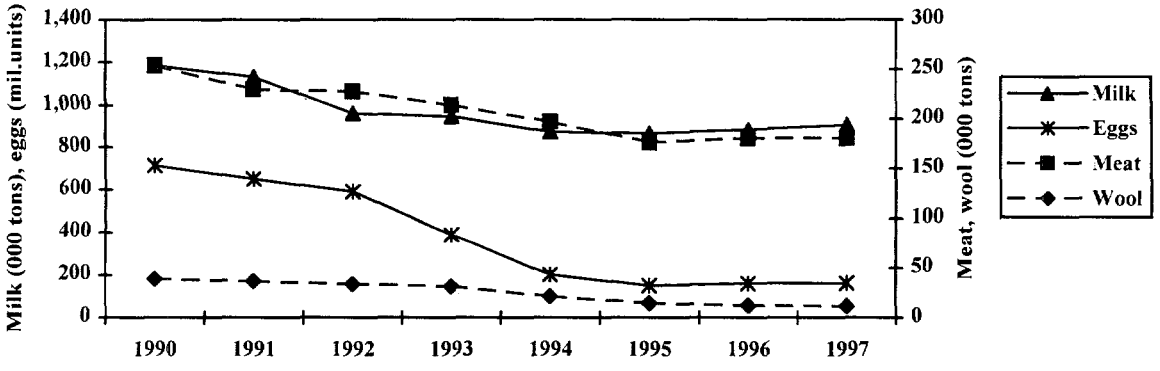
Livestock

Production declined for all livestock products from 1990 to 1997 (Table 2.2 and Figure 2.3). The decline has been particularly serious for poultry products (eggs and broilers), sheep and goats (for both meat and wool) and pigs. The decline is due to a reduction in both livestock inventories and livestock productivity. For example, the number of cows has declined 9 percent and milk production has declined 24 percent — mainly due to a decline in milk yields.

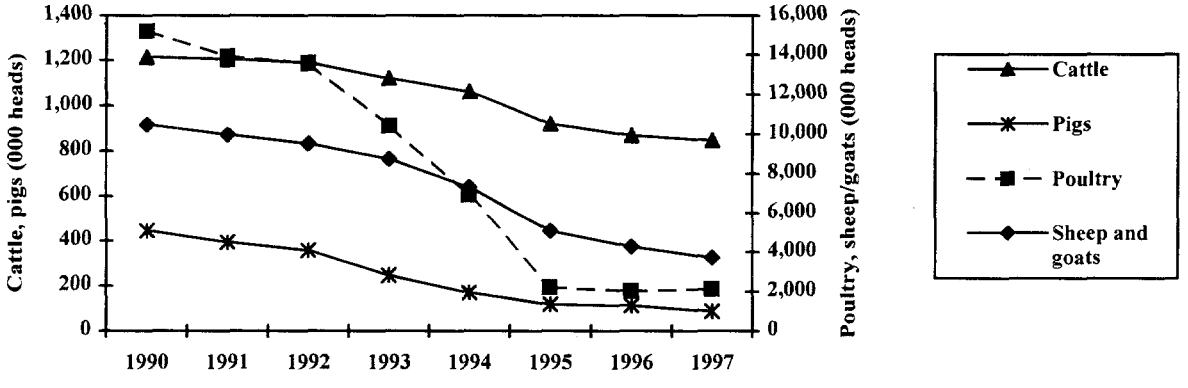
Prior to the reform, consumption of livestock products was very high in the Kyrgyz Republic, relative to per capita income levels. The high levels of consumption and production of livestock products were sustained by subsidies (meat, milk, and animal feed) and distorted prices. With the deregulation of prices and reductions in subsidies, both consumption and production have declined to levels that are consistent with the country's new economic realities. Furthermore, the profitability of livestock products has declined over time due to low output prices, low productivity, and high input prices. High input prices and inadequate availability of animal feeds (previously imported) during winter have caused drastic reductions in livestock inventories.

Figure 2.3: Changes in the Livestock Sector, 1990-97

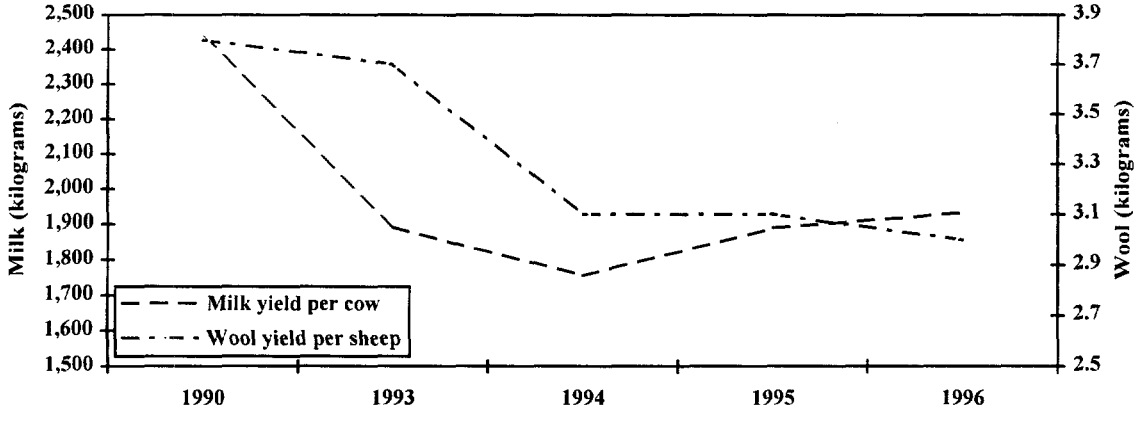
a. Production



b. Inventories



c. Productivity



Source: Natskomstat.

Table 2.2: Trends in Livestock Production, Inventory, and Average Productivity, 1990 - 97

Item	1990	1997	Percentage change 1990 to 1997
Production (thousands of ton)			
Meat	254	180	-29
Milk	1185	905	-24
Eggs (millions)	714	162	-77
Wool	39	11	-72
Inventories (thousands of head)			
Cattle	1214	848	-30
Cows	507	460	-9
Pigs	445	88	-80
Sheep and goats	10483	3715	-65
Horses	310	314	1
Poultry	15207	2122	-86
	1990	**1996**	**Percentage change 1990 to 1996**
Productivity			
Milk/cow (kilograms)	2438	1933	-21
Eggs/bird (number)	204	104	-49
Wool/head (kilograms)	3.8	3.0	-21

Source: The National Statistical Committee.

While some of the decline reflects desirable adjustments to new economic realities, the decline in livestock inventories, particularly in sheep and goats, may have gone too far. The number of sheep and goats fell from 10.5 million heads in 1990 to 3.7 million heads in 1997. Furthermore, there is evidence that breeding stock is being slaughtered in large numbers to supplement household income, which is likely to adversely affect livestock productivity and the long-term contribution of the livestock industry to agricultural GDP.

The Kyrgyz Republic has a comparative advantage in livestock production. About 45 percent of total land area is pasture land that is particularly suitable for grazing sheep and goats. Thus while Government should not sustain any unprofitable livestock production through direct or indirect subsidies, there is a need to improve productivity through the development and transfer of better technology for feeding, breeding, animal health, processing, and sustainable management of pasture land (common property). Such efforts will improve the competitiveness of livestock production and increase the positive contribution of livestock subsector to agricultural growth and rural poverty reduction.

Agro-industry

Agro-industry is in serious crisis (see Table 2.3 and Figure 2.4). With the exception of flour and sugar, annual production fell more than 90 percent for most processed food commodities from 1990 to 1996. Low efficiency, poor product quality, poor packaging, high unit cost, loss of market, declining demand, lack of credit, and reductions in raw material supply all contributed to the downturn. Though it is too early to predict, there are some signs that recovery may begin in 1998, at least in certain agro-industries. However, post-privatization restructuring and support are essential for promoting recovery.

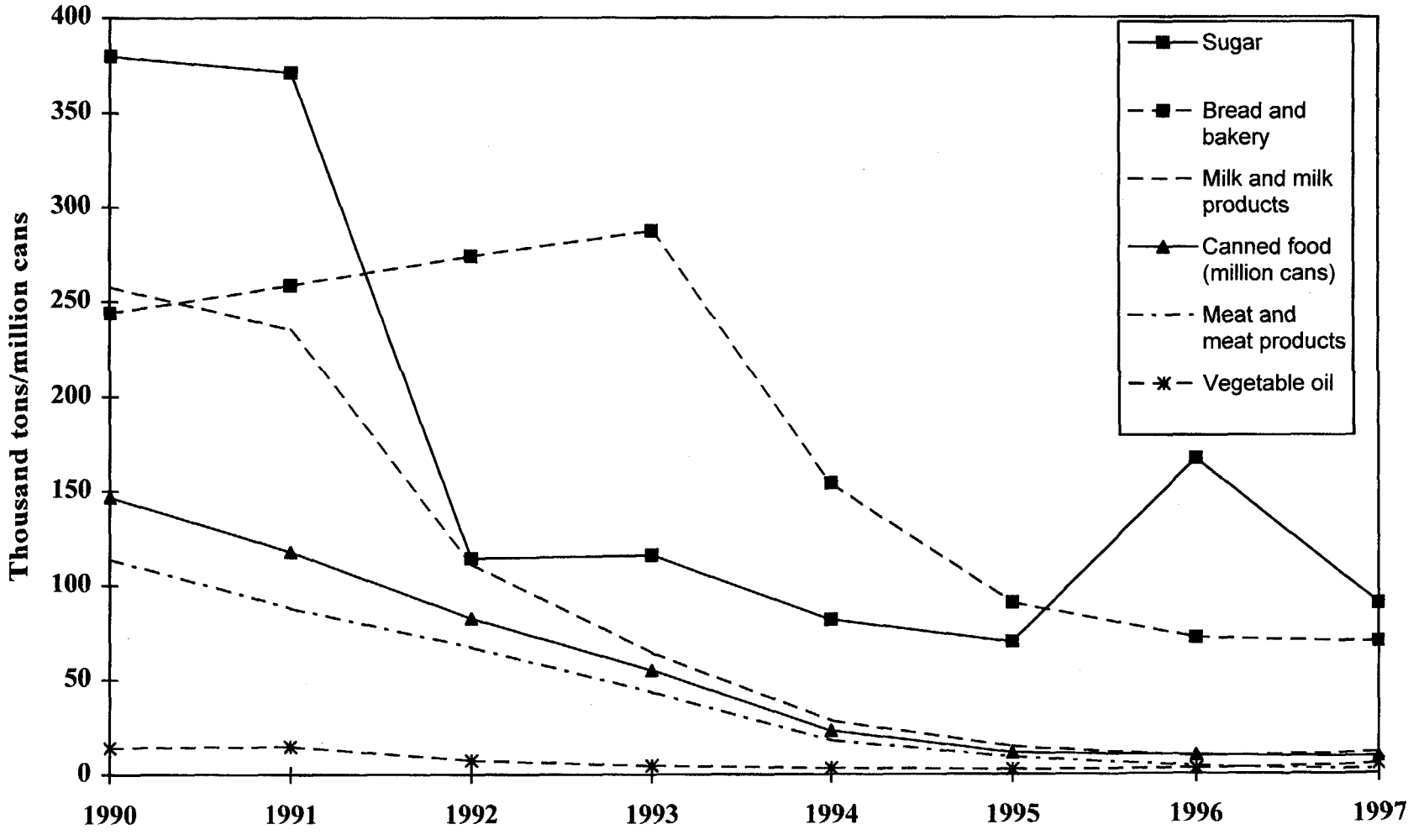
Table 2.3: Trends in Food Industry Production, 1990 and 1996

Processed food	Measuring unit	Production		Percentage change 1990 to 1996
		1990	1996	
Sugar	Thousand tons	380	167	-56
Vegetable oil	Thousand tons	14	3	-79
Margarine	Thousand tons	18	0	-100
Confectionery	Thousand tons	59	6	-90
Canned food	Million jars	147	10	-93
Bread/products	Thousand tons	244	70	-71
Flour	Thousand tons	476	256	-46
Wine	Thousand decaliters	1512	3257	-83
Meat	Thousand tons	114	4	-96
Milk/products	Thousand tons	258	9	-97
Butter	Thousand tons	13	1	-92

Source: The National Statistical Committee.

Revitalizing agro-industry is critical for modernizing the agricultural sector, creating rural employment, and alleviating rural poverty. Consequently, the problems facing agro-industry need to be addressed with urgency. Unnecessary regulations need to be eliminated. Public-private partnerships need to be encouraged, as does participation by foreign joint ventures (foreign direct investment), which will bring access to capital, technology, management, and export markets. Enterprises that have been privatized must be restructured further to make them competitive, and the remaining state-owned enterprises need to be privatized if they are viable and closed if they are not.

Figure 2.4: Trends in Food Industry Production, 1990-97



Source: Natskomstat.

Agricultural Exports

The volume of agricultural exports (both primary agriculture and agro-industry) increased from 1993 to 1997. The Kyrgyz Republic went from being a net importer of primary agricultural products in 1993 to being a net exporter in 1997, and from being a net exporter of processed agricultural products to being a net importer. The decline in exports of processed agricultural products resulted from a decline in demand following the break-up of established trade relations with other countries of the former Soviet Union and from a decline in the supply of quality products at competitive prices due to high unit costs, obsolete technology, and a shortage of raw materials.

Increasing exports of agricultural commodities is an important component of the rural development strategy. However, exporters report experiencing such problems as high domestic and international transport costs, high tolls, extortion, and local government control over free passage of goods. These issues need to be addressed promptly to promote exports of food and agricultural commodities. Promoting foreign demand for Kyrgyz products is crucial to alleviate demand constraint.

Profitability of the Agricultural Sector

There have been several attempts to estimate the profitability of agricultural products in the Kyrgyz Republic, but with unreliable results because of over-simplified assumptions about input and output prices, marketing channels, marketed surplus, yields, costs of labor and machinery services, and others[2]. For instance, one output price might be used across all farm types and regions. And several important items, especially overhead costs and taxes, are generally excluded from the analyses.

Low and variable profitability. Input and output prices, marketing patterns, yields and costs across farm types and regions have in fact been shown to have a high variability. A farm survey undertaken in July 1997 as a part of this review found that marketing channels and prices vary by region and that farms of different types do not have equal access to marketing channels and so command highly unequal prices for their output. This variability, caused by segmentation and demonetization of the Kyrgyz rural economy, leads to high variability in crop and livestock profitability across farm types and regions. Input use is also highly variable, depending on access to input marketing channels and proximity to sources of inputs. As a result, yields and productivity vary considerably.

The survey uncovered problems with cost accounting as well. Some costs are neither recorded nor acknowledged by farmers. For example, the true depreciation for machinery and equipment is unknown since the bulk of farm machinery was purchased during the Soviet period at artificially low prices. Farms that have managed to retain or acquire machinery (large-farm successors of the state and collective farms, and a small number of private farms) view it as almost a free good and account only for operating costs. Farms that do not own machinery (most private farms and household plots), by contrast, incur high costs for machinery services. Overhead costs are also severely underestimated in crop

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[2] Profit equals revenues minus costs. Revenue consists of cash and noncash (barter) receipts. Cash revenues equal the sum of revenues received from all marketing channels. Noncash revenues should be converted into cash at prevailing terms of exchange and market prices. Total output per hectare or per head is the sum of marketed surplus, output paid in-kind for the use of inputs (labor and bartered inputs), and output retained on the farm. Costs also break down into cash and non-cash costs. Cash costs consist of input costs, overhead and taxes. Noncash costs include output paid in-kind for inputs and some overhead costs. Only after estimating all of the above variables, one can accurately assess the profitability for a specific crop or livestock.

budgets. For instance, management and maintenance costs are not apportioned among crops and livestock products.

Estimated gross and net margins were estimated for four main commodities — winter wheat, cotton, tobacco, and milk (Table A.2.2.). Taxes per hectare vary a great deal across production activities. Variations in the VAT can be explained by variations in receipts from cash sales. Thus although a 20 percent VAT was levied on all cash sales, cash sales varied considerably, from 21 percent of all winter wheat production on private farms to 84 percent of cotton production, and 91 percent of tobacco production (see Table A.4.3). Furthermore, wheat is a relatively low-value crop, with average gross revenues per hectare of 6,805 soms (according to the farm survey), while cotton and tobacco are high-value crops with average gross revenue per hectare of 11,260 and 20,059 soms. Social security contributions, which are based on labor use per hectare, excluding family labor (24.5 percent of all wages paid in-cash or in-kind), also varied greatly because of differences in the labor intensity of production. Cotton is more labor intensive than wheat; and tobacco is more labor intensive than cotton. (Estimates of social security contributions are based on the assumption that the farms pay taxes and social security contribution in full, which may or may not be correct.)

According to the survey estimates, winter wheat is only marginally profitable on average (net margin of 1 percent of recorded costs). As winter wheat has a long growing season (eight to nine months) and inflation over the growing season (October 1995 - June 1996) was 30 percent (cumulative month-over-month basis), this small positive margin becomes a loss when adjusted for inflation. In some regions (Chui and Jalal-Abad Oblasts), however, winter wheat is more profitable than the average, and private farms are relatively more profitable than large farms, though large farms continue to produce the largest share of the wheat crop. The gross margin per hectare is positive on average and in most regions. Farmers have been able to maintain a positive cash flow by not paying their taxes and social security contributions in full.

Technical crops do not exhibit high profitability either. Cotton in Osh Oblast shows an estimated net margin of 29 percent, but these margins decline substantially when adjusted for inflation (16 percent for the April - November 1996 growing season) and under-recorded costs. The estimated net margin for tobacco is -9 percent, even before adjustments. Farmers can maintain a positive cash flow only by not paying their taxes and social security obligations. The estimated net margin for milk is positive on average (20 percent), but negative for large farms (-13 percent). Net margins for private farms and household plots are not very high when inflation in 1996 is taken into account. They are probably overestimated to begin with since the use of family labor constitutes a very large share of total labor input and is normally underestimated.

Prospects for improving profitability. Agricultural reform is progressing slowly, economic incentives are inadequate, and public investment in agriculture has declined. Prospects for expanding arable land are limited. Thus future agricultural growth must come from improvements in economic efficiency, agricultural productivity, and product quality. Yet the agricultural sector in Kyrgyz Republic continues to face major constraints that prevent improvements in efficiency, productivity, and profitability. These include a limited supply of critical inputs, lack of competitive markets (for inputs and outputs), distorted input and output prices, lack of credit, and inefficient, farm organizations.

Although gradual progress is being made to remove these constraints, it will take longer to build new systems, infrastructure, institutions, and support services to promote efficient and profitable agriculture. Land reform needs to be accelerated to promote the emergence of more efficient farm organizations. A competitive marketing system needs to be established, and market distortions

(especially at the local level and inter-oblast level) need to be removed to improve economic incentives, profitability, savings, cost recovery, creditworthiness, and capacity to repay the loans. Furthermore, appropriate technology needs to be developed and disseminated; irrigation systems must be rehabilitated (with full participation by water users associations) to improve water use efficiency, and rural infrastructure needs to be rehabilitated and improved. Thus while profitability is expected to improve in 1998, it will remain low and spotty until these changes take hold.

RURAL TRANSITION AND STRUCTURAL CHANGE

Agriculture's share in GDP increased from 32 percent in 1992 to 47 percent in 1997, and its share in employment increased as well. This sectoral shift reflects a greater decline in overall GDP than in agricultural GDP and the increase in agricultural production on household plots -- particularly for fruits, vegetables, potatoes and livestock -- during the transition to meet subsistence food needs and supplement household income. The relative share of agriculture is expected to stabilize or even decline slightly during 1998 and thereafter, however (partly due to the opening of Kumtor gold mine that began production in 1997).

Shift in Consumption and Production Patterns

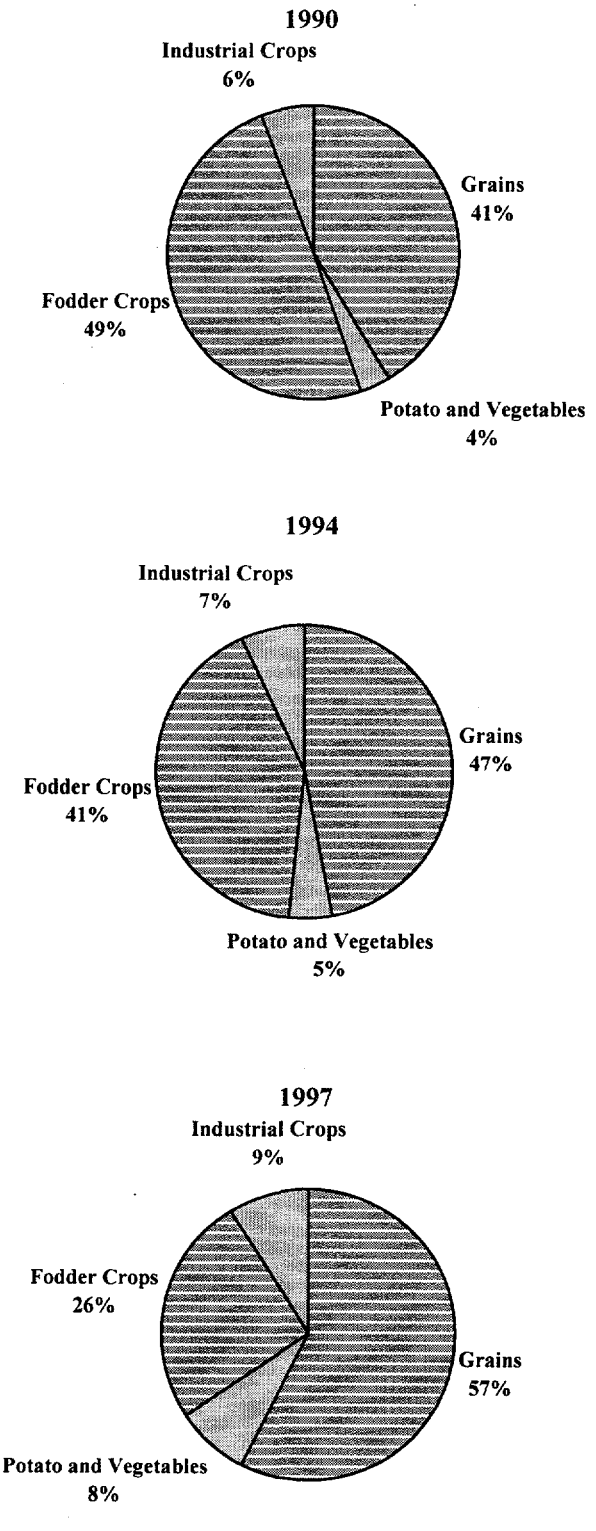
With liberalization of prices, reductions in food subsidies, and declining household income has come a change in consumption patterns and possibly a decline in food wastage (see Table A.2.3). Overall per capita food consumption declined from 1990 to 1996, and the decline was especially pronounced for eggs, sugar, and vegetable oil. Per capita food consumption rose in rural areas, especially for food commodities that are grown on the farm. The average share of the household budget spent on food rose from 30 percent in 1990 to 57 percent in 1995. These structural shifts in consumption patterns have important implications for rural growth, employment, household income (through demand linkages), demand for grain (as food and feed), and grain imports (see Table A.2.4).

Now that farmers are free to make their own production decisions (reportedly with some influence by local officials), they are responding to changed economic conditions and agricultural incentives by gradually shifting to relatively more productive and profitable crops. Thus there has been a structural shift in favor of crops over livestock production. Furthermore, there have been major shifts in cropping patterns (Figure 2.5). The area sown to fodder crops shrank from 49 percent of the total sown area in 1990 to 26 percent in 1997. There was a corresponding increase in area sown to grains (mainly wheat), potatoes, vegetables, and industrial crops (mainly sugarbeets and cotton).

Emergence of Private Farms and Markets

There has also been a major structural shift in ownership, size, and number of new farm organizations (Figure 2.6). The number of Soviet-style sate and collective farms fell from 518 in 1991 to 22 in 1997, while the number of restructured large farms went from none to 672 (with some improvements in organization, management, operations, and efficiency) and the number of private peasant farms (individual and group) went from none to about 38,000 by July 1997. The share of total output from large farms has declined, and the share of private farms and household plots has increased. The system of state orders and procurement of agricultural products has been mostly eliminated. State agencies responsible for output procurement, input distribution, and provision of credit and support services have been abolished, privatized, or are being restructured. These systems are being replaced by new systems based on private ownership and market principles, but the new institutions are not yet fully developed. Until these new institutions develop, there will be major gaps in meeting the critical needs of

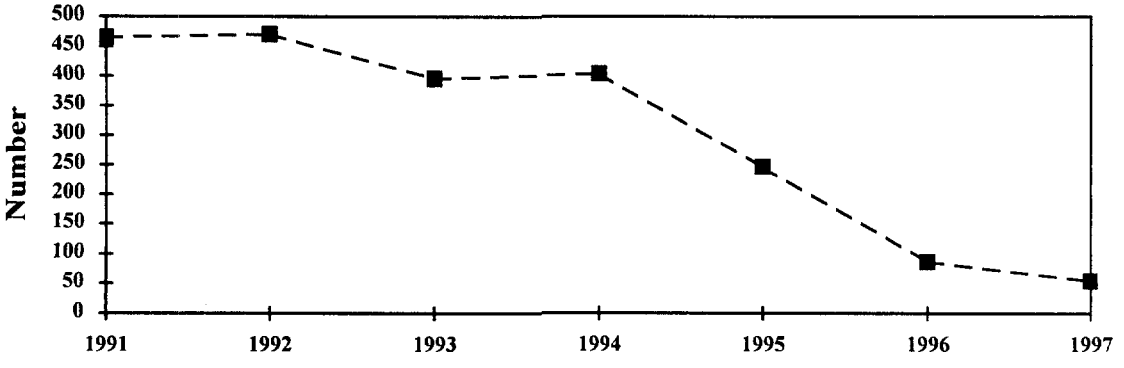
Figure 2.5: Changes in the Cropping Pattern During Transition



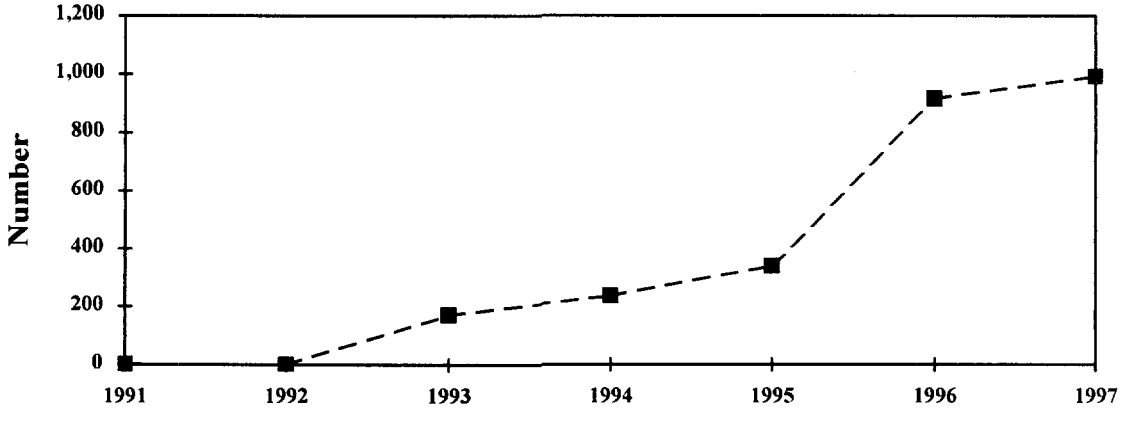
Source: Natskomstat.

Figure 2.6: Emerging Private Farms and Other Farm Organizations, 1991-97

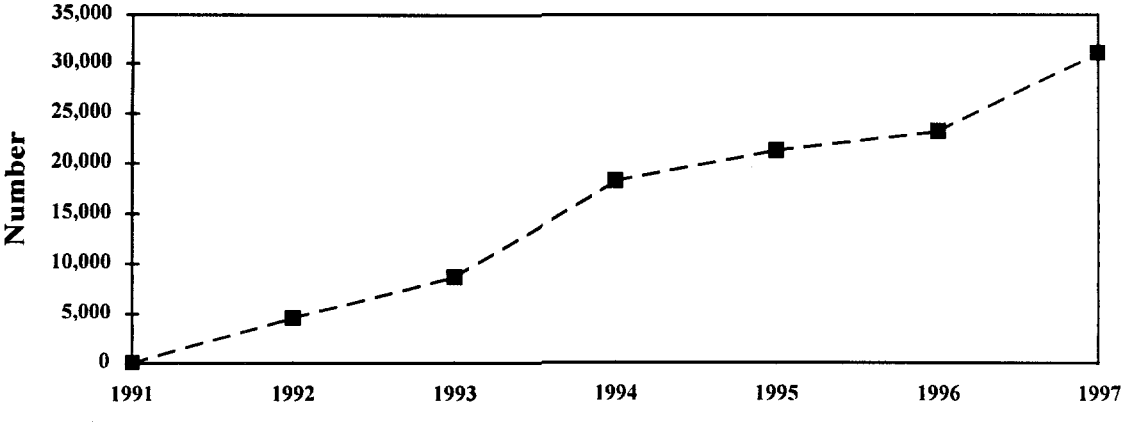
a. State and Collective Farms



b. Restructured Large Farms



c. Private Farms



Source: Natskomstat.

the emerging private agriculture, agro-industry, and agri-business. All these major structural changes have important implications for agricultural policy, production and marketing decisions on the farm, and the need to develop new systems for input distribution and output marketing (private), use of irrigation water (water users associations), and dissemination of farmer information (public and private).

REFORMS AND CHALLENGES FOR GROWTH

A July 1997 survey of large farm managers (30), private farmers (60), and household plot owners (90) in all the regions of the Kyrgyz Republic provides some insights into the perceptions of various types of farmers about agricultural reforms (Figure 2.7). Nearly two-thirds of the large farm managers and private farmers interviewed support the ongoing agricultural reforms but the household plot owners are more ambivalent, with roughly equal numbers reporting that they are "satisfied", "not satisfied", or have "no opinion". Regionally, support for the agricultural reform program is strong in Naryn and in the three main agricultural regions (Chui, Osh, and Jalal-Abad), but there are some problems in adjusting to the reform program in Talas and Issyk-Kul.

Emerging Problems

When asked about the most important agricultural problems they faced, farmers in all regions mentioned similar concerns (Table 2.4). The most important agricultural problems identified, in order of severity, were unfavorable prices, difficulties in output marketing, lack of rural credit, shortage of fuel and machinery, lack of chemical fertilizers, shortage of agricultural land, irrigation water supply problem, lack of quality seed, reduction in the social safety net, and high taxes (land, pension, and others). The nature and magnitude of these problems and possible solutions are examined in the subsequent chapters of this report.

Table 2.4: Most Important Agricultural Problems Faced by Farmers and Enterprises, 1997

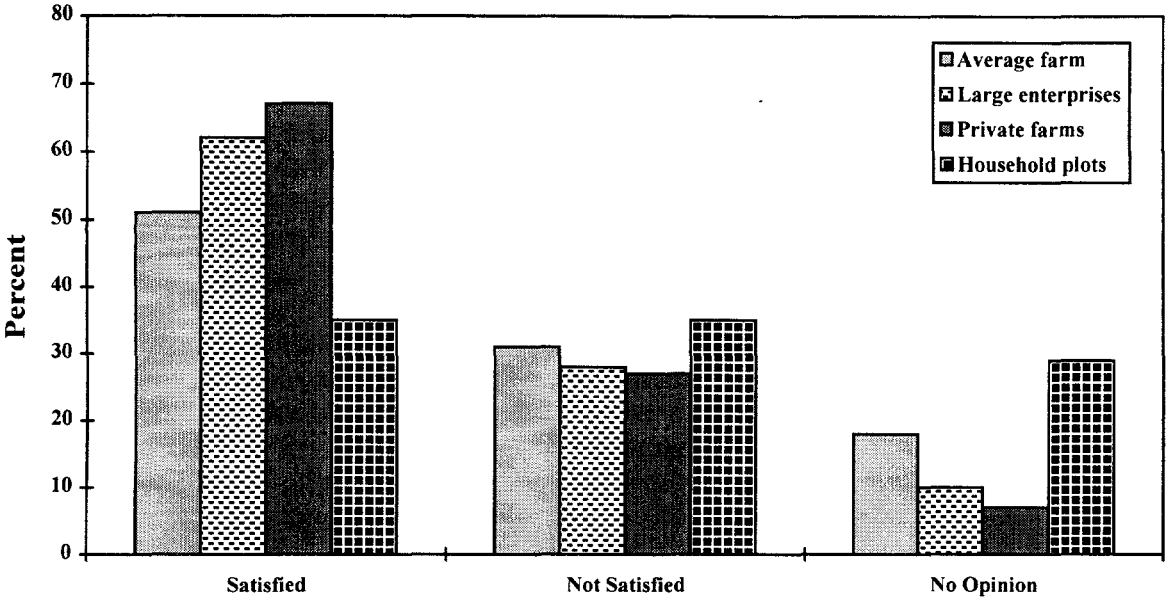
Region	Price parity/ marketing	Credit	Machinery and fuel	Fertilizers	Water supply	Quality seed	Land shortage	Other [a]
Chui	X	X	X		X	X		
Osh	X	X	X	X	X		X	X
Jalal-Abad	X	X	X	X		X	X	
Talas	X	X	X	X				
Issyk-kul	X	X	X					X
Naryn	X	X	X				X	
Overall	X	X	X	X	X	X	X	X

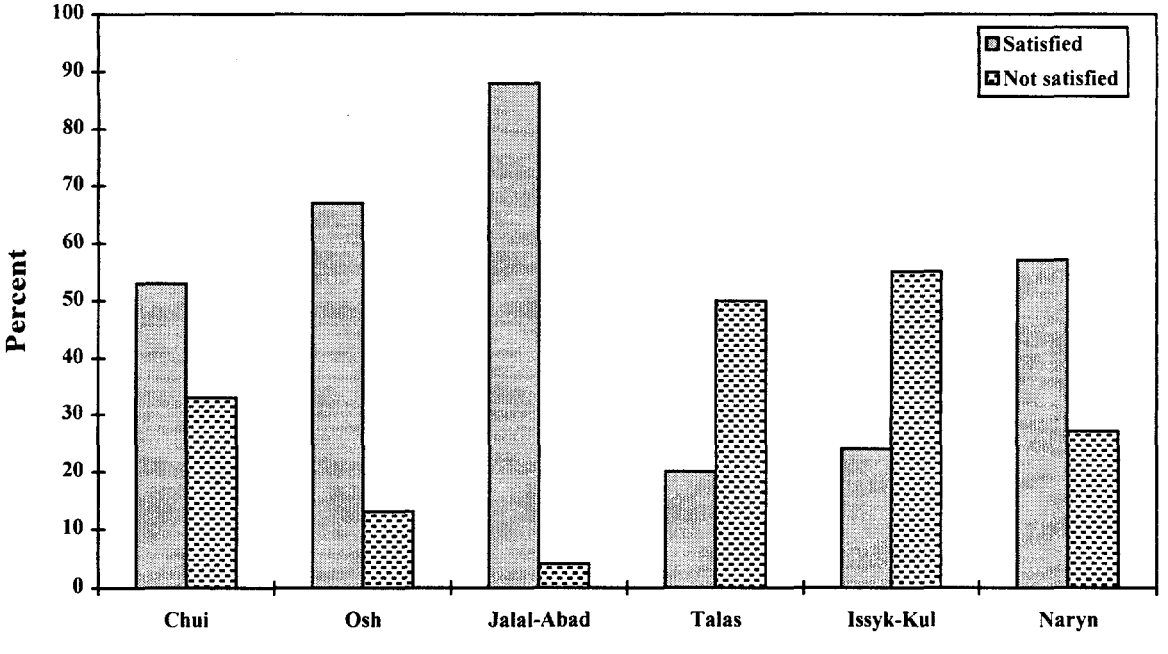
a Mainly related to poor social safety net and high taxes.

Note: Based on a survey of 180 farmers or farm managers; 174 farmers responded (29 large enterprises, 60 private farms, and 85 household plots). Respondents identified more than one problem as the most important rather than singling out just one.

Source: Farm Survey, the World Bank, July 1997.

Table 2.7: Farmers' Opinions about Agricultural Reform, by Farm Size and Oblast





Note: July 1997 survey included 29 large enterprises, 60 private farms, 85 household plots.
Source: Farm Survey, The World Bank.

Prospects for Agricultural Growth

Although the annual potential for growth in agriculture GDP is 6-7 percent, the actual growth is likely to be 4-5 percent or lower. With livestock and agro-industrial production still depressed, the main burden for growth in agricultural GDP will fall on crop production, at least in the near future. There is still some limited scope for increasing crop area (new land, more area under irrigation, and possible multiple cropping); shifts in cropping patterns, particularly shifts in favor of high-value specialty crops. There is substantial scope for increasing crop productivity through better seeds, plant protection, plant nutrition, efficient water use, and appropriate farm machinery. Improvements in product quality (better varieties, plant protection, and harvesting machinery) and reductions in losses (better harvesting, transportation and storage facilities) are also potential sources of growth. There is also a need to increase the efficiency of livestock production (in terms of numbers, productivity, and quality) through improved health, the introduction of better animal breeds and feed, and particularly through sustainable pasture management. Agro-industrial enterprises need to be restructured, with an emphasis on greater efficiency, higher capacity utilization, improved product quality, better packaging, and lower unit costs.

The three fundamental constraints to increased agricultural and rural growth are ***land*** (low land-person ratio) ***demand*** (low effective demand due to low population growth and low per capita income) and ***geographical location*** (land-locked country with high transportation costs). The land constraint can be relaxed by improving land management and pursuing knowledge-based agriculture, with a focus on high-value specialty agricultural activities in which the country has comparative advantage. The demand constraint can be relaxed by reducing poverty and expanding exports of high-value primary and processed agricultural commodities. The geographical constraint can be partially relaxed by expanding trade relations with neighboring countries (Russia, Kazakhstan, Uzbekistan, and China) and specializing in high-value and high-quality commodities, such as seeds, flowers, vegetables, fruits, and processed crop and livestock products.

To achieve strategic development objectives (higher growth, lower poverty, and better natural resource management), the Government needs to take action on at least four broad fronts. ***Policy reforms*** are needed to increase incentives for the private sector to improve agricultural efficiency, productivity, profitability, and sustainability. ***Increased investment*** is needed in public good activities in which the private sector will not invest and in activities that facilitate more private investment, both domestic and foreign. ***Institutional development*** efforts need to focus on developing a legal and regulatory framework, training and technical assistance, and a reorientation of public institutions to serve private agriculture and agri-business. Finally, the quality of and access to agricultural ***information base*** needs to be improved.

CHAPTER III

DEEPENING LAND REFORM AND FARM RESTRUCTURING

Since 1991, the Kyrgyz Republic has been transforming its farm sector into a mix of collectively and individually owned and operated farm enterprises. It has made significant progress in land and agrarian reform in the six years. Nearly all the members of rural population have participated in the land reform, receiving certificates that document their right to use a land share. A serious constraint to land reform and agricultural growth is low land to person ratio: there is only one-third of a hectare of arable land per person and less than one-fourth of a hectare of irrigated land. The situation is even worse in two of the oblasts, Jalal-Abad and Osh, where more than half of the rural population lives on one-fourth of the nation's irrigated land. Another constraint is the temporary nature of most land share certificates and the undifferentiated nature of most land use shares, which are not tied to specific parcels of land.

EVOLUTION OF LAND REFORM

Initial Reforms, 1991-1993

Land reform began with a Presidential decree and the passage of the Law on Peasant Farms on 15 February 1991. The law authorized local Councils of People's Deputies to allocate land for peasant farms. State and collective farms were required to cede land to those wishing to take advantage of the opportunity. By the end of 1991, almost 2,000 peasant farms had been established, accounting for 5 percent of all land in agricultural enterprises. In April 1991 the Law on Land Reform was passed, outlining the main objective of the land reform program: the establishment of a Special Land Fund in each rayon consisting of unutilized or underutilized lands to be used for the creation of peasant farms and for reorganizing unprofitable state and collective farms into peasant farms, agricultural cooperatives, and associations of peasant farms. No limits were placed on the amount of land a farmer could request, so a variety of farm sizes emerged in the early years of land reform.

Subsequent Presidential decrees in late 1991 and early 1992 initiated the restructuring of unprofitable state and collective farms and recommended that each farm worker be issued a share of the enterprise's nonland assets ("property"). Rayon administrations were also ordered to reserve half of all irrigated arable land for the National Land Fund, which was designated for the creation of peasant farms, with special consideration given to "traditional Kyrgyz ways of farming." A Presidential decree in late 1992, stipulated that rural committees (renamed as village governments in 1996) be formed on each farm to oversee the farm restructuring. By the end of 1993, however, reform had stagnated, and there were signs of reversals in some areas.

Current Reforms, 1994 to Present

A Presidential decree of February 1994 ("On Measures to Enhance the Land and Agrarian Reform in the Kyrgyz Republic") and a series of other decrees, government orders, and ministerial regulations in 1994 and early 1995 attempted to bring order and clarity to the process of land reform and farm restructuring. Responsibility for the reform was transferred from the State Property Committee (GKI) to the Ministry of Agriculture and Water Resources (MAWR). For policy guidance and reform implementation, the Republican Center for Land and Agrarian Reform (RCLAR) was created within the

Ministry of Agriculture and Water Resources, with branch Centers for Land and Agrarian Reform (CLARs) at the oblast and rayon levels.

Under the current reform program, all state and collective farms are required to restructure and to distribute shares of their arable land to all farm residents and shares of property to farm employees. Pasture land was excluded. Land shares are issued by the State Agency for Land Tenure and Land Resources (Goszemagenstvo) as 99-year leases (originally, the term was 49 years), with priority for renewal of the lease given to the shareholder upon expirations. Land shares (but not the land itself) can be bought, sold, given in rent, mortgaged, and bequeathed to any citizen of the Kyrgyz Republic. Most shares are not assigned to a specific parcel and exist only on paper.

Implementation of the land reform program is largely the responsibility of village governments, CLARs and rayon administrations. At the national level, the MAWR, the RCLAR, and the State Institute for Land Resources and Land Engineering (Kyrgyzmamzherresurstary, formerly Kyrgyzgiprozem, and now a subsidiary of Goszemagenstvo) provide policy and direct assistance to rayon-level organizations, but most of the work is done at the local level. Rayon CLARs are to help devise reorganization plans for farms, determine land and property shares (their size and value), determine the reserve land for the National Land Fund, and survey and register the landholdings of newly formed enterprises. Goszemagenstvo provides instructional and methodological support to surveyors in the rayonCLARs and produces the base maps of state and collective farms used in assigning land parcels to legal entities. It is also charged with registering new interests created out of farm restructuring.

The 1994 reforms reduced the National Land Fund to 25 percent of the arable land and dropped the specification that it promote the "traditional Kyrgyz ways of farming." Maximum size limits of 30 hectares in pasture zones and 20 hectares in zones of intensive agricultural production were imposed on the holdings of an individual family, and pasture lands were placed under the jurisdiction of village governments. A minimum size limit of 10 hectares was set for commodity-producing farms. A November 3, 1995 Presidential decree abolished the National Land Fund and transferred its lands to a Land Redistribution Fund managed by the MAWR. The decree orders that MAWR to distribute half this land by auction, but the MAWR has not yet finalized a mechanism to accomplish this.

Legal Rights to Agricultural Land

The Kyrgyz Constitution does not permit private ownership of agricultural land (Article 4). A draft amendment has been prepared but has yet to be considered by the Jogorku Kenesh (the Parliament), where there has been considerable opposition to private land ownership. Recently, however, the government has begun preparing for a referendum on the issue in the near future.

Land is now held by farm enterprises with rights of use only. Legislation specifies four main documents to provide evidence of use-rights for agricultural land. Two of them — the State Act on the Right to Use a Land Parcel and the Certificate on the Right to Use a Land Share ("regular" or "temporary") — are issued for long-term use rights (99 years). The other two — a Certificate on the Right to Temporary Use of a Land Parcel and a rental contract for temporary use rights — are of short duration. The first three documents are issued by the CLAR at the rayon level. The fourth is issued for leases of less than five years, usually by the village government. The most frequently issued document is a temporary certificate on the Right to Use a Land Share. While it gives the same legal guarantee to land users as the regular certificate (the rights to the land share are secure and marketable for 99 years), the temporary certificate is inferior because it does not generally specify which piece of land is represented by the share.

Development of a Land Market

Land markets have been slow to develop. While land use rights are guaranteed, few transactions other than short-term rentals have occurred. Most farmers have had their land shares for only a year or two. To stimulate transactions and encourage land to move to more productive uses, a Presidential decree in November 1996 ("On Measures for Introducing a Market in Land Use Rights and Creating a Market System of Agricultural Credit") called for the sale of land use rights on 50 percent of the Land Redistribution Fund's land by March 1, 1998, and established a Committee on the Sale of Land Use Rights and Land Parcels of the Land Redistribution Fund under MAWR to manage the process. To satisfy the political opposition and avoid speculation, only farmers who are citizens and who have experience working the land will be allowed to buy these rights.

Management of Pasture Land

The rights of pasture management have been devolved to village governments, and the central government seems to have abandoned its responsibility for establishing guidelines or regulations of grazing rights to ensure efficiency, equity, and sustainability. Most pastures are at high altitudes, between 1,000 and 3,500 meters above sea level, and nearly one-fourth are even higher than that. The seasonality of pasture use varies with altitude: summer pastures cover roughly 42 percent of the total area, spring and autumn pastures cover about 33 percent, and winter pastures cover about 25 percent.

The lack of attention to restructuring pasture management probably reflects some unease by policymakers in a country with no recent experience with common-property resources. It is clear, however, that there will be high payoffs to rationalization of livestock production and resource management, given its importance in agricultural sector and the economy as a whole.

Status of Legal Framework

Part II of the Civil Code, which includes important elements of contract law applicable to land transactions, has been drafted and is on the agenda for the Parliament. Each new version of the draft Land Code, (to replace the one enacted in 1991) has reduced the amount of arbitrary state control over land use and land tenure, but the current (October 1997 version) draft is still inadequate. The Law on Registration of Rights to Immovable Property is also under revision. It specifies a title registration system with rayon-level registration offices and a national-level agency to provide coordination, quality control, and technical assistance to the district offices. It needs to be submitted to Parliament for adoption. The Law on Pledge (Collateral) was passed by Parliament and signed by the President in mid-1997. It should enable credit institutions to feel secure in lending against property while awaiting passage of the Mortgage Law.

The legal framework to support land reform and the development of land markets continues to become more coherent as gaps and overlaps are identified and remedied. The once strong opposition to private ownership within Parliament has given way to broad popular and parliamentary support, and there may be a referendum on the subject in the near future. A series of Presidential decrees has increasingly clarified the meaning of ownership of use rights to land. The November 1996 decree establishes the legal and administrative basis for market transactions in land use rights. Once all these pieces of legislation are enacted and the support institutions are operational, there should be few remaining legal constraints to farm restructuring or the development of agricultural land markets.

STATUS OF LAND MARKET DEVELOPMENT

State Acts have been issued to nearly 40,000 farm enterprises and land share certificates to about 85 percent of the 800,000 farm families in the country (see Table A.3.1). Nearly 80 percent of the arable land outside the Land Redistribution Fund land has been distributed by shares (see Table A.3.2). However, 90 percent of the certificates are "temporary" rather than "regular," and do not identify the location and size of the household's parcel. A Government resolution is needed to provide standard forms and procedures for transactions in land shares, and the status and objectives of the 25 percent of arable land held in the Land Redistribution Fund need to be clarified.

Institutional confusion and competition have impeded the creation of land market institutions. Both RCLAR and its local affiliates and Goszemagenstvo have responsibility for issuing State Acts and Certificates. The resultant procedural uncertainty has caused delays in issuances of land-use documents and constrained formal land transactions. Since the spring of 1996, the State Land Agency has been responsible for surveying and recording of land parcels, while the CLARs continue to be responsible for determination of land and property shares and the development of farm restructuring plans. A Government-created interministerial working group has drafted a Land Registration Law and designed a pilot project to test a real estate registration system. The pilot project, funded by USAID, has achieved several of its objectives. The World Bank has been working with the Government to prepare a Land Registration Project. The Government appears to have decided to house the land registration system in the Ministry of Justice.

STATUS OF FARM RESTRUCTURING

Farm restructuring is likely to be a long process with a great deal of dynamism, as farmers experiment with different sizes and organizational forms. One general trend is emerging, however: nearly all small farms lack machinery of their own and therefore must rely on those who do, typically large remnants of state and collective farms that have been transformed into "technical service centers." These technical service centers have no legal status and therefore cannot enter into formal contracts, including credit arrangements.

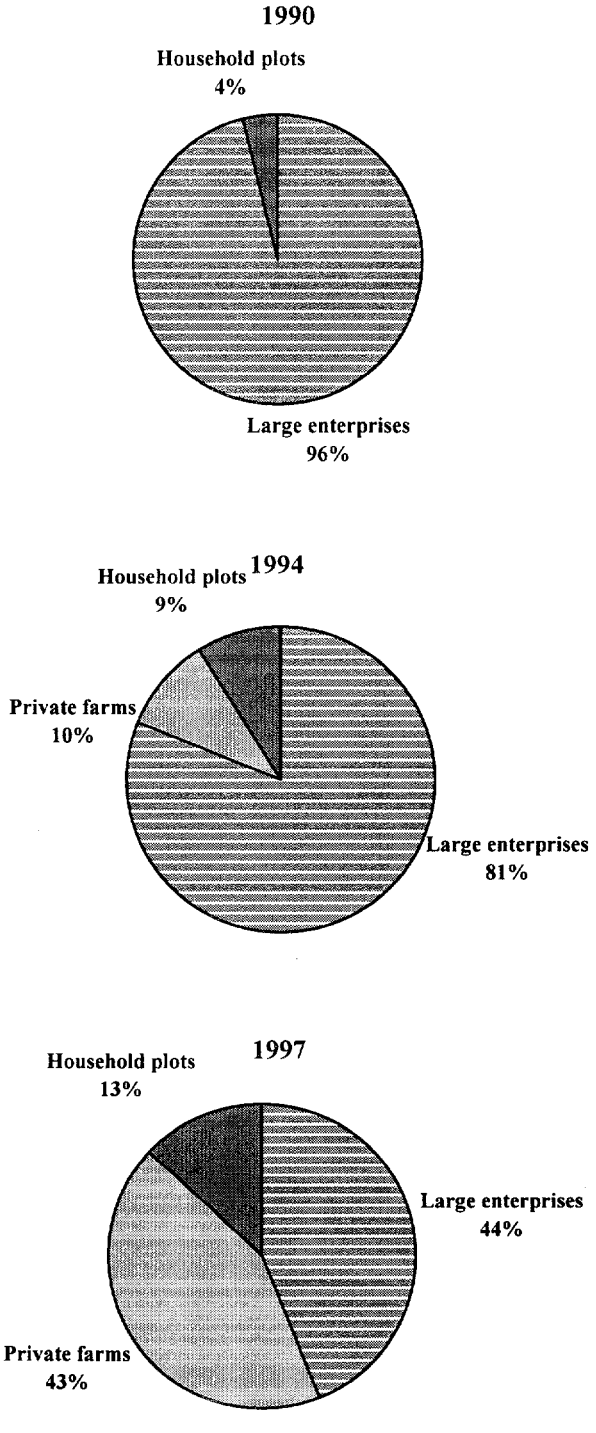
Progress in Farm Restructuring

By the beginning of 1997, about one-third of irrigated land was held by individuals and peasant group farms — nearly 60 percent if associations of peasant farms are included. The number of individual and peasant farms has grown as well; as of July 1, 1997, there were 38,000 private farms (Table A.3.3). There has also been a gradual shift in production away from large farm enterprises to private farms and household plots (Figures 3.1 and 3.2).

There are interesting differences between oblasts in terms of the dynamics of restructuring (see Table A.3.4). In most oblasts there are substantially larger numbers of peasant group farms than individual farms, but in Chui individual farms constitute more than 60 percent. Among collective farm enterprises, agricultural cooperatives dominate in Osh and Jalal-Abad Oblasts, whereas Chui and Issyk-Kul Oblasts exhibit a strong preference for "other" types (primarily associations of peasant farms or the old state and collective farms).

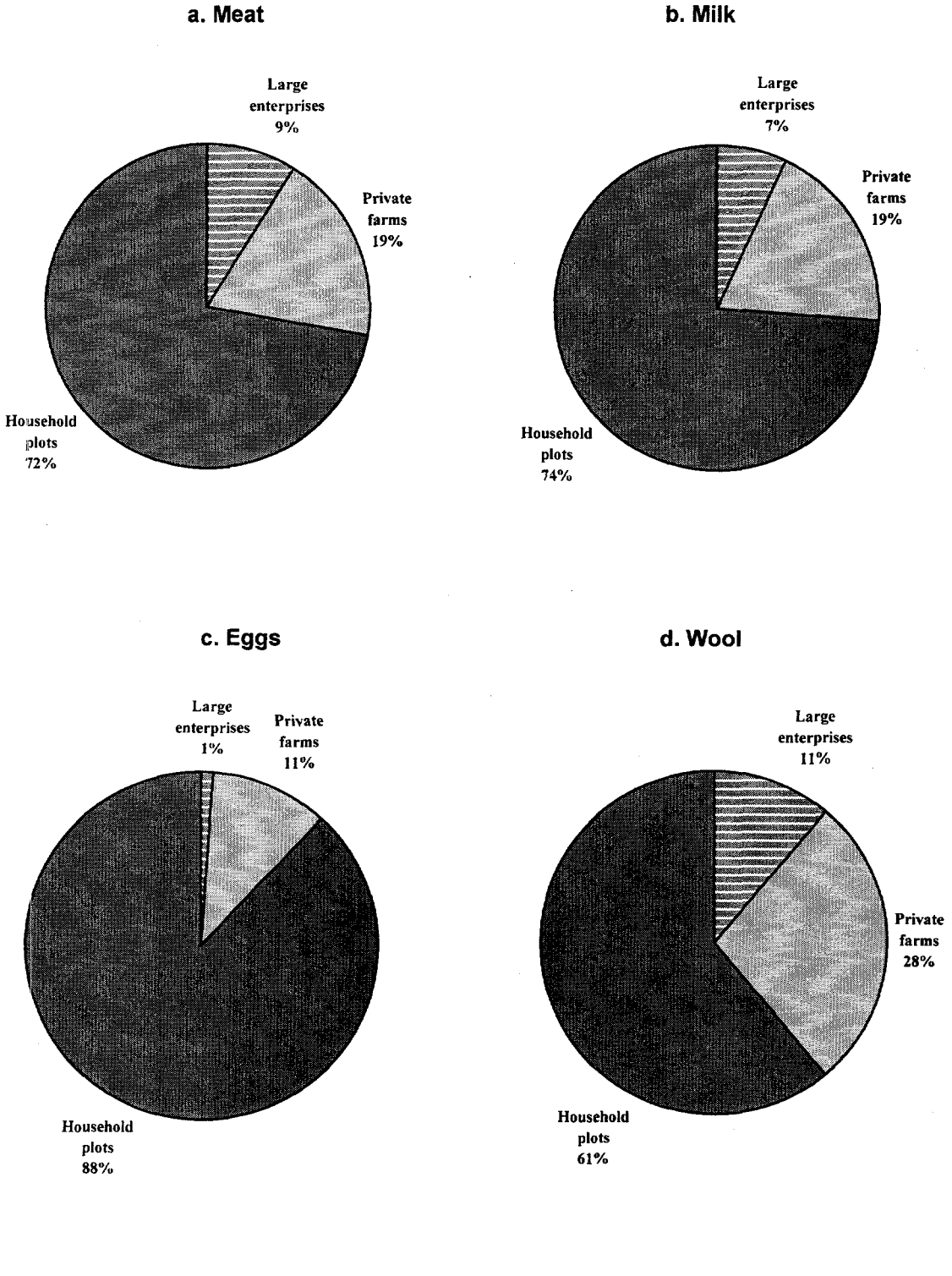
These numbers on farm restructuring should be treated with caution, however. In some cases, they may not represent true restructuring but merely a paper redefinition of collective entities as nonformal groups of individual and peasant farms, or a partial reclassification based on the new farm

Figure 3.1: Shift in Sown Area among Different Farm Organizations during Transition



Source: Natskomstat.

Figure 3.2: Livestock Production by Different Farm Organizations, 1996



Source: Natskomstat.

types. Another problem is that the data are net rather than gross, so the number of farms created and dissolved in each category is not known. Since RCLAR does not collect this information from the regions, the true dynamics of farm restructuring cannot yet be understood.

Constraints to Farm Restructuring

The principal constraints to farm restructuring to achieve an optimal distribution of farm types and sizes are limited access to inputs and the credit; unfamiliarity with marketing channels; lack of insurance against risk, loss of social security and the use of social assets; irrigation infrastructure designed for large fields and costly to redesign; control of input supply, especially machinery services, by interest groups who control both local politics and agriculture; and difficulty of resolution of issues regarding debt and property shares.

Enterprises that registered before January 1, 1996 (under Regulation Number 42, On Debt of Reorganized State and Collective Farms), were allowed a 50 percent debt write-off for state farms and a 25 percent debt write-off for collective farms, with the remaining debt to be paid in equal installments over 15 years, beginning on January 1, 1997. Although it is believed that most farms outside Chui Oblast have registered for this write-off, repayment issue may still be an obstacle to farm restructuring. Fears about assuming large debt obligations may be a disincentive to the formation of new farms and farm enterprises. On the other hand, recovery of the credit extended to agriculture is an important issue for the development of a commercial rural credit system.

Where state and collective farms have been split up into many individual and group farms, individual property shares are often too small to enable shareholders to take full possession of large equipment or buildings. The technical service centers established to manage the machinery pools are run by village governments as cooperatives, with members paying a fee for services. Preferential treatment is often given to larger shareholders. There are a number of legal and institutional issues involving the technical service centers that need to be resolved.

Status of the Land Redistribution Fund

The Land Redistribution Fund is the latest incarnation of the land reserve that was established in 1991 as a mechanism for allocating farmland to people who would not necessarily receive it as part of the core land reform or to people who had received some land but could benefit from having more. Since 1994, approximately 370,000 hectares of this land (see Table A.3.5) has been managed by village governments under short-term, typically 1-5 year leases. Village governments tend to rent land to local farms in rough proportion to their existing landholdings. The November 1996 decree on establishing land markets stipulates that 50 percent of the land in the Land Redistribution Fund must be auctioned, with the winners receiving 99-year use rights and State Acts documenting their holdings.

Current draft regulations call for open, competitive auctions organized by local commissions consisting of village government, rayon administrators, CLARs, and Goszemagenstvo. Preference is to be given to local bidders. The applicable land tax is to be the minimum bid price, and payment for the land can be made over three years. The auction program will put more land into long-term use rights and reduce the burden of lease administration on village governments. The draft auction regulations make it likely that local residents with the greatest ability to pay will obtain the land. The government may want to consider whether its equity or efficiency objectives are paramount. A system in which target populations (younger farmers, for example) had preferential access to the auctioned land might make sense given concerns about growing population, rural unemployment, and access to land in rural areas.

NEEDED LAND POLICY REFORMS

Most of the constraints to farm restructuring and land market development are local or market-related. The establishment of an adequate legal framework is necessary, but more is needed to ensure that reforms have their intended impact on agricultural production and incomes. The legal framework means little if there is no enforcement, or if secure rights to use land do not induce farmers to improve productivity because credit, inputs, and markets are unavailable. Future policy should be supportive of a dynamic agricultural sector that rewards effort and rational economic decisions rather than influence. Key policy recommendations for accelerating land reform and farm restructuring are the following:

- Revise and enact the Law on Registration of Rights to Immovable Property, the Mortgage Law, and the Land Code.
- Establish a proper land registration system.
- Finalize objectives and guidelines for the auction of Land Redistribution Fund land to ensure efficiency, equity, and transparency.
- Issue a government resolution on standard forms and procedures for transactions in land shares.
- Accelerate the program of demarcating individual land parcels on all farms, issuing only "regular" land share certificates and registering the certificates.
- Complete the delineation of cadastral blocks for land parcel registration.
- Determine best practices for the management of pasture land (common property).
- Ensure that the rehabilitation work on irrigation systems takes account of the need to service small parcels.
- Separate authority for land use planning and control from responsibility for land registration.
- Separate local political leadership from leading roles in large farms, and strengthen village and municipal finance to maintain social assets.
- Emphasize sustainable land management to avoid overgrazing and desertification.
- Monitor the productivity and profitability of different farm types, for policy formulation and public education campaigns.

The Kyrgyz Republic's bold efforts to guide the agrarian reform process hold several lessons for other countries in Central Asia. On the positive side, these efforts show that the agrarian structure can be changed relatively quickly without serious harm to production. And they show that government is capable of building consensus for reform and of implementing it. The Kyrgyz Republic's, experience also shows that legislation alone will not lead to reforms on the ground; active efforts at implementing the reforms are required, along with a clear delineation of responsibility among government institutions charged with implementing the reforms.

CHAPTER IV

REFORMING THE AGRICULTURAL MARKETING SYSTEM

The Kyrgyz agricultural marketing system has undergone a radical transformation since 1991. Before reform, agricultural marketing consisted of state orders. Farmers were told what to produce and where to deliver their marketable surplus, and state agencies supplied them with the necessary inputs. Since market reforms began, farmers and processing enterprises are being guided increasingly in their production and marketing decisions by market forces, prices, and profit incentives, though many government regulations continue to influence their actions. The transformation has included privatization of state-owned marketing enterprises; a loosening of state controls on processing, distribution, imports, and exports; and a new emphasis in the agricultural processing industry on production for the now much smaller domestic market and for exports rather than on specialized products for the former Soviet Union market. Some of the problems in this transformation are a marketing system that is far from competitive, prices that are still distorted, an acute capital shortage, reduced effective demand for agricultural products, and a sharp decline in the production of many farm commodities that had previously been processed.

PARITY PRICES AND MARKETING CHANNELS

Price liberalization and the reduction in price subsidies have resulted in rising prices for inputs and outputs. However, different prices have increased at different rates, depending on existing price distortions, market competition, type of commodity, and government involvement (national, regional, or local). Marketable surplus has declined and varies by farm type. New marketing channels have emerged, but they are far from being competitive.

Input-Output Price Parity

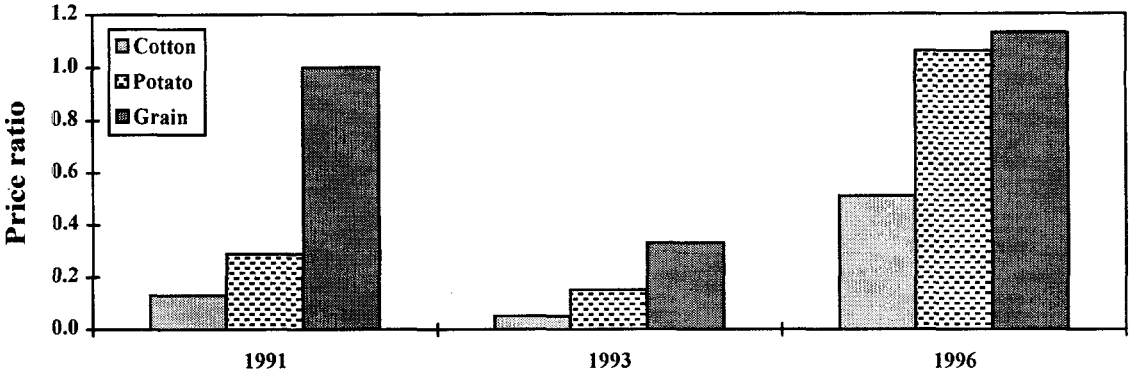
Agricultural input and output prices increased from 1991 to 1996, but input prices (all the critical inputs are imported) rose much more than output prices (local monopolies and urban bias kept output prices down). This led to an increase in the cost of production and a decline in profitability for individual crops and livestock products (Figure 4.1 and Table A.4.1). The increase in input prices also reduced the demand for inputs. While subsidies had kept input use at high and inefficient levels prior to the reform, the decline in input use may have gone too far and has resulted in substantial declines in crop yields and animal productivity.

Farm -Level International Price Parity

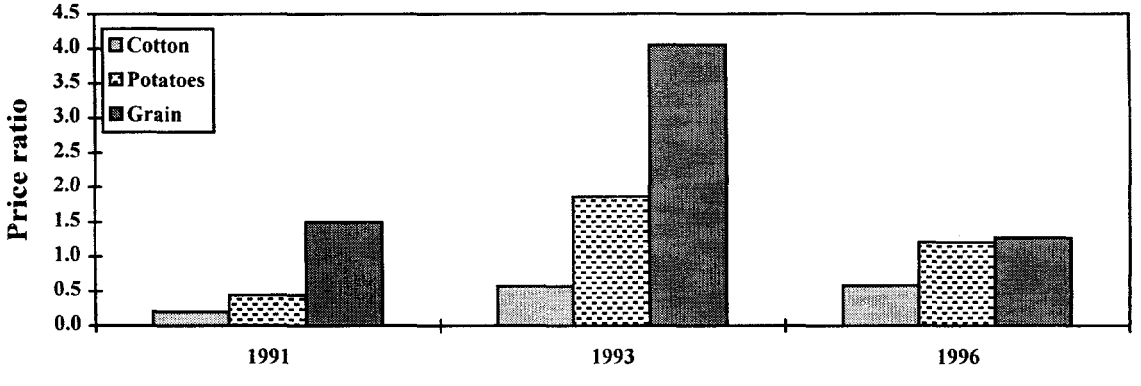
In 1991, input and output prices in the Kyrgyz Republic were only a fraction of tradable agricultural input and output prices in world markets. As prices were liberalized, average farm-level prices in the Kyrgyz Republic rose substantially relative to prices in the United States and elsewhere (see Figure 4.2). This adjustment has been relatively slower for agricultural output prices than for input prices, mainly because inputs are generally imported and outputs are sold locally. In 1996, most farm product prices in the Kyrgyz Republic were two-thirds to three-quarters of the corresponding prices in the United States, yet Kyrgyz farmers paid close to world prices for agricultural inputs. The deterioration in the input-output price parity reduced the overall profitability of the agricultural sector.

Figure 4.1: Changes in Farm-Level Input/Output Price Ratios for Selected Commodities during Transition

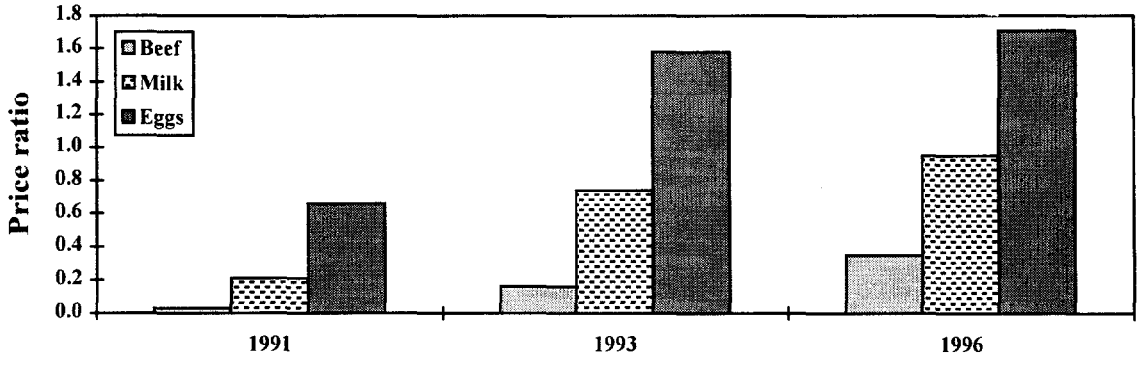
a. Nitrogen fertilizer and crops



b. Diesel fuel and crops



c. Mixed feed and livestock

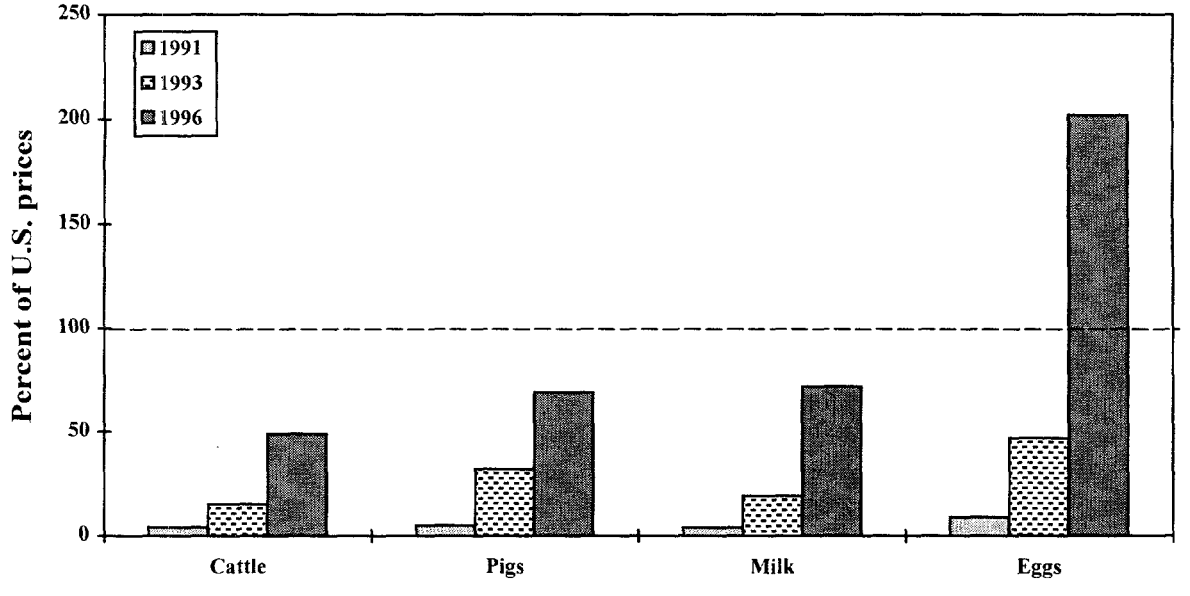


Note: Price ratio is the number of units of output needed to buy one unit of input.
Source: Natskomstat.

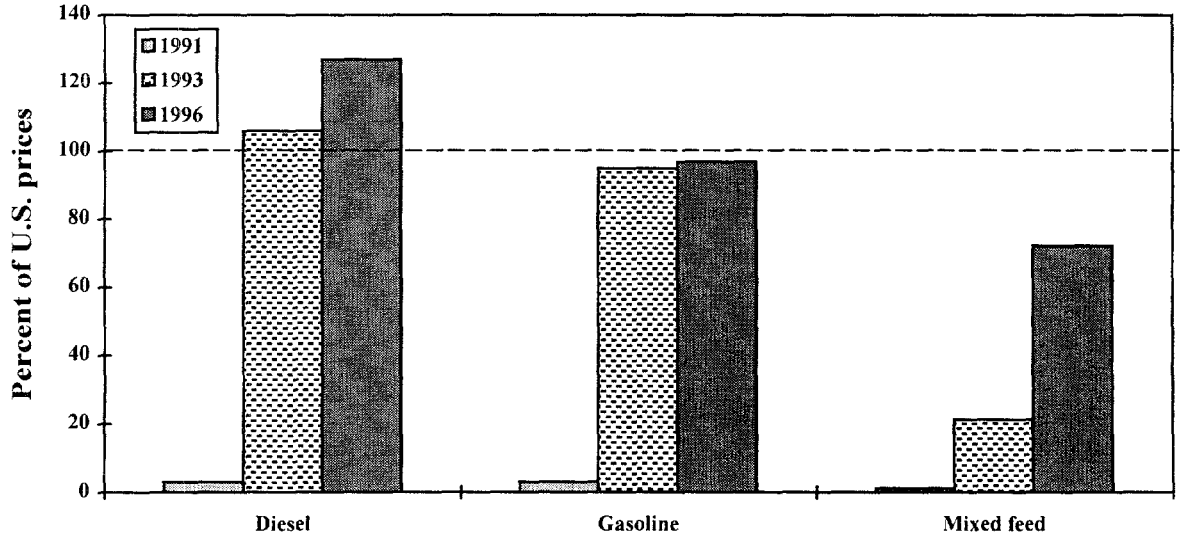
Figure 4.2: Comparison of Farm-Level Prices in the Kyrgyz Republic and the United States, 1991, 1993, and 1996

(Kyrgyz Republic prices as percentage of U.S. prices)

a. Livestock products



b. Agricultural inputs



Sources: Natskomstat; USDA.

Level of Marketable Surplus

In the Soviet era, farms were instructed about what to produce, how much to produce, how much to market, and where to sell their products. Since then, the old state system of procurement and distribution has been dismantled, but a replacement system has been slow to emerge. Production of crop and livestock products has declined substantially (with the exception of a few crops), reducing the volume of marketable surplus. The rural economy (particularly in the remote areas) also became relatively demonetized, partly in response to policies designed to achieve macroeconomic stability. As a result of these changes, marketing and the marketable surplus have changed (see Figure 4.3 and Table A.4.2). Several new marketing channels have become available to farmers to sell their output, but the overall amount of marketable surplus has declined. Also, the share of large farm enterprises in total marketable surplus has declined, even though the share of marketable surplus is lower on small than on large farms.

New Marketing Channels

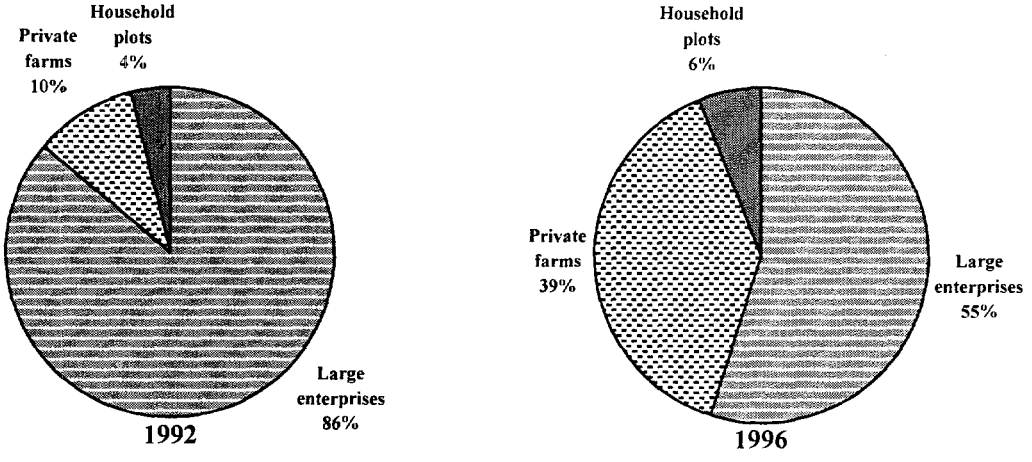
State orders have been replaced with a private marketing system and a new procurement system of "state needs," which is to be implemented through voluntary supply contracts at negotiated prices. The government has also established a state wheat reserve to meet the needs of the army, schools, and other public institutions. State procurement for the wheat reserve is limited to 100,000 tons a year, of which 60 percent is emergency reserve and 40 percent is for supply to remote areas until private suppliers emerge. Other new marketing channels include purchases by the agro-processing plants, and wholesale and retail trade by private agencies and consumer cooperatives. Barter and payment of wages in-kind also became important channels to dispose of surplus agricultural output as the economy became demonetized and inflation rose. The importance of particular marketing channels depends on the farm organization and the type of commodity (Figure 4.4 and Table A.4.3). Despite a lack of competition, the bulk of the marketable surplus is being sold through private marketing channels. Private farms have engaged more in state procurement than have large farms.

The types of marketing channels used by producers vary by production activity and type of farm (Table 4.1). Most wheat is produced on large farms. About one-third is sold for cash and the rest is retained on the farm (for consumption and use as seed), used to pay in-kind wages, or bartered for inputs. Potatoes, produced mainly on household plots, are sold for cash or retained for home consumption (about 50 percent). Household plots rely mostly on household labor, so only a small share of potato production is used to pay in-kind wages or to obtain inputs. Large farms, on the other hand, barter 60 percent of their potatoes for inputs. Milk, a perishable commodity, is sold mostly for cash (to processing plants) by large farms; private farms and household plots retain more than 50 percent of production for home consumption. Thus most production is used to meet consumption needs, pay in-kind wages, or barter for other inputs, a clear indication of the demonetized subsistence nature of Kyrgyz agriculture. This also implies that farmers generally do not have adequate cash to pay taxes, make social security contributions, purchase critical inputs and consumer goods, or pay water charges for irrigation.

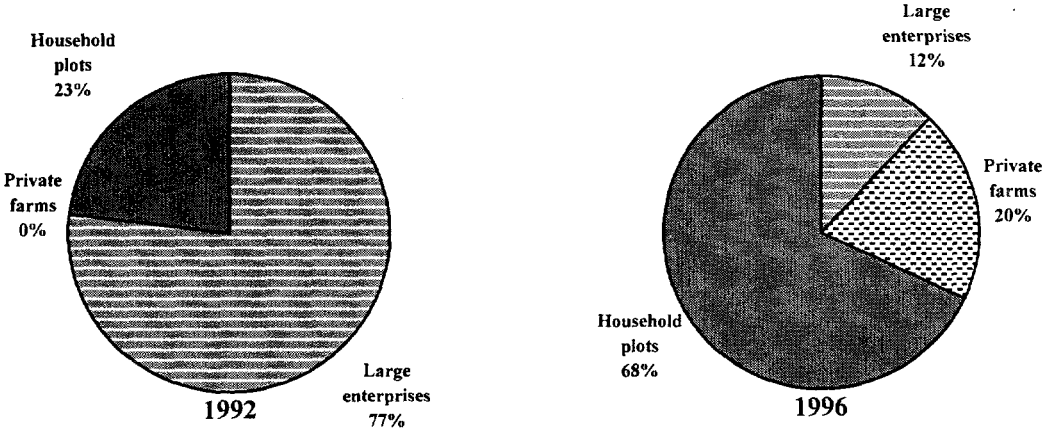
Wheat is sold mainly to the government procurement agency (for the wheat reserve). The reasons farmers gave were no other buyers, in-kind payment of tax obligations, or a better price (since prices have been liberalized and state orders eliminated, government has had to compete with other potential buyers). Wheat is also popular for in-kind wage payments or bartering for inputs (fuel, lubricants, fertilizers, pesticides, and feed). Cotton is sold mostly to private channels (mainly processing plants) for three reasons: cash sales, better price, or no other buyers. Milk is sold to the dairy plant,

Figure 4.3: Shift in Sources of Marketable Surplus, 1992 and 1996

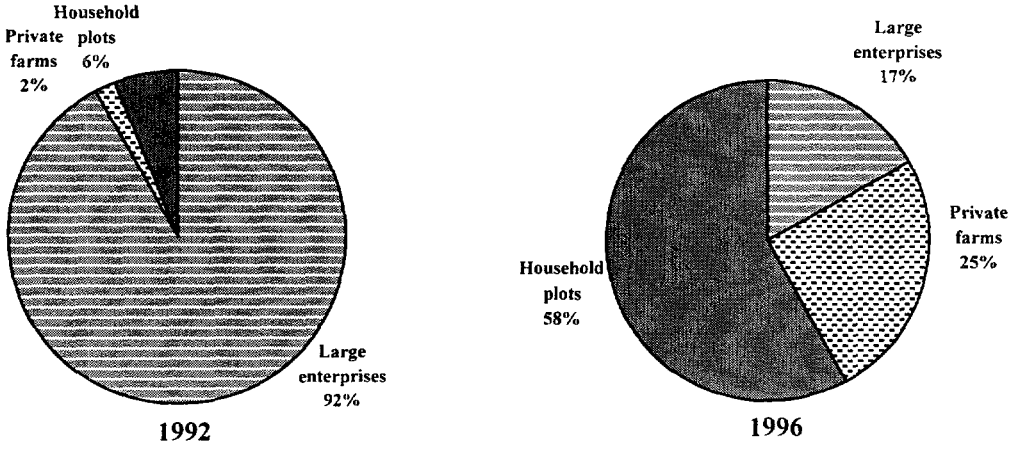
a. Grains



b. Potatoes



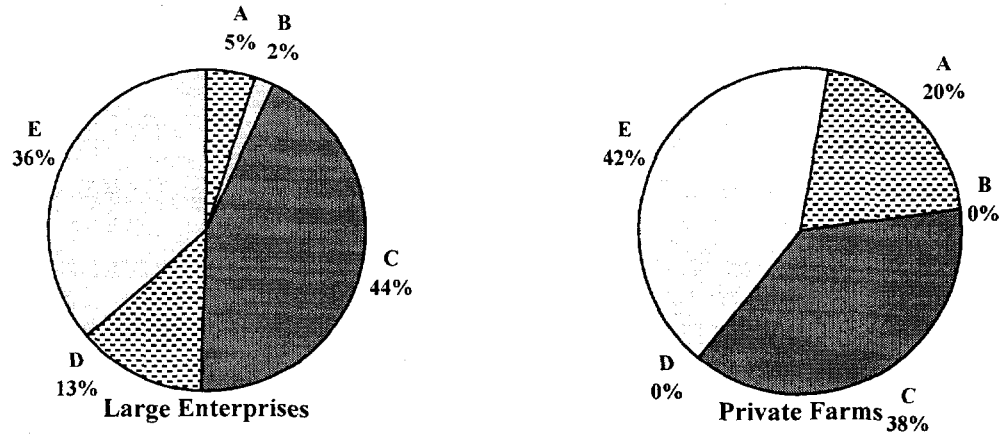
c. Milk



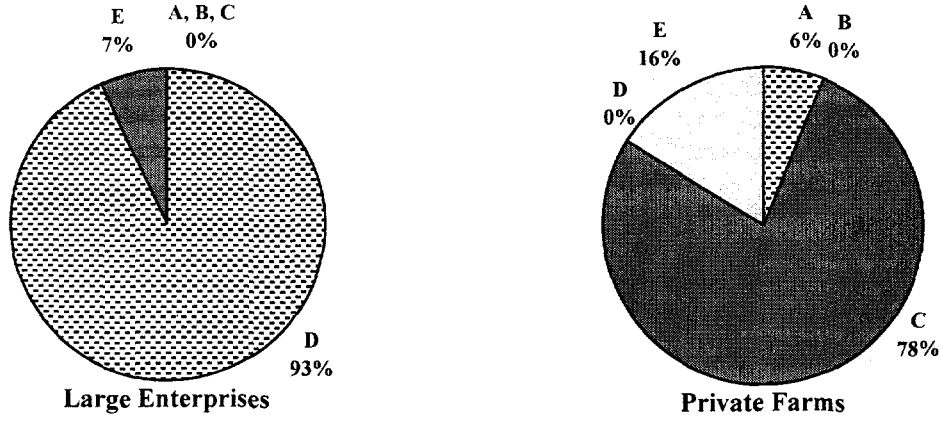
Source: Natskomstat.

Figure 4.4: Marketing of Selected Commodities by Marketing Channel, 1996

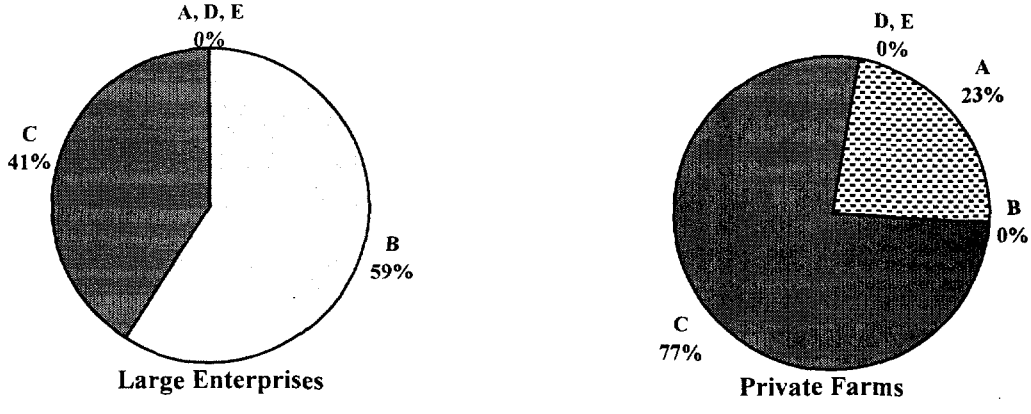
a. Grains



b. Potatoes



c. Cotton



A: Government procurement; B: Processing plant; C: Private sale (wholesale and retail); D: Consumer cooperatives; E: Wages-in-kind.

Source: Natskomstat.

generally under a contract to supply milk. In general, farmers prefer marketing channels that are secure and cash-based, and will even accept lower prices in order to get cash.

Table 4.1: Disposal of Production: Marketing Channels and Barter, 1996

Crop	Farm type	Disposal of production (percent)		
		Retained on the farm	Wages in-kind and barter	Cash sales
Winter wheat	Large farms	14	48	38
	Private farms	39	40	21
Cotton	Large farms	42	4	53
	Private farms	16	0	84
Potato	Large farms	24	58	19
	Private farms	11	16	73
	Household plots	48	11	41
Milk	Large Farms	13	3	84
	Private Farms	55	15	30
	Household plots	58	0	42

Source: Farm Survey, the World Bank, July 1997.

Prices by Marketing Channels

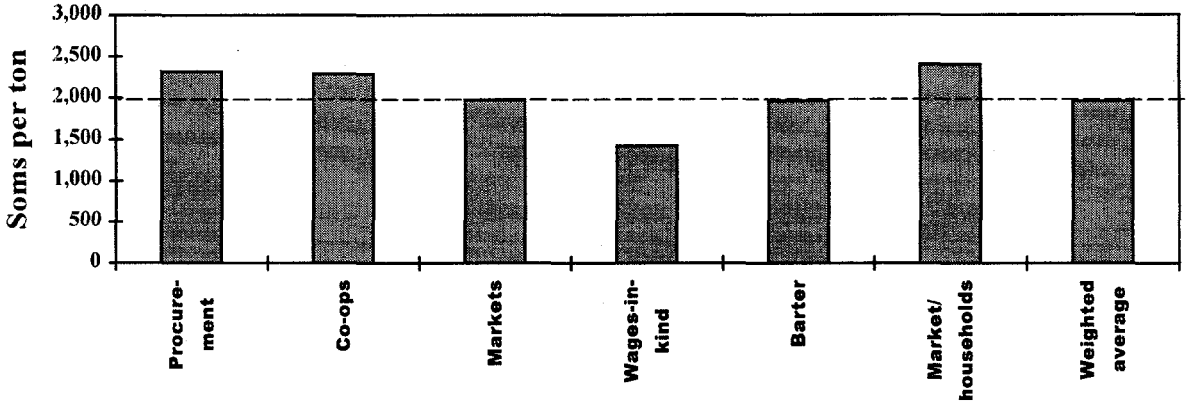
There is considerable variation in average producer prices according to marketing channels (see Figure 4.5 and Tables A.4.4 and A.4.5). Among the contributing factors are the lack of a fully integrated and competitive marketing system, high transactions costs, preferential access to large farmers for some marketing channels (government procurement, processing plants), locational disadvantages of small private farmers, and the size of marketable surplus, in addition to type of commodity. Barter exchanges or in-kind wage payments are generally at a lower value than cash transactions, especially in private marketing channels. Government procurement prices for grains are generally comparable to prices in other marketing channels.

DEVELOPING A COMPETITIVE MARKETING SYSTEM

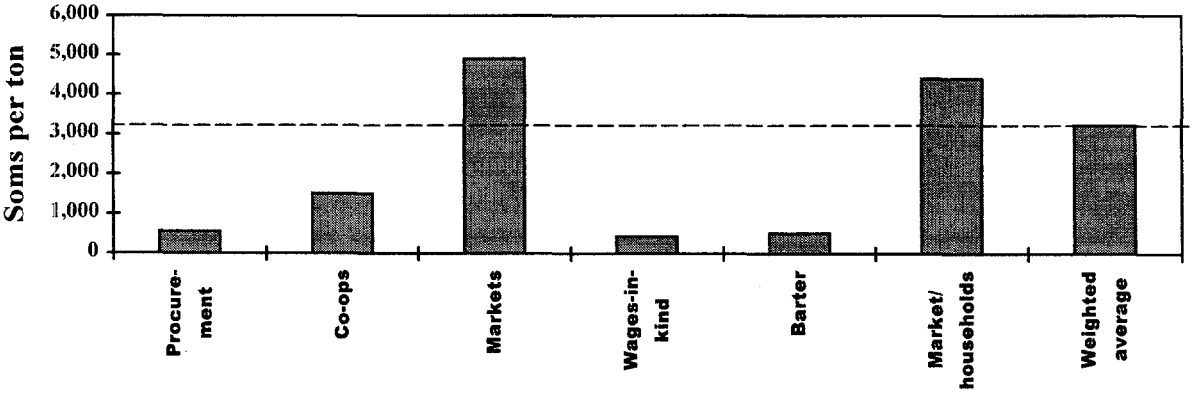
Some problems in the agricultural marketing system can be ameliorated through short-term policy measures, but many others must await longer-term development of the market and adjustments in the overall economy. Five major problems that keep the agricultural marketing system inefficient and unprofitable are addressed here: high processing and operating costs, low demand for processed products, unfair and illegal practices and competition, limited number of efficient enterprises and entrepreneurs, and underdeveloped marketing facilities and services.

Figure 4.5: Farm-Level Prices in Different Marketing Channels, 1996

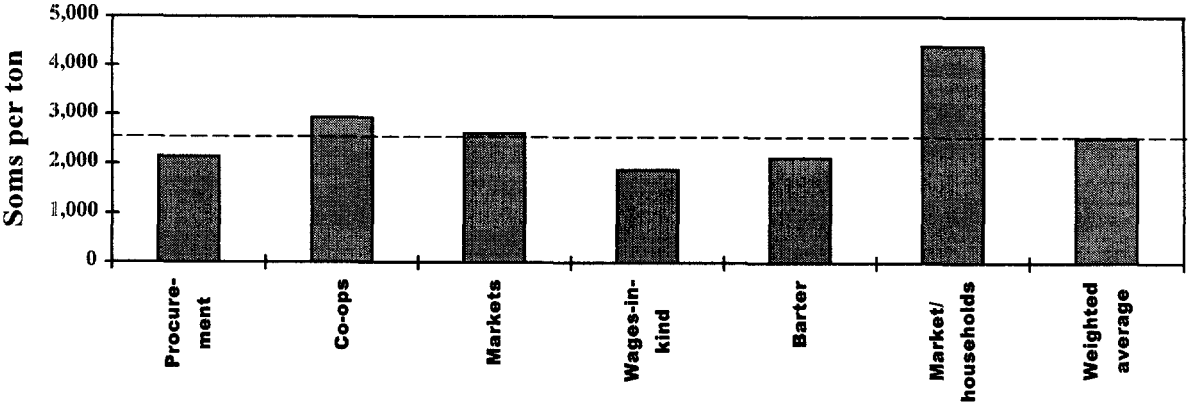
a. Grains



b. Tomatoes



c. Milk



Source: Natskomstat.

High Processing and Operating Costs

Credit cost and availability. There is an acute cash and credit shortage nationwide that stems, in part, from the financing of large government deficits through high-interest government bonds, crowding out money for the private sector. The shortage is especially more acute in rural areas, where commercial banks are less active and Agroprombank has been shut down. Agricultural processors and other marketing firms need considerable capital to operate. They need investment capital for facilities and working capital to purchase inputs and finance inventories before sales.

High tax burden. Agro-industrial enterprises pay a 20 percent value added tax (VAT), a 24.5 percent pension tax on employee salaries, an 8 percent income tax, and a 5 percent industrial processing tax. While the VAT paid by processors on raw materials and other inputs can be offset by the VAT collected at the time of sale, a problem arises when buyers, including government agencies, delay payments and allow arrears to accumulate. Processors are then forced to cover the VAT from their own working capital until they receive payment. Some firms gain an unfair competitive advantage by selling on the black market and evading taxes, leading to distorted economic incentives.

Excessive regulations. A heavy burden of regulations, a legacy of the command economy, adds considerably to the cost of building and operating agri-business, food processing plants, and marketing the products. One joint venture enterprise, for example, needed 69 permits to construct and operate its dairy plant and export its products. Investors, particularly foreign investors, are turned off by such a time-consuming and costly regulatory environment. Although illegal, some vestiges still remain of the old restrictions on inter-oblast trade imposed by local governments to ensure a supply of raw material for local processing plants.

Low capacity utilization rate. Processing plants (most of them are very large in size) generally operate at a low capacity (20 percent or less) because of a lack of raw material, lack of spare parts, and reduced market demand. The raw material shortage reflects the decline in agricultural production, especially in the livestock sector. Low capacity utilization increases overhead costs and reduces profits. Enterprises operating at low capacity frequently sell their products at a price that covers only variable costs, not fixed costs. Eventually, these firms will use up their fixed capital and no longer be able to operate. New investors are unlikely to participate under these conditions, and yet investors, especially foreign investors, are desperately needed to bring in capital, technology, management skills, and knowledge of potential export market.

Low Demand for Processed Agricultural Products

There has been a sharp decline in both domestic and foreign demand for agricultural products. This is due to the decline in economic activity and purchasing power and to the breakdown in established market relations among enterprises and trade relations among the former republics of the Soviet Union. Processing plants now face growing domestic competition from the household food sector, which often processes products under less hygienic conditions. The Kyrgyz Republic is attempting to bolster foreign demand for its exports by joining the Customs Union (Kyrgyz Republic, Kazakhstan, Russia, and Belarus) and is in the process of joining the World Trade Organization (WTO). Overall quality of processed food must be improved to increase domestic and export demand for agricultural products.

Unfair and Illegal Practices and Competition

Nonpayment of taxes. It is difficult for farms that pay their taxes to compete with farmers that evade taxes. Foreign investors are particularly sensitive to this problem since firms with foreign ownership are typically more closely scrutinized than are their domestic competitors. Some enterprises barter their goods to avoid the VAT.

Unofficial levies. There are also reports of unofficial levies to obtain operating permits or road passage at checkpoints, which creates uncertainty and adds to the cost of doing business. More vigorous law enforcement is needed to prevent unfair and illegal practices and promote competition for businesses to stimulate investment and economic growth.

Limited Number of Efficient Enterprises and Entrepreneurs

Privatization of agribusiness. State-owned enterprises have been privatized to make them more efficient and economically viable and to reduce the strain on the government budget. The World Bank-supported Agricultural Privatization and Enterprise Adjustment Credit (APEAC) has been a major stimulus to the privatization of the state-owned bread conglomerate, Kyrgyzdanazyk (KDA), which has fully privatized 28 of 42 medium-size and large enterprises. Eight remain majority state-owned and six continue with minority state shareholding. However, the Government has repossessed shares in eight of the KDA bread kombinates because investors failed to pay for their shares. In March 1997, the government transferred 12 state-owned enterprises of the former Selkhoz Technical (farm machinery) to a new state joint stock leasing company, Aiytechservice, which is currently looking for investors. The Ministry of Agriculture and Water Resources still retains control of some enterprises in the former Selkhoz Chemical (agro-chemicals). These should be privatized as soon as investors can be found. Even partial control by government agencies may blunt market discipline and thus allow firms to remain economically inefficient.

Trained business managers and entrepreneurs. There is a shortage of experienced, profit-minded business managers and entrepreneurs who know how to meet a payroll, produce a competitive product or service, promote exports, and risk their own resources in the process. The pool of managers and entrepreneurs is growing, but the need for specialized training remains. Managers and entrepreneurs need to be involved in upgrading the quality of processed food if the country is going to be competitive in world markets. An important step would be to establish a national grades and standards laboratory in cooperation with industry, to conduct research and train entrepreneurs, farmers, and industry in how to reach international grades and standards for their products.

Underdeveloped Market Facilities and Services

Market information. Good market information is a basic requirement for a smoothly operating marketing system. In the old Soviet system, procurement, storage, transport, processing, and distribution were centralized and under state control. Prices were set rather than established through markets. The absence of markets, especially wholesale markets, meant that wholesale equilibrium prices for the industry were not determined through the forces of supply and demand. In a market economy such wholesale market prices typically provide a basis for determining other related prices in the industry (farm, processor, and retail), with a differential for location and quality. Buyers and sellers need information on prices, quantities, and qualities at various locations and market levels to make intelligent market decisions about when, what, and where to buy, sell, process, store, and transport. A pilot

agricultural market information system in Talas and Issyk-Kul Oblasts is being expanded to the other four oblasts as part of the World Bank-financed Agricultural Support Services Project.

Improved competition. Competition drives enterprises in free markets to excel, both to survive and to maximize their profits. Governments foster competition among enterprises by preventing unfair competition, collusion, and monopolies. The Kyrgyz Government has established an antimonopoly committee and laws to regulate joint stock companies. The antimonopoly laws need to be revised to reflect the new economic order and made more enforceable to ensure fair and open competition. The antimonopoly committee has oversight responsibilities for antimonopoly issues, but the line ministries are responsible for implementing the antimonopoly laws. The relationship among these agencies and their responsibilities for implementing antimonopoly laws are vague, however, and need to be clarified.

Barter. Barter exchange became common in 1993, when wheat became a popular medium of exchange. Informal exchange rates between various types of goods were soon established, and production specialization and exchange continued. Barter is an inefficient way of marketing. It is expensive in time and effort, and transaction costs are generally high.

IMPROVING THE INPUT MARKETING SYSTEM

To produce high yields and income, farmers need a large array of commercial inputs and services, from fertilizers, herbicides, and pesticides to farm machinery, improved seeds, veterinary medicine, and livestock feed. Kyrgyz farmers are experiencing a severe shortage of farm inputs both because of supply shortfalls and a lack of funds or credit to buy the inputs. Farmers are low on cash because of the low market prices for their output and the small scale of many operations. They have difficulty getting credit because they are involved in a relatively risky business and because of their generally low credit standing. Demand has also declined because of the adverse terms of trade between agricultural inputs and outputs and a reduction in waste (many inputs had been subsidized and overused prior to reform). State monopolies dealing with the import and distribution of inputs have been abolished or are being privatized, but the new private system is not yet functioning and barriers to entry remain. Imports are limited by sellers wanting cash in advance of delivery.

The stock of farm equipment and machinery is wearing out, and farmers are experiencing difficulty in getting their fields prepared and harvested in a timely manner. The machines inherited from the state and collective farms are generally too large for small private farms. Harvest equipment and combines are generally inefficient. The old wheat combines leave 20 percent or more of the grain in the field; whereas modern, well-adjusted combines leave just 1 percent. Livestock diseases are becoming more prevalent because many livestock farmers are unable to afford veterinary supplies and service. Cattle herds reportedly need increased protection against tuberculosis, bruscelosis, anthrax, and hoof and mouth disease. If left unaddressed, this problem could result in endemic disease conditions among national herds and flocks and can even become a danger to public health.

There are several policy measures the government can take, both short and long term, to improve input marketing and availability at competitive prices:

- Examine alternative approaches to stimulating the development of a competitive private input marketing system, including the establishment of private dealers and leasing companies, as Albania and Bangladesh have done. This may require initial financing (by the Government or donors) of imports of critical agricultural inputs and distribution through

competitive auction to private dealers. Input dealers should also be trained to provide appropriate information on efficient use of agricultural inputs and best practices.

- Reduce, and eventually eliminate, involvement of state-supported agencies in input marketing. This includes leasing companies, technical service centers, and distribution of inputs received from donors as commodity credit.

- Fully liberalize trade in agricultural inputs by completing the privatization of the input distribution system and eliminating any nontariff barriers on imports of agricultural inputs.

- Privatize seed farms (may need to be done gradually for self-pollinated crops such as wheat) to provide the latest reliable high-yielding, disease-resistant varieties to farmers.

- Strengthen programs to eradicate epizootic diseases in the national livestock herd.

- Strengthen training programs in management and dissemination of farm technology for emerging private farmers

FOREIGN TRADE AND AGRICULTURAL EXPORTS

Patterns of Trade

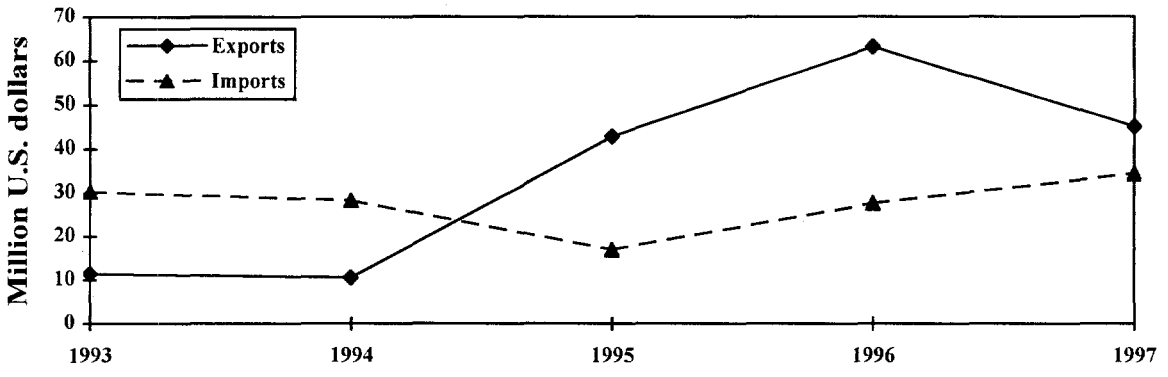
The volume of agricultural exports (both primary agriculture and agro-industry) and agriculture's share in total exports grew substantially from 1993 to 1996 (Figure 4.6 and Table A.4.6). Primary agricultural exports increased almost 4 times from 1993 to 1997, while imports increased only 14 percent. As a result, the Kyrgyz Republic went from being a net importer of primary agricultural products, with a deficit of $18.9 million in 1993, to being into a net exporter, with a surplus of $10.6 million in 1997. Exports of processed food grew more slowly (39 percent) than imports, however, so the country went from being a net exporter, with a surplus of $12.1 million in 1993, to being a net importer, with a deficit of $3.7 million in 1997. Processed food imports grew as a result of significant liberalization of the import regime and the severe output decline in food industry. The Kyrgyz food industry, which uses obsolete technology and produces low-quality output, is not competitive with imports. A growing middle class and expatriate community have increased the demand for higher quality foodstuffs, which domestic enterprises cannot meet.

The most important agricultural exports in 1992 were wool ($10.6 million), fermented tobacco ($10.2 million), fresh and processed vegetables ($2.2 million), cotton ($1.7 million), and molasses ($1.7 million). The most important exports in 1996 (data for 1997 were not yet available) were white sugar ($52.1 million), uncombed cotton lint ($32.0 million), ethyl spirits ($30.2 million), cattle skins ($10.8 million), and unfermented tobacco ($9.4 million). Wool tumbled from its leadership position because of the deterioration of the sheep industry. Fresh and processed vegetables lost their place among the top five exports because of the collapse of the processing industry. Wool and vegetables used to be exported mainly to other republics in the former Soviet Union. After the CIS countries opened up their markets to world trade, the traditional Kyrgyz exports, which were of poor quality, could not compete successfully with non-CIS imports.

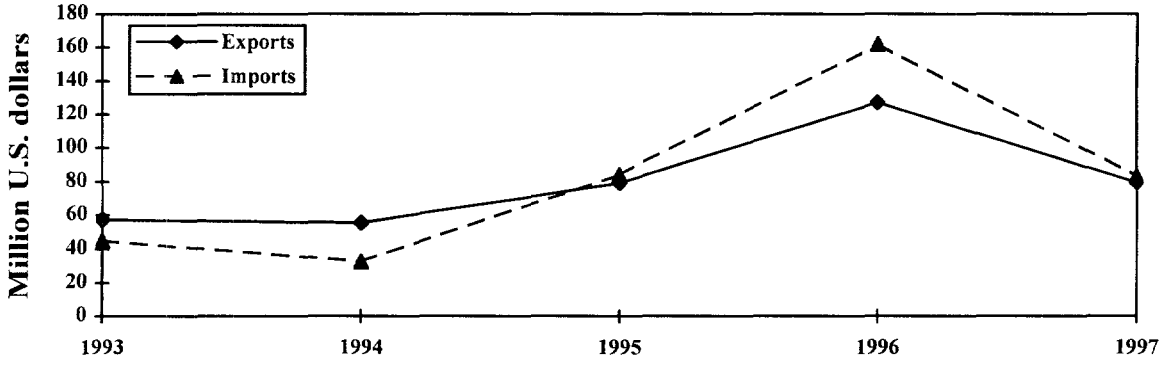
All the changes in export patterns do not reflect the long-term comparative advantage of the country. For example, the two new leading exports, white sugar and ethyl spirits, are a poor fit for the Kyrgyz economy, which lacks both a solid raw material base and technological advantage in these

Figure 4.6: Trends in Foreign Agricultural Trade, 1993-97

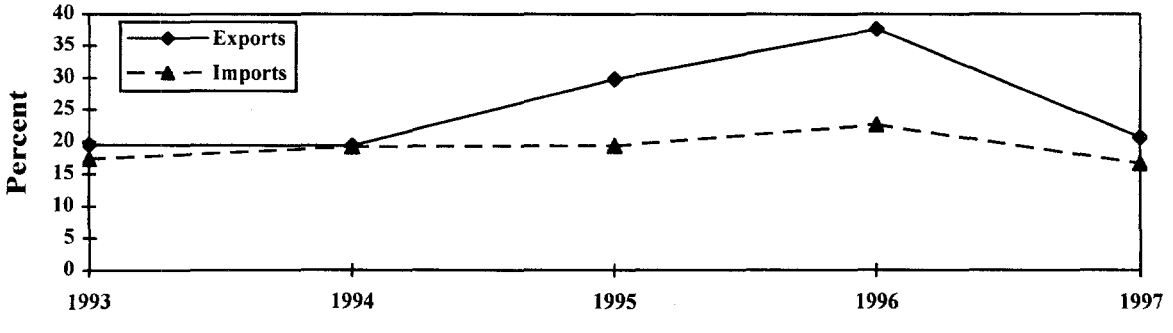
a. Primary Agriculture



b. Food Industry Products



c. Share of Agriculture and Food Industry in Total Foreign Trade



Source: Natskomstat.

products. The supply of raw sugar is not very reliable, and much of it has to be imported. Difficulties in obtaining raw sugar in 1997 led to a 40 percent reduction in the production of white sugar and a 37 percent decline in food industry exports from 1996 to 1997. Kyrgyz sugar refineries are energy inefficient and technologically obsolete. The same is true for ethyl spirits. The production of spirits is also a legacy of the Soviet planning of the location of industry.

From 1994 to 1996, the unit values of the main exportables increased in dollar terms 296 percent for cattle skins, 248 percent for ethyl spirits, 168 percent for cotton lint, 168 percent for unfermented tobacco, and 125 percent for white sugar. The unit values rose largely due to higher dollar prices for these commodities in CIS markets because of the appreciation of local currencies, especially the Russian ruble, relative to the dollar. Other factors include the gradual reorientation of exports toward non-CIS countries, where prices have been higher, and better knowledge of international markets by Kyrgyz exporters and the establishment of closer business relations with foreign partners.

The most important agricultural imports in 1996 were raw sugar ($83.7 million), wheat ($22.3 million), wheat flour ($11.6 million), vodka ($6.0 million), and molasses ($5.2 million). The Kyrgyz Republic imports most of its agricultural inputs, such as mineral fertilizers ($10.7 million), and fuel ($43.7 million in gasoline and $21.5 million in diesel fuel).

In dollar terms, the unit values of imports of agricultural inputs rose 5 percent for gasoline, 75 percent for raw sugar, and 49 percent for fertilizers, and fell 20 percent for diesel fuel. Imported fuel prices changed relatively little because CIS fuel prices (the CIS was the main source of energy for the Kyrgyz Republic) were already close to world levels before 1994 and have not increased significantly since then. The dollar prices of agricultural outputs were much slower to adjust to world levels. Thus, Kyrgyz agricultural exports enjoyed an improvement in terms of trade from 1994 to 1996.

Foreign Trade Regime

The export regime has been gradually and substantially liberalized. Export taxes have been eliminated and nontariff barriers eased. However, exports to countries outside the CIS are subject to the same 20 percent VAT as products sold domestically. Several administrative burdens need to be reviewed, especially those related to certification. As of the summer of 1997, Kyrgyz exporters of agricultural products were required to obtain a hygienic certificate, issued by regional Sanitary Epidemiological Stations; phytosanitary certificate, issued by the quarantine authority; a certificate of standard, issued by the State Committee on Standards; and a certificate of origin, issued by the Chamber of Commerce and Industry, a process estimated by Ministry of Trade and Industry, to take 4 to 10 days. While sanitary standards and grading are an integral part of agricultural trade, the Kyrgyz Republic still relies on the old Soviet system of standards (GOST), which is not normally accepted outside the CIS. These need to be revised. The process of certification also needs to be expedited and made more transparent. The processing industry and farmers need to be educated about international grades and standards and what it takes to meet them, and processors need access to commercial loans for working capital and investment to bring their operations up to international standards and thus to make them competitive in international markets.

Importing and transit countries still impose many formal and informal restrictions on Kyrgyz exports. Foods are subject to very high tariff and nontariff barriers in industrial countries, especially in Europe. Kyrgyz Republic has joined a Customs Union with Belarus, Kazakhstan and Russia, but the Customs Union is poorly coordinated and not very efficient. Members often take steps detrimental to other members, such as the unilateral imposition of duties on other member's imports. For instance,

Kazakhstan, a transit country for Kyrgyz exports en route to Russia, levies a $300 charge on all trucks entering the country and for trucks with cargoes valued at $3,000 or more an additional levy of $100 for each oblast they pass through. Import tariffs in the Customs Union have not been unified, and the declared goal of free trade has not been achieved.

Kyrgyz import regime has also been liberalized and is close to meeting World Trade Organization (WTO) rules. There are no quota restrictions on agricultural imports, and tariffs for agricultural products and processed food are relatively low. There are no tariffs on imports of agricultural inputs such as fertilizers. The remaining differences with the WTO practices are not very substantial, and the country is expected to obtain membership soon. There is some evidence, however, that significant informal barriers still exist for both exporters and importers. The Government should identify and remove these barriers.

Export Problems and Strategy

Remote, land-locked country. The Kyrgyz Republic is remote and land-locked, putting it at some economic disadvantage. Its location increases transportation and selling costs and presents various barriers to its products en route to foreign markets. The closest seaport, Novorossiysk, is 3,800 km away. To minimize the adverse impact of high transport costs, Kyrgyz Republic's export strategy must emphasize exports of high-value and less bulky products to its neighbors.

Loss of traditional markets. Before independence, Kyrgyz Republic exported mainly to other republics within the former Soviet Union. Those markets are now greatly diminished and the Kyrgyz Republic is finding it difficult to compete in new markets elsewhere. It needs to reestablish market relations with the CIS countries and to identify new buyers in other markets.

Low quality of export products. Many agricultural exports are of low quality, which reduces their prices and acceptability in international markets. The low quality of raw material and the generally low quality of processing and packaging are responsible for low quality products. Processing plants use obsolete technology, and spare parts are in short supply. For some products, processing has shifted to smaller local plants, which may result in an even greater deterioration in quality. Improvements in quality will take time and financial resources (both working capital and investment credit). Processing plants must be modernized. A first step would be to establishment a grades and standards laboratory and training center. There is also a need to attract foreign investors by removing barriers to their entry.

Wrong export composition. The main Kyrgyz agricultural exports are bulky unprocessed commodities and the processed outputs of old, inefficient processing plants. Both are problematic in terms of the long-term international specialization of the country. What is needed instead is a shift to high-value specialty crops, preferably processed. Food processing should be based on local raw materials rather than imports. Prospective agricultural exports may include such commodities as cotton and cotton lint, tobacco (preferably fermented), wool (preferably cleaned), fruits, meat and processed meat products, and processed vegetables. A shift in export composition requires a significant structural change in the agro-industrial sector, which needs new technology and investment.

Trade barriers. Trade barriers — both domestic and foreign barriers to its exports — must be reduced. It is essential to improve the functioning of the Customs Union and to join the World Trade Organization with prospects of obtaining a developing country tariff exemption. Export procedures need to be simplified, the VAT on exports removed (the VAT makes exports less competitive in international markets) and lower tariffs negotiated with Kazakhstan and other major trading partners.

Limited knowledge of potential Kyrgyz exports. To increase its exports, the Kyrgyz Republic needs to promote its exports among potential foreign buyers by forming an export promotion council supported by government and private exporters. The council should also promote the use of international grades and standards for Kyrgyz exports. This will attract a wider range of buyers and obtain higher prices for Kyrgyz products.

CHAPTER V.

DEVELOPING A COMMERCIAL RURAL CREDIT SYSTEM

Credit plays an important role in promoting agricultural efficiency and alleviating rural poverty. Empirical evidence from around the world indicates that credit stimulates the agricultural supply response by promoting the adoption of modern technology, including modern seed varieties and seasonal inputs. Investment in agricultural and rural activities with high rates of return not only improves productivity but also has a positive impact on rural poverty by creating employment, and improving household income. The main principles for establishing a commercial system of rural credit are presented in Table 5.1.

Table 5.1: Principles of a Commercial Credit System

Principle	Explanation
Creditworthiness	The borrower (legal entity or person) must be creditworthy to qualify for credit. Establishing creditworthiness requires determining a borrower's annual income, expenditure, and existing debt obligations
Equity contributions	The borrower must be required to contribute cash toward seasonal or investment finance requirements in order to increase commitment and minimize nonrepayment risk.
Collateral security	To ensure full recovery of credit collateral security in the form of physical assets (land and equipment) or crop output is essential.
Positive real rate of interest	It is essential to charge positive real rates of interest in order to increase the effective credit supply, reduce excessive credit demand, and discourage credit misuse.
Credit repayment	To develop a "credit culture," it is important to enforce credit repayment; credit was rarely repaid within the Soviet System.
High rates of return	Any activity that is to be financed through credit must have high financial and economic rates of return. Otherwise, the borrower will not be able to generate adequate financial returns to repay the loan.

REFORMING THE RURAL CREDIT SYSTEM

Reduction in Credit Transfers

Budget allocations for agricultural credit in the Kyrgyz Republic rose from about 22 million som in 1992 to 139 million som (in current terms) in 1996 (263 million som if donor grants are included; see Table A.5.1). The 1997 budget allocation for agricultural credit was 150 million som (in addition, 150 million som was provided by the Japanese Government in the form of commodity credit). Of budget allocations for agricultural credit from 1992 to 1996, only 103.5 million som was repaid in 1996; 42 million som was written-off, and 105 million som was added as interest (mostly in 1995 since no interest was charged before that). Total accumulated credit, including interest and excluding amounts written-off or recovered from 1992 to 1996, was 530 million som. In 1997, the Government recovered 177 million som while allocating new agricultural credit of 150 million som, implying a net outflow of 27 million som from the agricultural sector. (These estimates do not include any budgetary credit allocations to agro-industrial enterprises.)

Budgetary credit to the agricultural sector primarily took the form of commodity credit to supply seasonal agricultural inputs — fuel, fertilizers, pesticides, seed, and spare parts during the sowing and harvesting seasons (see Table A.5.2). Budgetary credit was not made available for long-term investments, although grant funds from Japan were made available in the form of farm machinery, primarily tractors and combines. In 1997, budgetary credit allocations went to a farm equipment leasing company and a seed money for the Kyrgyz Agricultural Finance Corporation (KAFC), as well as to finance inputs. Farm surveys carried out by various agencies indicate that large farms, not the emerging private farms, are the primary beneficiaries of budgetary credit programs.

Budgetary Credit Transfer Policy

It is impossible to develop and sustain a commercially viable agricultural credit system in an environment of expanding budgetary allocations for agricultural credit and limited credit recovery. Under a World Bank supported Rural Finance Project, the Government agreed to reduce and phase out budgetary transfers for agricultural credit over a period of two years, beginning in 1998; to charge positive real rates of interest; not to channel budgetary credit through KAFC; and to clearly define and enforce eligibility criteria for budgetary credit. Furthermore, credit policy should be used to promote farm restructuring away from less efficient large farms to more efficient farm organizations.

Resolution of Outstanding Farm Debt

Of outstanding farm debt from 1992 to 1996, 1012 million som was owed to Agroprombank, 690 million som was for budgetary allocations for agricultural credit, and the rest was interenterprise arrears (amount is being estimated by the Government).

Agroprombank debt. Of the 1,012 million som owed to Agroprombank as of October 1, 1996, 62 percent was principal due, 20 percent was principal overdue, and 18 percent was accumulated interest on overdue principal (see Table A.5.3). No interest is being charged on the outstanding debt. About half the debt is owed by agro-industrial companies, consumers union (Petrobsoyuz), and input supply organizations, and the rest by large farms, primarily the state and collective farms.

As part of the World Bank Financial Sector Adjustment Credit (FINSAC) agreement with the Government, Agroprombank was liquidated and the Debt Resolution Agency (DEBRA) was established

on July 5, 1996, to recover the debt owed to Agroprombank. DEBRA, which was established for an initial period of three years, is aggressively pursuing debt recovery. In the process it is sending a clear message to borrowers that credit has to be repaid. Despite its efforts, DEBRA estimates that debt recovery over three years may not even reach 10 percent of the Agroprombank debt (about 63 million som was recovered from July 1, 1996, to December 31, 1997). The savings due to the liquidation of Agroprombank are estimated at 16.5 million som as of the end of 1997.

DEBRA is recovering credit through mutual agreements with the borrower on restructuring the debt, declarations of bankruptcy and auctioning of enterprise property, and auctioning of the collateral used to secure the loan. DEBRA accepts goods with a market value, including farm produce (but excluding social infrastructure, such as schools, hospitals, and houses) to pay off the debt. Due to the high rate of inflation, the real value of the debt owed to Agroprombank is falling in value to well below the original credit amount. The newly emerging private farms should not be forced to pay the old debts of state and collective farms. The debt recovery effort by DEBRA should be wrapped up as soon as possible, preferably within the original three year time period.

Debt to the government. The agricultural sector owes at least 500 million som to the Government in accumulated budgetary credit allocations (including some interest) from 1992 to 1997. This credit was channeled through the oblast and rayon administrations to the ultimate beneficiaries. Since most of the credit was used to finance the purchase of agricultural inputs, it was used primarily by large farms. It is not clear whether the emerging private farmers are legally responsible for credit borrowed by the parent legal entities, such as state or collective farms.

The real value of debt owed to the government has also been substantially reduced by high inflation. The Ministry of Agriculture and Water Resources and the Regional Administrations are in the process of recovering the budgetary debt. They should attempt to recover as much debt as possible through debt restructuring and negotiations, within the new legal environment and changed legal status of old farms. Again, this effort of debt recovery should be wrapped up as quickly as possible. Otherwise, it is likely to paralyze the farm privatization effort, particularly the emergence of more efficient private farms.

Interenterprise arrears. In addition to the debt owed to Agroprombank and the Government, many farms and enterprises owe debt to other enterprises for the purchase of agricultural inputs such as fuel or fertilizers. Similarly, many agro-industrial enterprises purchase raw materials from farms on credit but are unable to make the payments. The total amount of interenterprise arrears is unknown but is expected to be substantial. The Government has established a task force (consisting of representatives from DEBRA, KAFC, the Ministry of Agriculture and Water Resources, the Ministry of Finance and Economy, the Ministry of Industry, Energy Holding, and Akimiats Oblast) to collect information on interenterprise arrears and develop a strategy to deal with them. Quick resolution of old debt is essential to promote agricultural adjustment and the development of a commercial rural credit system.

New Interest Rate Policy

In 1996, annual inflation was about 35 percent and market interest rates ranged from 45 percent to 120 percent a year. Yet budgetary credits to the agriculture and other sectors carried little (10 percent a year) or no interest. Various donor-sponsored credit programs charged interest rates 9-12 percent in 1996. Such highly subsidized interest rates cause demand for credit to rise since it is primarily a demand for a credit subsidy (low interest, high inflation and little or no credit recovery), and the supply of other credit (from commercial banks) to shrink. Any effort to develop a commercial credit system cannot be

sustained under these circumstances. Under the World Bank-supported Rural Finance Project, all credit will be provided at positive real rates of interest, which will be gradually raised to commercial levels as the economy stabilizes, the agricultural sector recovers, and profitability improves. In 1997, KAFC charged annual interest rates of more than 30 percent, while annual inflation was estimated at 15 percent.

Legal Requisites for Commercial Credit

Laws are needed in several areas to facilitate the development of a commercial credit system in the Kyrgyz Republic. Most are in the process of being put in place, but their passage needs to be accelerated. Appropriate institutions and staff capacity will also need to be developed for implementation and enforcement. Especially important are land laws (Land Code and Land Registration Law), to ensure land use rights and the development of land markets; Mortgage Law, to use land as a collateral for securing loans; Part II of the Civil Code, to enable enforcement of the credit contract; and Cooperative Credit Law, to facilitate the development of a commercial credit system through credit unions, credit cooperatives and cooperative banks.

CREDIT REQUIREMENTS AND SUPPLY

Credit Rules-of-Thumb

In the highly distorted rural credit market, it is difficult to determine effective demand for credit. Two rules of thumb derived from international experience are useful for determining agricultural credit requirements. Credit requirements range between 10 percent (for subsistence agriculture) and 30 percent (for commercial agriculture) of agricultural, GDP or they add up to 50 percent of cash operating costs, including costs for inputs and services. If the two estimates differ, the lower estimate can be used. Under the first rule, credit requirements in 1996 would have been at least 1,250 millionsom (1,0470 million som times 12 percent) The credit supply met only about 25 percent of those needs. In 1997 credit supply met only about one-third of the need. Thus credit remains an important constraint to recovery and growth in the agricultural sector.

Attributes of Agricultural Credit

Agricultural credit conditions differ from credit for industrial or service sectors, in several ways:

- Relatively low ***returns*** to investment
- Relatively high ***risk*** of nonrepayment or default
- Generally high ***variability*** in returns and risk
- ***Seasonal nature*** of production cycle
- Generally high price ***distortions***
- High probability of ***government intervention*** due to urban bias and food security concerns
- Highly ***dispersed and less organized*** farming community
- Per farmer ***credit requirements are generally very small.***

These attributes of agricultural credit make it a relatively more risky and less profitable business for commercial banks or other commercial credit institutions. Furthermore, the transactions costs are generally high, partly to compensate for high risk, low profitability, and high administrative costs. While these attributes justify the gradual development of a commercial credit system, they do not justify subsidized and directed credit in the long run.

Credit Supply Sources

Total credit in 1996 was an estimated 320 million som (Table A.5.4). It was supplied by budgetary allocation (43 percent of total credit), bilateral donors (39 percent), and NGOs (18 percent). Most of the credit was supplied in-kind as commodity credit and was highly subsidized. The average annual rate of interest was below 12 percent while the annual inflation rate was 35 percent. Credit was given for three broad categories of items: agricultural inputs (fuel, seed, fertilizer, pesticides, and spare parts for farm machinery); agricultural machinery, mainly tractors and combines, as grants from Japan; and small agro-industrial or agri-business activities financed primarily by donor-funded NGOs (Mercy Corp., GTZ, and KR/US Joint Commission).

Total credit in 1997 was an estimated 445 million som provided mainly through budgetary allocation (34 percent of total credit), bilateral donors (34 percent), NGOs (17 percent), and the Kyrgyz Agricultural Finance Corporations (11 percent). Again, most of the credit was given in-kind as commodity credit for the same three broad categories as in 1996. The Government planned to charge 10 percent annual interest on budgetary credit and credit supplied by the donors, and NGOs planning to charge interest at roughly the projected inflation rate (about 17.5 percent in 1997). The average credit recovery rate by NGOs is about 75 percent. The recovery rate for budgetary credit has generally been very low, but in 1997 the Government substantially improved the recovery rate. The Government has decided to phase out budgetary credit in 1999 and to charge higher rates of interest (at least equal to annual inflation plus a margin) in 1998 and 1999.

Three new credit supply sources provided agricultural credit during 1997. Kyrgyz Agricultural Finance Corporation (KAFC) was established as a temporary nonbank credit institution to provide credit on commercial terms while the long-term commercial credit system is being established. It provided about 50 million som (about 11 percent of total) in credit in 1997 at annual interest rates above 30 percent, with an almost 98 percent recovery rates. Over 20 credit unions were established (two pilot credit unions were operational in 1996) as part of the ADB supported Rural Credit Project. They are expected to start disbursing funds in 1998. Commercial companies have also started to provide agricultural inputs in exchange for output as part of the so-called contract farming arrangement. In addition, there is some evidence that trade finance is emerging in parts of rural areas, but the credit amounts are very small.

Shift to a Commercial Credit System

Credit will be provided much more efficiently by the private sector, including credit unions and credit cooperatives. To facilitate the shift to commercial credit, Government should phase out subsidized credit directed to specific farms or processing enterprises by 1999 at the latest. Also by then, past debt should be recovered, restructured, or written off, and recovery provisions strictly enforced for new loans. Interest rates should be positive in real terms and gradually raised to commercial levels. International experience demonstrates that any credit delivery system that does not follow these recommendations will eventually fail. A case can, however, be made for financial support to the agricultural sector during transition, provided it is targeted to priority activities or areas, is transparent with respect to eligibility criteria and disbursement, promotes efficiency and adjustment, and is phased out quickly. Commercial credit institutions should not be used to implement such a policy to provide financial support to the agricultural sector in financial distress during transition.

DEVELOPMENT OF COMMERCIAL CREDIT INSTITUTIONS

Potential Borrowers

Four categories of farms and enterprises are in need of agricultural credit:

(i) Large farms such as state farms, collective farms, cooperative farms, joint stock companies, and associations of peasant farms

(ii) Small private farmers such as individual peasant farms and household plots or groups of individual peasant farms and household plots

(iii) Agri-business enterprises, particularly those involved in imports and marketing of critical agricultural inputs

(iv) Agro-industrial enterprises, particularly agricultural processing firms that need to make investments and finance the purchase of raw materials from farms.

Credit Delivery Mechanisms

Because of the limited supply of loanable funds and limited institutional capacity to administer and recover loans, a larger share of loanable funds should initially be made available to private agri-business and agro-industrial enterprises. They should be required to provide cash or in-kind commodity credit to both large and small private farmers in the form of critical agricultural inputs. Providing credit to agri-business enterprises would establish linkages between the credit market and emerging markets for agricultural inputs by facilitating the supply of critical agricultural inputs to farmers through private input dealer network. Such credit would be relatively easy to administer in terms of approval and credit recovery. The agri-business enterprises or traders can then sell inputs on a cash or credit basis. In such a credit arrangement, which is common around the world, farmers repay the loan at the end of crop harvest or through sale of livestock or livestock products. This type of credit arrangement, known as trade finance or dealer credit, is emerging informally in certain parts of the country.

Providing credit to agro-industrial enterprises would also help establish and strengthen linkages between the credit market and markets for agricultural output, thereby increasing demand for agricultural commodities (weak effective demand is a serious constraint to agricultural recovery) and facilitating the development of agricultural markets. The agro-industrial enterprises could provide credit to farmers in the form of agricultural inputs or credit vouchers for inputs. Farmers can repay their loans by selling their surplus produce to the agro-industrial enterprise. This arrangement, known as contract farming, not only facilitates the supply of agricultural inputs to farmers but also provides markets for their output. Like dealer credit, contract farming is emerging in parts of the Kyrgyz Republic.

Priorities for Promoting Efficiency

The highest priority for credit would be activities that can improve efficiency in the agricultural sector and so help to reduce rural poverty:

(i) *Seasonal inputs* to improve agricultural productivity and production

(ii) *Leasing companies* to provide farm equipment or services such as plowing, harvesting, and transport

(iii) *Storage facilities* to reduce losses

(iv) *Agricultural processing facilities* to create demand for agricultural raw materials and to improve quality, value added, and shelf-life.

Within these categories, commodities or activities should receive credit only if they have high financial and economic rates of return.

CHAPTER VI

STRENGTHENING FISCAL MANAGEMENT OF AGRICULTURE

Most of the Kyrgyz economy has been liberalized. With few exceptions, prices have been decontrolled and are determined by the forces of supply and demand. Visible direct subsidies have mostly been abolished. There are no foreign exchange restrictions and the som floats freely. Privatization is proceeding well. While agriculture's historically large share of fiscal resources has been reduced, there is still scope for improving management and resource transfers to agriculture.

MODERNIZING EXPENDITURE AND BUDGET PROCEDURES

The Ministry of Finance (MOF) is responsible for economic policy, which it implements through the budget. Donors have provided considerable technical assistance for reforming budgetary procedures at the MOF. This includes technical assistance provided through the World Bank-supported Public Sector Resource Management Adjustment Credit (PSRMAC). However, only limited attention has been paid to the budgeting procedures of the line ministries, including the Ministry of Agriculture and Water Resources. Because budget estimates are developed from the bottom-up, the budget lacks a strategic development perspective and prioritization.

Advisability of Program Budgeting

A program budgeting approach is a much more efficient means of budgeting. At the central government level, different programs may be broadly associated with different administrative agencies, ministries, or departments, with some overlap. The effectiveness of expenditure budgeting increases if a particular program is viewed as a whole rather than as parts of the programs of different agencies. Program budgeting also promotes cost-benefit analysis of budget proposals and provides incentives for ministries to devise measures to increase revenues through cost recovery.

Separate Development and Recurrent Budgets

Standard budgeting procedures call for showing development (capital) expenditures separately from current expenditures. This distinction is blurred under the budgeting system now in place. In preparing the budget, both current expenditures and revenues need to be detailed. On the revenue side, line ministry budgets need to show funds requested from the MOF (the MOF conveys the budget ceilings to the line ministries for their budget preparation) plus proposed cost recoveries. On the expenditure side, items should be prioritized and roughly balanced within the ceilings set by the MOF. The development (capital) budget should be prepared separately. Investment requests go in the capital budget. It is important to note that the assets of the capital budget entail additional operations and maintenance costs, which must be reflected in the current expenditure.

Desirability of Agricultural Economic Report

No economic report assessing the conditions and the prospects of the agricultural sector is currently prepared to back up the expenditure budget of the MAWR. Such a report should set out the rationale for the agricultural expenditure budget and for the proposed budget allocation among different

agricultural programs. The report should also estimate and analyze agricultural production, input availability, problems in the preceding year, and lessons learned, and the prospects for the budget year.

RATIONALIZING TRANSFERS TO AGRICULTURE

Transfers to agriculture consist of direct and indirect subsidies, budgetary expenditures on agriculture, public investment in agriculture, and taxes paid by agriculture (negative transfers or transfers out of agriculture). Indirect costs consist of indirect subsidies (the difference between the subsidized price of an input and its opportunity cost) and the efficiency loss (or the deadweight loss) in the market of a commodity whose price has been distorted by direct or indirect subsidy.

Subsidies

According to information from the MOF direct subsidies (payments in cash or kind) were reduced to 0.015 percent of GDP in 1993. Subsidies in the form of debt write-offs were also stopped (old Agroprombank and budgetary debts are being recovered) or substantially reduced in 1994 (see Chapter V). This is an important reform although part of the decline in direct subsidies has been offset by an increase in indirect subsidies.

While direct subsidies are mere transfers with real opportunity cost but no hidden economic costs, indirect subsidies have indirect hidden costs as well as direct visible costs. The sole economic justification for indirect subsidies through price subsidies is administrative convenience — that is rarely enough of an advantage to offset the high economic costs.

The main indirect subsidies are low charges for irrigation water (see Table A.6.1), low tariffs for electricity (see Table A.6.2), and concessional credit (see Chapter V). Indirect input subsidies distort input use and the composition of agricultural production. They also entail fiscal costs in the form of lost fiscal revenues and the weakened financial position of public enterprises. The government has already proposed a 25.6 percent increase in tariffs for electricity in 1998 (average tariff rate). In irrigation, cost recovery needs to be increased and it should include operations and maintenance costs as well as part of the investment cost, particularly investment to rehabilitate on-farm irrigation system.

Budgetary Expenditures on Agriculture

More comprehensive coverage of expenditures specifically allocated to agriculture would include expenditures for the MAWR, the Forestry Department, the Department of Water Resources, the Fishery Department, and the State Land Agency. The budgetary allocation to agriculture has risen since 1993, although it fell slightly as a share of agricultural GDP in 1996 (Table 6.1).

Visible Taxes Paid by Agriculture

Agricultural taxes were consolidated into a single land tax effective January 1997 when the VAT was merged with the already (in 1995) consolidated land tax, road tax, profits tax, and emergency fund payments. Tax revenue from agriculture has increased steadily since liberalization began, but at more than 45 percent of GDP, agriculture should contribute a significantly higher share of tax revenues. Agriculture paid 0.87 percent of agricultural GDP in taxes in 1994 and 2.43 percent in 1996. Revenue from the land tax increased from 0.02 percent of agriculture GDP in 1993 to 1.01 percent in 1996 and is expected to reach 3.74 percent in 1997. Currently, the land tax constitutes about 2.68 percent of total tax revenue. (Table A.6.3 shows average land tax rates in 1997 by oblast and type of land use).

Table 6.1: State Budgetary Expenditures on Agriculture, 1993-97

Budget[a]	Millions of Soms				
	1993	1994	1995	1996	1997
Budgetary allocation to agriculture	21.57	64.45	129.50	190.39	241.19
Share of agricultural GDP (percent)	1.04	1.40	1.98	1.82	1.82
Implicit subsidies			15.43	22.39	41.31
Share of agricultural GDP (percent)			0.24	0.21	0.31

a Includes national and regional expenditures. Implicit subsidies are included in budgetary allocation to agriculture.

Source: Ministry of Finance.

The land tax is an excellent tax for agriculture. It represents a fee for exclusive use of a valuable economic asset (land), and it provides incentives to increase production since it is a fixed cost and is not assessed on the value of agricultural production. Thus it encourages the best use of land while creating no disincentive to increased production. It is also relatively easy to administer.

On April 9, 1998, the Legislative Chamber issued a resolution *On Base Rates of Unified Agricultural Tax for Usage of Agricultural Land,* proposing new base rates for 1998 (Table 6.2). The resolution proposes to fix the base tax rates for each rayon. Rayon authorities could introduce differential rates within the rayon, provided the rates do not exceed the base rate. For remote areas, tax rates would be half the base tax rate for the rayon. Land irrigated by pumping stations is classified as nonirrigated land and is therefore subject to the lower base tax rate. According to the resolution, the land tax revenue would be distributed as follows: 60 percent for a Village Socioeconomic Development Fund, 15 percent for rayon budgets, 15 percent for oblast budgets, and 10 percent to establish and finance a State Agricultural Insurance Fund. The tax revenue allocated to rayons and oblasts would be earmarked for soil improvement. These provisions need to be examined further, particularly in the light of recommendations made by the Government. It is not clear whether the new resolution will be implemented and if so when or what modifications are likely to be made. While some of the provisions of the resolution are positive (such as decentralization), the proposed reduction in the base rates for the land tax is not a step in the right direction. Rather the base rates need to be rationalized to improve inter-sectoral equity and increase land tax revenues. The international experience supports the view that the base rates for land tax should not be reduced.

Table 6.2: Proposed New Base Rates for the Land Tax (som per hectares)

Type of land	1997 (existing)	1998 (proposed)	Change
Arable irrigated	383.2	160.8	-58
Arable nonirrigated	157.5	38.9	-75
Perennial crops	177.8	81.8	-54
Hay fields	40.8	17.1	-58
Pasture land	10.8	4.8	-56

Source: Resolution of one of the Houses of the Parliament.

Public Investment in Agriculture

Investment in agriculture is managed through the Public Investment Program (PIP) as an extrabudgetary fund. Domestic financing of public investment in agriculture is very low and has declined during the transition. External donor funding of investment has increased in terms of commitments, although actual disbursements thus far have been small and much of that has gone to finance technical assistance and training. The Government's Public Investment Program for 1998-2000 (both budgetary and non-budgetary) focuses on financing the recovery of the agricultural sector, investing in strategic national infrastructure, maintaining existing infrastructure, ameliorating harmful environmental legacies, and supporting the policy and institutional reforms necessary to facilitate economic growth and development. Of total proposed investment disbursements during 1998-2000, $200.4 for 1998, $242.9 for 1999, and $251.5 for 2000), about 16 percent ($110 million equivalent) is allocated to agriculture and natural resource management, while agriculture contributes over 45 percent to GDP.

NET TRANSFERS AND POLICY IMPLICATIONS

Net annual transfers to agriculture (net of all budgetary and nonbudgetary transfers, negative or positive) have fallen since 1994, when reform began, from 3.85 percent of agricultural GDP to 0.82 percent in 1996 (see Table 6.3), which is below the World Trade Organization's (WTO) target subsidy level of 10 percent. But while direct subsidies were virtually abolished in 1994, total indirect price-based subsidies increased in 1995, and then declined in 1996. Subsidies through low interest credit and debt write-offs are being phased out, and indirect subsidies on tradable inputs have more or less been terminated. These were bold and critical measures in agricultural policy reform. But subsidies through below-cost pricing of nontradable agricultural inputs, particularly electricity and irrigation water, have increased (see Tables 6.3, A.6.1, and A.6.2). This shift from direct subsidies to highly inefficient indirect subsidies has heavy economic costs. Input subsidies sustain inefficient farm units and result in the misallocation of resources by supporting the expansion of crops in which the country may have little comparative advantage.

In short, indirect subsidies through input prices lead to inefficient agriculture. This indirect support to agriculture needs to be reduced (and ultimately eliminated) as soon as possible. Once farm technology and agricultural techniques adjust to the subsidized input prices, any change in policy will cause heavy losses to individual producers, particularly small private farmers. It is better that newly emerging private farmers startout buying inputs at market prices and make their production decisions accordingly. However, in order to purchase inputs, these farmers must have access to commercial credit. The availability of credit is critical since farmers generally receive their income at the end of the season. Furthermore, public investment should be increased to finance critical public good activities such as agricultural research and development, farmer information system, and rural infrastructure.

Table 6.3: Summary of Estimated Transfers to Agriculture, 1994-96

(Percentage of agricultural GDP)

Type of transfer	1994	1995	1996
Annual Opportunity Cost			
Direct subsidies	0.00	0.00	0.00
Indirect subsidies			
Irrigation	0.71	0.96	0.95
Electricity	-0.11	-0.05	0.00
Credit	2.34	4.80	0.44
Budgetary expenditure specific to agriculture	1.40	1.98	1.82
Including implicit budgetary subsidies		0.24	0.21
Investment (budgetary)	0.38	0.26	0.04
Taxes paid by agriculture (visible and direct)	-0.87	-2.33	-2.43
Total net transfers	**3.85**	**5.62**	**0.82**
Cumulated Opportunity Cost[a]			
Direct subsidies	0.00	0.00	0.00
Indirect subsidies			
Irrigation	0.71	2.33	3.40
Electricity	-0.11	-0.26	-0.28
Credit	2.34	9.32	10.23
Budgetary expenditure specific to agriculture	1.40	1.98	1.82
Including implicit budgetary subsidies		0.24	0.21
Investment (budgetary)	0.38	0.98	1.07
Taxes paid by agriculture (visible and direct)	-0.87	-2.33	-2.43
Total	**3.85**	**12.01**	**13.81**
Deadweight Losses			
Direct subsidies	0.00	0.00	0.00
Irrigation	0.03	0.18	0.41
Electricity	0.29	0.16	0.28
Credit	5.83	0.46	0.16
Total	**6.15**	**0.80**	**0.85**
Memo items:			
Agriculture GDP (mil. som)	4,596.60	6,551.50	10,470.09
Aggregate consumer price index (1996=100)	49	74	100
Market rate of interest (%)	175	68	46

a Since budget expenditures and taxes are treated as instant consumption, their annual opportunity cost is not cumulated.

Source: World Bank Staff Calculations.

CHAPTER VII

REVITALIZING IRRIGATION AND RURAL INFRASTRUCTURE

Infrastructure, including irrigation, has a direct bearing on rural growth, employment, and poverty. Irrigation policy, particularly the management of irrigation systems, cost recovery, investment, and institutional strengthening is especially important because irrigated agriculture accounts for 75 percent of sown area in the country. The disrepair and absence of other key rural infrastructure is a major bottleneck to rural development.

IRRIGATION AND WATER RESOURCES

Emerging Challenges

Because of the low and unreliable rainfall, rainfed agriculture is possible only in limited areas near the mountains. Approximately 60 percent of the total arable land and nearly all tree crops, gardens and household plots, permanent pastures, shelter belts and plantations are irrigated and 75 percent of total sown area is irrigated (Table A.7.1). About half the irrigated sown area is under grains, and incremental crop yields are higher on irrigated land than on rainfed land — from 17 percent higher for perennial hay to 70 percent higher for wheat.

In the past, irrigation and drainage programs were planned, designed, and constructed by the central government. In a market economy approach, by contrast, the profitability and financial viability of irrigation schemes are key indicators of performance rather than pure physical outputs. Within this general context, three new developments have had a major impact on the management of the sector: the introduction of irrigation water charges (user fees) and farmer participation in decision-making; the dissolution of the state and collective farms which created a vacuum in responsibility for farm-level operations and maintenance of irrigation facilities; and the need for a greater degree of deregulation, privatization of facilities, and decentralization of decision-making processes, mainly through the transfer of irrigation management and investment responsibility to users, organized in the form of water users associations.

Water Resources and Utilization

The Kyrgyz Republic's abundant surface and groundwater resources are important not only to the country itself but also to the other four Central Asian countries. Despite its low average annual precipitation (approximately 415 mm) the country is well endowed with renewable water resources. More than 3,500 rivers flow into river basins within the country and downstream through Kazakhstan, Uzbekistan, Tajikistan, Turkmenistan, and the Xinjiang province of China. In addition, extensive reserves are held in more than 2,000 lakes, permanent snow fields, and glaciers. Total annual runoff is 47.23 billion m^3 or 236 mm, 56.9 percent of the average annual precipitation. This means 10,613 m^3 of available renewable water resources per capita per year, or about the same as in the United States. In the former Soviet Union, some 11.6 billion m^3 (or 28.5 percent) of the total surface runoff (40.69 billion m^3) of the Amu-Darya, Syr-Darya, Talas, Chui, and Isyk-Kul river systems was allocated to the Kyrgyz Republic, the rest to the other Central Asia republics. That reduced the available per capita renewable water resources to 2,688 m^3 per year, not including the Tarim River System in a sparsely populated area

of the country. This level is about equal to that of southern European countries like France, Italy, and Spain, or China and Pakistan. The sources of water (river basins) and pattern of water utilization, including irrigation, for 1993 are provided in Table A.7.2.

In preparation for the World Bank-supported Irrigation Rehabilitation Project, average annual irrigation requirements were calculated at 4,860 m^3 per hectare for an area of approximately 285,000 hectares, covering 38 irrigation schemes, different cropping patterns, and varied agro-ecological conditions. Assuming that of the 11.6 billion m^3 of total surface runoff allocated to the Kyrgyz Republic, 10 percent is used for nonirrigation purposes that would leave about 10.4 billion m^3 for irrigation. For a total command area of 1.07 million ha this would mean an available amount of 9,720 m^3 per hectare per year. To meet net demand of 4,860 m^3 per hectare per year, irrigation efficiency must be at least 50 percent on average. Studies carried out under the TACIS project found water uses efficiencies of 27 percent over an area of 75,000 ha in the Jalal Abad Oblast and 49 percent over an area of 91,000 ha in Naryn Oblast. Although these figures should be interpreted cautiously (they do not take into account possible return flows into the system), it is clear that a considerable effort is required to raise irrigation efficiencies to desirable levels.

Competition for Water

Irrigated agriculture is by far the most important sector in terms of water use. Nearly 90 percent of all water used is for irrigation (see Table A.7.2). There is almost no competition for water use among different sectors of the economy. The one important exception in competition for water deals with the operation of the Toktogul reservoir. Until the break-up of the former Soviet Union, most of the water releases took place during summer for downstream irrigation in Uzbekistan and Kazakhstan. The hydroelectric power produced by the dam was sold to these countries. In winter, when the reservoir had to be filled for the next season's irrigation, the Kyrgyz Republic bought natural gas, coal, and oil for energy production by its thermal plants. With no agreement between the former republics on operation of the Toktogul reservoir, the Kyrgyz Republic modified the operating regime of the plant in 1992 to focus on its power requirements rather than irrigation needs. This is bound to create international disputes, particularly with downstream Uzbekistan. The Kyrgyz Government, according to a statement issued in June 1997, planned to work out the details of a water use strategy with Kazakhstan, Tajikistan, and Uzbekistan by the end of 1997, but the process is still on-going. The government also plans to establish a fee for the water provided to neighboring countries for irrigation purpose, based on international practices.

IRRIGATION SYSTEM AND STRATEGY

Characteristics of the Irrigation System

Because irrigation was not given a high priority in the former Soviet Union, some 60 percent of the total irrigated area in the Kyrgyz Republic lacks adequately designed irrigation systems. The main canal systems were reasonably modern in design but the distribution systems were not fully equipped with water control facilities. Consequently, the irrigation systems at the farm level are difficult to operate efficiently and are costly to maintain.

Financial viability and profitability are the key to sustainability of the irrigated agricultural sector. In 1993 less than 10 percent of the total sown area under irrigation was under cash crops. By 1995 that share had risen to 20 percent, with 50 percent under grains (mainly wheat) and 30 percent under fodder

crops. Crop diversification away from grains and fodder crops and into cash crops, and the development of appropriate marketing channels are among the changes needed to make irrigated agriculture profitable.

About 90,000 hectares, or 10 percent of the total area under irrigation, is under lift irrigation. The Ministry of Agriculture and Water Resources (MAWR) operates 65 pumping stations serving 55,000 hectares, and users operate an additional 153 pumping stations and 1,220 wells serving an area of 34,400 hectares. In preparation for the World Bank-supported Irrigation Rehabilitation Project, pumping costs were calculated for a typical irrigation scheme with a command area of 170 hectares, net irrigation requirements of 4,610 m^3 per hectare, and a static head lift of 85 m. The costs per cubic meter of water would be:

$$Y = 0.404 * X + 0.073 \quad \text{som}/m^3$$

where X is the price of electricity per kilowatt hour (KWH). Assuming world electricity prices of $0.08 (or 1.36 som) per kilowatt hour (the country is a net importer of energy), cost per cubic meter of water for irrigation would be 0.62 som/m^3, or approximately 40 times the water charge of 0.015 som / m^3 in 1996. Pumping stations are currently charged for electricity at the rate of 0.036 som per kilowatt hour, including a 20 percent VAT. This would yield a cost of 0.087 som per cubic meter of water for irrigation, still approximately six times the official water charge.

Drainage conditions on irrigated lands. Some 140,600 ha of irrigated lands, mostly in Chui valley, have drainage facilities: 65,100 ha with open drains, 68,100 ha with covered pipe drains and 7,400 ha with tubewell drains. More than half the area (87,900 ha) suffers from excessive high groundwater levels, soil salination or both. Because of lack of maintenance, drainage facilities do not function properly. Tubewell drains have almost completely ceased to function. There is a critical need for analysis of drainage technology options (vertical or horizontal drainage, open or covered drains, shallow and densely spaced or deep and widely spaced). Agro-hydrological, technical, socioeconomic (land losses), and environmental aspects also need to be examined.

Environmental concerns. Of the 1.074 million ha of irrigated land, 60 percent is eroded to some extent. Soil erosion has become a serious problem, affecting soil fertility, water pollution, and accelerated sedimentation of reservoirs, lakes, and irrigation systems. Deforestation has eliminated a good part of the protective cover of the country's steep mountain ranges, while continued overgrazing has reduced protection from grass cover.

Most *surface water* is considered to be of good quality since snowfall on the high mountain slopes is the primary source of river waters in the Kyrgyz Republic. However, some drains, canals, and rivers near cities and industrial areas are contaminated by sanitary wastes, livestock manure, and industrial toxic and hazardous wastes. Such hot spots occur in the heavily populated Chui river basin, lower section of Kara Darya and Naryn tributaries in Osh and Jalal-Abad Oblasts, and the Tup rivers flowing into Issyk-Kul Lake.

Irrigation Management, Ownership, and Use Rights

Water users associations. The country has 631 irrigation schemes that have their own water intake facilities (one or more). Two of the schemes of 50,000 ha or more cover a total area of 126,000 ha, while 102 systems of less than 100 ha each cover a total area of 6,000 ha. This diversity has important implications for irrigation management, water pricing, and cost recovery.

Ownership of irrigation facilities. The state owns the irrigation and drainage facilities of the main system, which are managed by the Department of Water Resources of MAWR. The department regulates the use of water resources and is responsible for the design, construction, and operation of all off-farm irrigation infrastructure. The land on which these facilities are built also belongs to the state. Ownership of the irrigation facilities on the former state farms was previously exercised by the farms, but it is unclear who exercises this right during the transition. On the former collective farms, irrigation facilities were owned by members of the collective. By decree of the MAWR, these rights have been transferred to Village Councils. However, since the collapse of state and collective farms, the irrigation networks have seriously deteriorated.

Experience in other countries has shown that turning over irrigation systems management and investment responsibility to water users associations can create a sustainable arrangement for operations, maintenance, and use of irrigation systems. However, the state retains responsibility for policy and regulation. The Kyrgyz Republic needs to consider two possible options for the management of irrigation facilities. A transferring ownership of the irrigation facilities or transferring use rights to the water users associations. If just use rights are transferred, the lease agreement would need to specify the obligations of the state and the water users association with respect to maintenance of the irrigation facilities.

Land and water use rights. For land located in irrigated areas, the right to use the land is associated with the right to use the water, a right conferred through a license. Since responsibility for the operation and maintenance of the system will be entrusted to water users associations, the license to use water should also be established in the name of the association and not in the name of the individual land use right holder. The association will be responsible for distributing water in accordance with the water rights associated with the right to use the land. The rules and procedures governing water allocation and distribution will need to be specified in an operations manual, which should be in accord with national policy directives and approved by the members of the association.

Investment and Cost Recovery

Sector investment strategies. Considerable investments will be required to bring the irrigation system up to efficient standards. Investments are needed to make up for years of neglect, to complete the unengineered parts of the system, and to adapt the system to the new structure of farm organizations. Total investment requirements have not been estimated, but rehabilitation costs are estimated at about $650 per hectare ($100 per hectare for rehabilitation and repairs of the main systems per hectare, $250 per hectare to increase the number of canal regulating structures and outlets at secondary and tertiary level, $250 per hectare to improve field-level water distribution, and $50 per hectare for land drainage). Depending on the size of the area to be included in the program, total rehabilitation costs could be on the order of $500-$600 million. Furthermore, detailed analysis is needed to estimate the total cost of the necessary investment to rehabilitate the irrigation system.

The main elements of a strategy to address how the investments should be phased, financed, and implemented are contained in Bank-financed irrigation projects. The proposed World Bank-financed Irrigation Rehabilitation Project for the rehabilitation of selected parts of the main system of canals and dams is an essential step toward a better use of the irrigation system. This activity should be supplemented by improvements in the on-farm irrigation systems. In the proposed World Bank-supported On-Farm Irrigation Project, users would be encouraged to form water users associations and to specify their demand for rehabilitation subject to their commitment to repay the investment cost. Priority will be given to schemes whose investment costs can be quickly repaid (in one to three years) from the resulting incremental income. The success of water users associations in rehabilitating their systems has depended on the transfer of responsibility for managing related irrigation systems, sometimes whole canal

systems. Under the proposed World Bank-supported On-Farm Irrigation Project, water users associations would also participate in improving upstream parts of the irrigation system, some of which may be transferred to them for management.

Water charges. Water charges are meant to cover all or part of the costs to operate and maintain the irrigation and drainage facilities. By Presidential decree water charges were imposed at 0.035 som per cubic meter in April 1995. The Jogorku Kenesh reduced the rate to 0.015 som per cubic meter and to 0.005 som for Naryn Oblast. Since the real costs of operation and maintenance are around 0.10 som per cubic meter (including interfarm losses), these reduced rates would cover only about 15 percent of the real costs. Some of the costs can also be recovered by the higher land tax on irrigated land than on unirrigated land. The weighted average land tax for 1997 was 383.2 som per hectare ($22.6) for irrigated land and 157.5 som per hectare ($9.3) for unirrigated land, a difference of $13.3 som per hectare. The land taxes on irrigated arable land could probably cover about 40 percent of the costs of operation and maintenance of the irrigation system.

According to estimates made during preparation of the World Bank-supported Irrigation Rehabilitation Project, irrigation costs at water charge rate of 0.015 som per cubic meter represent just 2-3 percent of the total cash costs and net revenues for irrigated grain crops, 10 percent of total costs and 20 percent of net revenue for fodder crops, and 50 percent of total costs and 30 percent of net revenue for grass hay. There is ample room to increase the water charges for grain and high-value crops. If water charges were raised to the full cost recovery level (0.10 som per cubic meter), irrigation costs for grain crops would rise to 15-20 percent of total cash costs and 25 percent of net revenue. If the increase were part of a total package of improvements (physical infrastructure, better accessibility to credit and inputs), these shares would fall to 10-15 percent and 20 percent. In the case of fodder crops and hay, however, increasing water charges to cover costs would make production uneconomical.

Water charges need to be considered in the wider context of accessibility to all agricultural inputs. In a largely de-monetaized economy in remote rural areas, the absence of credit facilities for the prepayment of water charges is a much more serious constraint than the (very low) level of water charges. A solution might be to include water charges as part of the credit facilities or to postpone payments by farmers till after harvest. The long-term objective should be the introduction of system-specific water charges. This process will be facilitated by turning over responsibilities for operation and maintenance of entire systems to water users associations. These associations will have to develop their own procedures (within a proper legal framework) for levying and collecting water charges for the operation and maintenance of the systems under their jurisdiction.

Water use incentive policies. Volume-based water charges are often claimed to be the most efficient method for encouraging optimum use of water resources. Yet for gravity-based irrigation systems operating under full cost recovery principles, there is little relation between the amount of water used and the costs of operation and maintenance. If less water is used, the unit costs will increase accordingly. Increases in agricultural production through improved water management at farm level, rather than savings on the amount of water used are usually the driving force behind improvements in water use efficiency. Thus credit facilitates for improving on-farm irrigation and drainage systems and the use of appropriate agricultural technology are more appropriate instruments for raising water use efficiency. Establishing markets for trading water rights can also work to improve water use efficiency. Adoption of tradable water rights requires a suitable legal framework and an appropriate system for monitoring and control, including the separation of water rights from land use rights.

Institutional Strengthening

Institutional framework. The institutional framework of the water sector in the Kyrgyz Republic still displays a number of characteristics that can be traced back to the federal system of governance of the former Soviet Union. Surface water resources, for instance, were mainly the responsibility of the individual Republics. Ground water resources, as all mineral resources were, coordinated at federal level. Similarly, hydrometeorological activities were coordinated at federal level. This explains the existence of a separate State Agency on Hydrometeorology that was not attached to the (former) Ministry of Water Resources.

Despite the considerable and commendable efforts by the Government to develop an appropriate legal and regulatory framework for the water sector, there remain some institutional weaknesses that are inherent to the transition process. Issuing and canceling of licenses for the rights to use water for instance is within the mandate of the Ministry of Environmental Protection as well as with the Department of Water Resources of the MAWR and, specially with regard to ground water, with the State Agency (and former Ministry) of Geology and Mineral Resources.

In an effort to reduce the number of ministries and to bring about a better coordination between agriculture as the main user of water, the former Ministry of Water Resources was merged with the Ministry of Agriculture. This merger is a consequence of the view that the main function of the Department of Water Resources of MAWR is the delivery of irrigation water. Unfortunately this leaves a significant institutional gap as there is no other ministry or state agency in-charge of formulating a unitary policy regarding the use of country's water resources. Its merger with the Ministry of Agriculture has weakened the possibility of the Department Water Resources to act as such a coordinating body for the entire water sector. The likely remedy is that the Department of Water Resources transfer most of the irrigation management responsibility to WUAs and it should focus on the policy and regulatory matters.

To satisfy the need for a greater degree of decentralization of decision-making, water users associations and River Basin Authorities are being established to take over a number of responsibilities from government agencies at the republic, oblast and rayon levels. Therefore, there is a need to design and develop a comprehensive institutional framework for the entire water sector that takes into account the various new developments resulting from the reform process. An option that deserves special consideration in the design of such a framework should be the establishment of a National Water Council (NWC). The functions of such a Council should not be limited to irrigation, but should encompass all aspects of water resources management. Such functions should include, among others: the formulation of a national water resources use and development policy; the coordination of sectoral water resources development activities; the monitoring of water resources and their utilization; the control over the implementation and enforcement of water legislation; and the drafting of international agreements on the use of shared water resources.

Research and development. There are two institutes dealing with research and development in the water sector: the Kyrgyz Scientific Research Institute of Irrigation (KSRII) and the Institute of Technical Design, Water Measurement and Automation (PKII). The activities of both of these institutes and those of the Design Institute (Kyrgyzgiprovodhhoz) are coordinated by the Department of Water Resources (DWR). The activities of the KSRII are focused on research at main (telemetric control) as well as at on-farm system level (farm-level irrigation and drainage techniques). The activities of the PKII are mainly in the area of design and installation of automation equipment and the monitoring and control of water measurements. Both institutes are involved in activities of the internationally supported Aral Sea Basin Program.

With the introduction of economic reform, new farm organizations are emerging over time. Also new institutions in-charge of operation and maintenance or water management are being set up, such as water users associations. This means that the stakeholders and beneficiaries of research have completely changed. Consequently, research needs to be adapted to the present situation and it should be a client-oriented, demand-driven research program.

Together with the need to develop a new research agenda, there is also the need to develop an appropriate institutional framework for research in agricultural water use. Such framework should allow for the participation of stakeholders and beneficiaries in decision-making and determining priorities for research. In addition, there is a need to establish appropriate support services at the national and regional levels to plan and introduce effective on-farm water management practices. Demonstration plots, field-days and dissemination of information are among the instruments to be included in the program.

Monitoring, evaluation, and enforcement. In an institutional setting where responsibilities for day-to-day operations are decentralized, the central agencies should concentrate on policy issues; on the development of an appropriate legal and regulatory framework; and on the creation of an enabling external environment for these operations. There is a need for the central institutions to carefully monitor developments outside of its immediate control; to evaluate the extent to which these developments are in line with overall government policies; and if necessary, adjust these policies.

Another equally important aspect is building of institutional capacity for enforcement. Having appropriate rules is one thing, their enforcement is often not adequate, particularly during transition. Laws and regulation on the use of water resources are being reformed, but much less attention has been devoted to building up enforcement capacities.

A different but related type of monitoring is done by the State Agency for Hydrometeorology, which monitors water resources (glaciers) and river flows, through a network of 52 meteorological and 112 hydrological stations. Staff reductions have reduced its activities to levels that are no longer adequate for proper monitoring of national water resources for the economic development of the Kyrgyz Republic as well as strengthening its role in the Aral Sea regional context.

DEVELOPMENT OF RURAL INFRASTRUCTURE

Because of serious budget constraints, the Government has been unable to adequately maintain or rehabilitate rural infrastructure or to develop new infrastructure where it is needed. Adequate rural infrastructure is important to the overall quality of life of people in rural areas; to improve the productivity of land, labor, and capital; for access to domestic and world markets; and for the creation of jobs that make it possible for people to stay in rural areas rather than migrating to urban areas. In this respect, well developed and maintained rural infrastructure is essential to increase rural growth and alleviate rural poverty in the Kyrgyz Republic. Four types of rural infrastructure are particularly important: road and transport network, wholesale and other rural markets, telecommunications, and social infrastructure, particularly water supply, sanitation facilities, schools, and hospitals. In many rural areas, there is also a need to provide an adequate and reliable supply of electricity.

Rural Infrastructure Components

Road and transport network. The Kyrgyz Republic has a reasonably good road network connecting the towns to the major cities, but it is in disrepair. Rural feeder roads for farm-to-market access, particularly for small private farmers, either do not exist or need major rehabilitation.

Wholesale and other rural markets. Farmers' markets, rural markets, assembly markets, and wholesale markets are needed for a well functioning and competitive agricultural marketing system. Markets are needed to enable farmers to buy inputs and sell outputs and to provide a means for price discovery and market integration, both domestic and international. Yet most of these markets do not yet exist either for inputs or outputs. This process of building such markets should begin at two levels: top-down, in the form of at least two strategic wholesale markets (one in Bishkek and one in Osh), and bottom-up, in the form of rural markets at the town level.

Telecommunications system. A modern telecommunications system is essential for integrating rural villages and cities into the global economy and for building a modern marketing and knowledge management systems. Knowledge about world markets, modern technology, best farming practices, and advisory services is critical to improving the productivity, profitability, and sustainability of the agricultural sector. Every farmer, farm manager, manager of an agro-industrial enterprise and trader needs access to the Internet to fully benefit from the world-wide knowledge base made possible by the modern telecommunications revolution. Kyrgyz telecommunications system needs to be modernized and strengthened to serve these functions.

Social infrastructure. Once the responsibility of state and collective farms, social infrastructure and social services such as water supply, sanitation, schools, and hospitals to the rural population are now the responsibility of local governments. But the local governments lack the financial resources to provide these social services efficiently and at the desired level. In many cases, this is a major constraint to farm restructuring.

Rural Infrastructure Strategy

Development of rural infrastructure is an important public good activity that is not only critical for rural development but is also complex, costly, spatially dispersed, and involves different levels of government. Generally, it is not attractive to private investors. As a result, rural infrastructure does not receive the attention it deserves, especially when there is a serious budget constraint. Development of rural infrastructure should be given a high priority. The overall rural infrastructure strategy should include formulating a realistic and well articulated rural infrastructure plan; inventorying existing infrastructure and identifying critical gaps; estimating costs and financing requirements and the contributions of local and oblast governments; and establishing priorities, financing requirements, responsibilities, and budget allocations.

While investment in rural infrastructure should be financed by the government (local and national), private sector participation should be encouraged, especially in development, operations, and maintenance. Cost recovery should be introduced as soon as possible to gradually cover the costs of operations and maintenance of rural infrastructure and possibly part of the investment cost. Operations and maintenance of rural infrastructure should be decentralized, wherever possible, to the local level, with full participation by beneficiaries. This includes local governments, community organizations, and nongovernmental organizations.

CHAPTER VIII

REVAMPING INPUTS, TECHNOLOGY, AND SUPPORT SERVICES

Long-term sustainable agricultural growth depends on improved productivity which, in turn, depends on proper economic incentives, efficient use of agricultural inputs, and appropriate technology and support services. Achieving this will not be an easy task since average crop yields and livestock productivity fell between 15 and 50 percent from 1989/91 to 1995/97 (Figures 8.1 and 8.2 and Table A.8.1). The availability and use of appropriate inputs, technology and support services is essential to reverse this trend and to improve productivity, profitability, and sustainability of agriculture.

CRITICAL AGRICULTURAL INPUTS

Sustainable Use of Land

Despite the scarcity of arable land, sown area shrank almost 10 percent from 1990 to 1997 (see Figure 8.3). Much of the decline was due to the uncertainty created by the land reform and farm restructuring program, a shortage of machinery at sowing time, and a lack of most agricultural inputs. There is also a need to improve the efficiency of water use on irrigated land and increase the area under gravity irrigation (see Chapter 7); improve the productivity and efficiency of rainfed and dryland agriculture; improve the quality of land under cultivation by reducing water-logging through proper drainage, eliminating soil salinity through land reclamation, and minimizing soil erosion through proper soil conservation methods. Expanding the cropped area and improving soil fertility through appropriate multiple cropping methods, particularly for land under winter crops is also desirable.

Soil Fertility and Plant Nutrition

Since 1990, the application of fertilizers and organic manure has declined, with fertilizer use plummeting from 490, 000 tons in 1990 to 16,000 in 1996 — almost 97 percent reduction (see Figure 8.3). A shortage of supply, high prices (unfavorable term of trade), and the absence of a fertilizer marketing system contributed to the decline. In the short term, this has led to a drop in crop yields. If the problem is not corrected soon, soil fertility will decline further and crop yields will deteriorate even more. The current practice of mining-the-soil needs to be corrected through appropriate strategy for the replenishment (through the judicious use of fertilizers, organic manure, and green manure) and maintenance of soil fertility.

Given the current economics of fertilizer use and the adverse environmental impact of high fertilizer use, the main emphasis should be on balanced and efficient use of fertilizers. Clearly, fertilizer production, imports, and marketing should be in the private sector. Several elements of a new fertilizer strategy should be considered. Government or donors might consider financing initial imports of fertilizers by the private sector through competitive bidding. Fertilizer should be auctioned and distributed through private fertilizer dealers, both wholesale and retail. Farmers should be educated in best fertilizer practices through on-farm fertilizer trials and demonstrations, starting with major irrigated crops in regions with maximum fertilizer use, such as Chui, Jalal-Abad, and Osh (Table A.8.2).

Figure 8.1: Decline in Average Crop Yields from 1989/91 to 1995/97

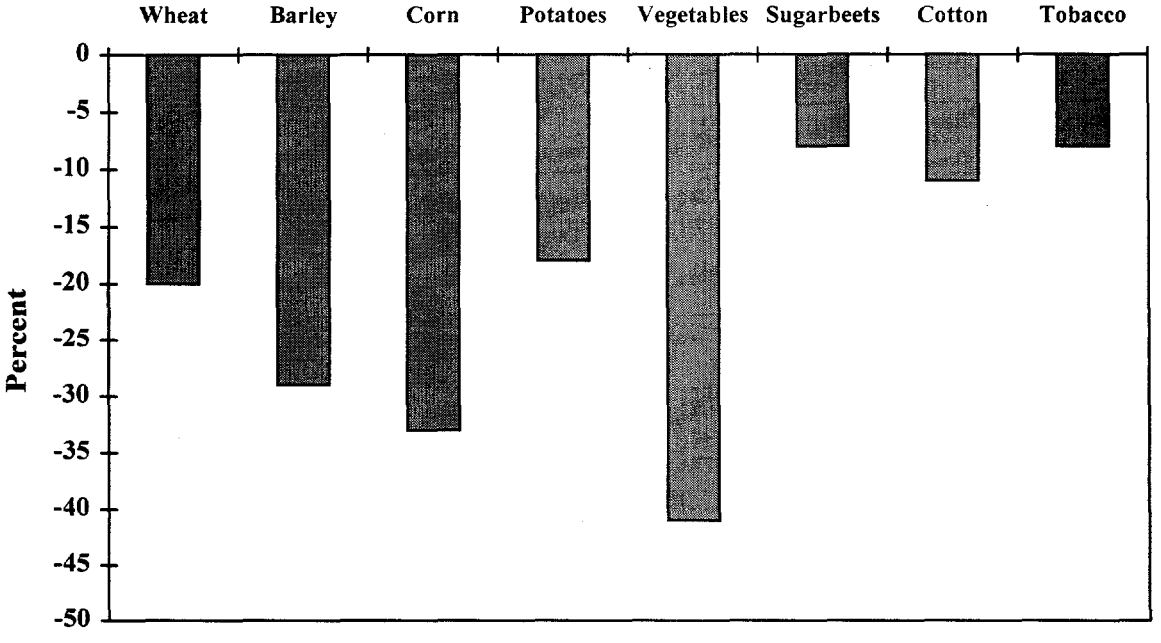
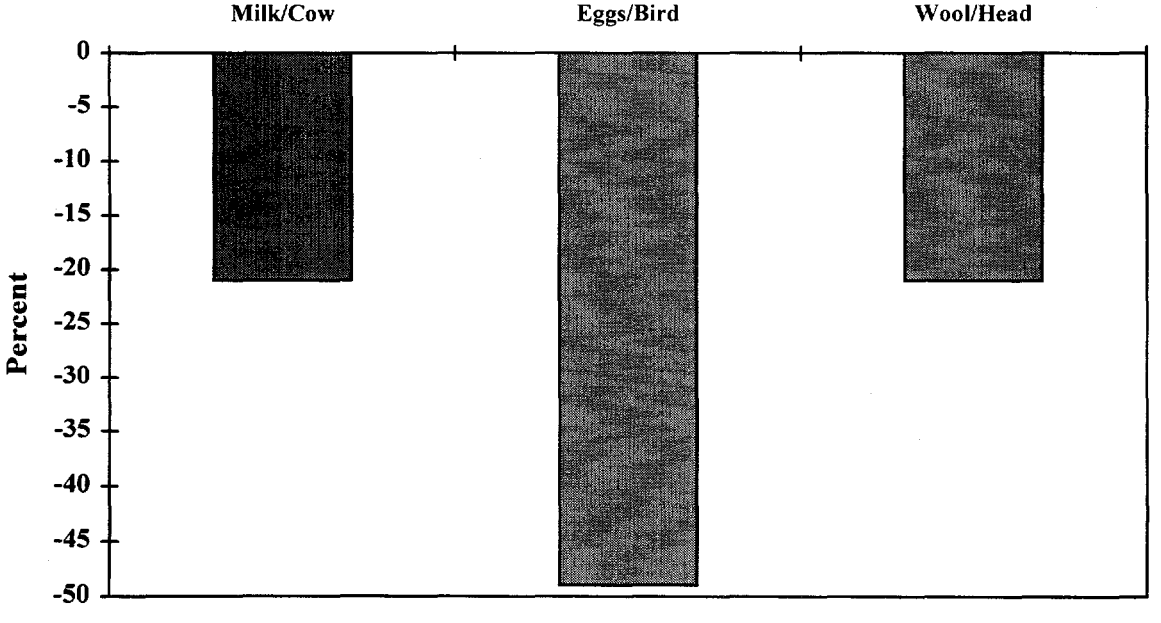


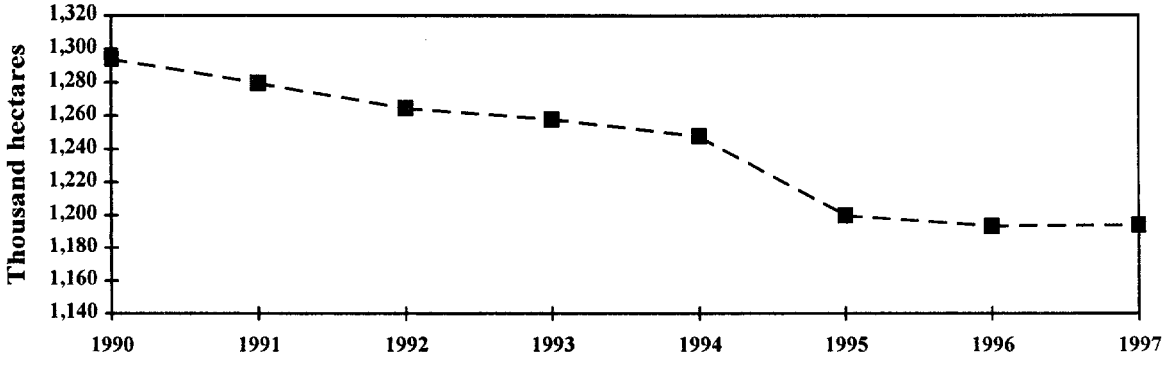
Figure 8.2: Decline in Average Livestock Productivity from 1990 to 1996



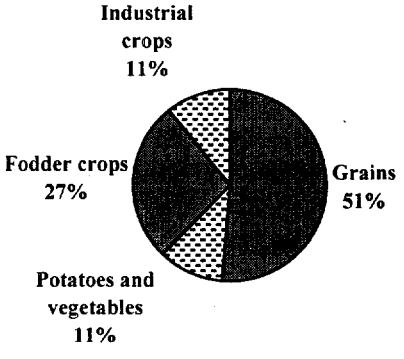
Source: Natskomstat.

Figure 8.3: Changes in Input Use During Transition, 1990-97

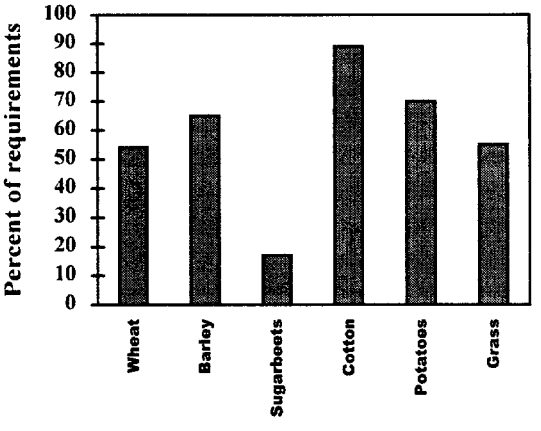
a. Sown area



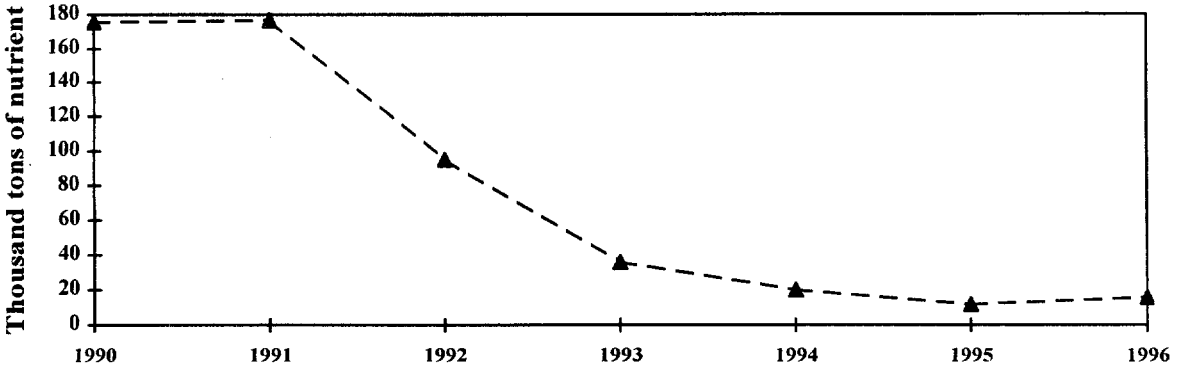
b. Share of crops in irrigated area (1995)



c. Seed availability (1996)



d. Fertilizer consumption



Source: Natskomstat.

Crop Protection

Also contributing to the decline in crop yields has been the cutback in the use of pesticides, herbicides, and fungicides since 1990. The broad strategy outlined for fertilizers applies to plant protection chemicals as well, but with some modifications. Since very small amounts of many different chemicals are involved in crop protection, there is no need for the Government to finance imports. Because of the danger to public health and the environment posed by plant protection chemicals, the production, import, marketing, and use of such chemicals need to be regulated. For the same reason there should be a greater emphasis on an integrated pest management (IPM) as a plant protection strategy in research trials, demonstrations, and farmer education.

Procurement, distribution, application, and regulation (product registration, quality control, and residue monitoring) of pesticides and other agrochemicals were previously the responsibility of Kyrgyz Selkhozkimia. With its privatization, the regulatory functions were passed on to the Ministry of Agriculture and Water Resources. Problems have emerged in the product registration system, regulatory procedures, and plant quarantine services. The World Bank-financed Agricultural Support Services Project would support the establishment of legal framework, organizations, and procedures for crop protection and plant quarantine services. This would include drafting of a law on pesticides and pest control, emphasizing integrated pest management, and consolidating stations and laboratories responsible for crop protection and plant quarantine. These issues need to be addressed by the concerned authorities as soon as possible.

Farm Machinery and Equipment

Farm machinery is an important aspect of farming in the Kyrgyz Republic, yet there is a shortage of farm machinery (some 25 percent of the stock is not in working condition), and the machines that do work are inefficient (crop losses during harvesting are reportedly as high as 20 percent), energy intensive, and not designed for the new small farms (see Table A.8.3). Another problem has been the inequitable distribution of farm machinery as part of farm restructuring process (see Figure 8.4).

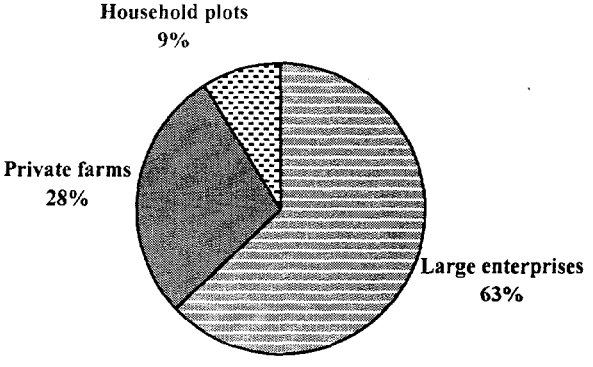
The property shares in farm machinery should be more equitably distributed, and small farmers should be encouraged to organize their own cooperative farm machinery stations. Private entrepreneurs should also be encouraged to form custom service or lease companies. Any farm equipment received through bilateral commodity credits should be auctioned to set up such enterprises in the private sector. Smaller and more efficient models of farm machinery should be selected for production or imports.

Animal Feed

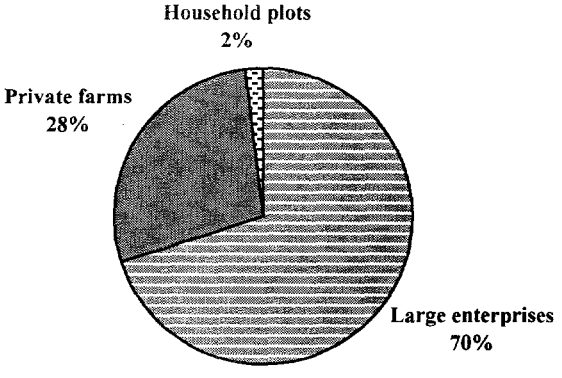
While the demand for animal feed, fodder, and feed supplements has declined substantially due to the reduction in livestock inventories, overall quality of animal nutrition remains poor. Efficient and sustainable use of pasture land (about 45 percent of the total land area in the Kyrgyz Republic is pasture land) combined with supplemental feedings of appropriately formulated and balanced animal feed should be part of the livestock development strategy. Research on animal nutrition should identify the feed formulations suitable for local conditions. Imports, production, and marketing of feed should be handled by the private sector.

Figure 8.4: Distribution of Farm Machinery among Different Farm Organizations, 1997

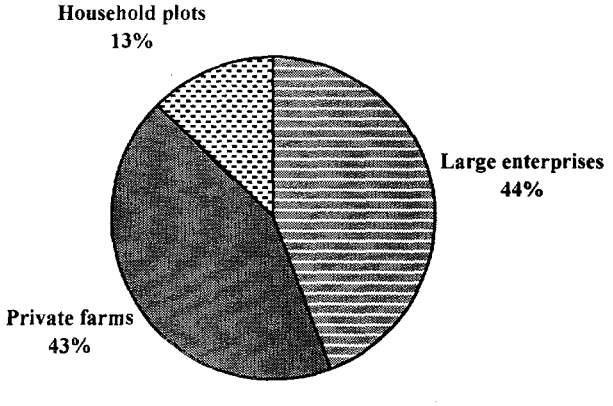
a. Tractors



b. Grain combines



c. Total sown area



Source: Natskomstat.

Seed Industry

The seed industry is in disarray. Most of the seed is still produced on state and collective farms that have not yet been privatized or restructured. The availability of high quality certified seed has declined, and farmers must depend more and more on their own production to meet their seed requirements (Figure 8.3). Seed quality is low, so farmers use high seeding rates to compensate for low germination rates. Applied crop research in support of the development of new seed varieties has been neglected because of a lack of funding and qualified staff. The Kyrgyz Republic has ideal agro-climatic conditions for producing high quality seed, not only to meet domestic demand but also for exports. Production and export of high- quality seed, particularly for high-value specialty crops, should be given a high priority.

Plant breeding research is conducted by the Crop Research Institute (for major crops) and the Forage and Pasture Research Institute (for natural pastures and cultivated forages). Both are part of the Kyrgyz Agrarian Academy. The recently passed Seed Law provides a satisfactory framework for the development of seed industry, except that seed certification requirements should be made voluntary rather than compulsory. A law on Plant Breeder Protection Rights designed to establish an enabling environment for private investment in plant breeding is under preparation. The World Bank-supported Agricultural Support Services Project (ASSP) will support implementation of these two laws and assist the Government in dismantling the state monopoly in seed production and distribution, replacing it with a private commercial seed industry. Such functions as germplasm acquisition, breeding seed development, primary seed multiplication, and regulatory services (seed testing and certification) should remain in the public sector, at least in the near term.

Agricultural Research

Worldwide, the rates of return to investment in agricultural research are very high. In the Kyrgyz Republic, however, the agricultural research system has virtually collapsed and investment in agricultural research has declined. Research needs are changing rapidly with the introduction of private farming and a market economy, and the agricultural research system must adjust accordingly.

The Kyrgyz Agrarian Academy, created by presidential decree on April 1, 1996, consists of the Agricultural Training Institute and five agricultural research institutes under the Ministry of Agriculture and Water Resources (MAWR). The Agrarian Academy is charged with responsibility for basic and applied research, while the MAWR is to provide technology support to farmers and to finance and coordinate activities related to training, extension, and the experimental stations. The Academy of Sciences and regional universities (Osh and Jalal-Abad) also contribute to agricultural research. Some funding for agricultural research is made available on a competitive basis by the Scientific Council on Research in Agriculture, which operates under the Commission on Science and New Technology.

To improve agricultural productivity, research is needed on location-specific recommendations for optimum cropping patterns, best agronomic practices, less intensive use of agro-chemicals, greater use of integrated pest management, and efficient use of irrigation water. Adaptive research programs should focus on farmers' needs and should be conducted under realistic socioeconomic and agro-ecological conditions, with the results subjected to economic and financial analysis. Links with regional

and international research institutes (particularly those under the Consultative Group on International Agricultural Research -- CGIAR) could help in introducing and adapting technologies in use elsewhere that may be suitable for the agro-ecological conditions in the Kyrgyz Republic.

CRITICAL AGRICULTURAL SUPPORT SERVICES

Market Information System

Efficient agricultural markets require knowledge of market prices for various grades and available quantities of agricultural commodities in the market place. Such information creates transparent markets, transmits incentives and opportunities to agricultural producers, improves producers' bargaining position, stimulates competition among traders, expands processors' and consumers' choices in product selection, and facilitates rational decisionmaking by producers, traders, and policymakers. The ongoing privatization, deregulation, and decentralization of the Kyrgyz economy and the emergence of private farmers, restructured farms, and agro-business enterprises have generated a need for new information to improve production and marketing decisions in response to changes in the demand for and supply of agricultural commodities and inputs.

In the Kyrgyz Republic, agricultural markets are segmented, with poor information on prices, qualities and supplies nationwide. As a result, buyers often do not buy at the lowest price and sellers do not always sell at the highest price, resulting in a misallocation of resources in the economy. In the absence of good market information, traders and wholesalers are likely to make uneconomic decisions about where, what, and when to buy and sell; what to store and for how long; what and where to transport; and what and when to process their supplies into which alternative products. A good market information system would reduce errors in these types of marketing decisions and thus improve resource allocation, profits, and welfare in the economy as a whole.

A good market information system requires an organization that collects market information locally and distributes it nationally. A pilot project was established in twooblasts (Talas and Issyk-Kul), with support from the British Know-How Fund. The World Bank-supported ASSP project will extend this pilot activity to the remaining four oblasts under an improved conceptual, legal, and operational framework. It is expected to cover a wide range of products at several market levels and include information on quantities and qualities as well as prices. International prices will be reported by grades, where applicable. Institutional arrangements for the market information system will be strengthened to catalyze the development of a competitive marketing system for both inputs and outputs.

Marketing enterprises in the Kyrgyz Republic make little use of formal grades and standards, so appropriate information is difficult to collect and report. State agencies responsible for establishing and promulgating grades and standards need to be strengthened. Staff from the State Statistical Committee (Natskomstat) need technical assistance and training in collecting, processing, and disseminating market information and other agricultural statistics relevant for private agriculture. The Kyrgyz Republic products also need to be brought up to international grades and standards, beginning with standards for the CIS. This will improve market information, increase consumer satisfaction, make Kyrgyz products more competitive in international markets.

Agricultural Advisory Services

A centralized information service for agricultural producers worked reasonably well for a centralized economy with a limited number of clients (about 500 state and collective farms), but does not meet the needs of today's large numbers of private farms, restructured large farms, and household plot

owners. Farmers need a different kind of information as well. They need impartial advice on legal, business, and technical aspects of farming. Several pilot agricultural advisory service systems are being funded by donors (such as TACIS, the Swiss, and the GTZ), but they are unlikely to be sustained without external financing.

Autonomous agricultural advisory service should be established under MAWR and Agricultural Departments in the oblasts. The World Bank-financed (with co-financing from IFAD) ASSP project would support agricultural advisory services through the establishment of nationwide rural advisory and development service centers in each oblast, an adaptive research program that would link agricultural research and advisory services, demonstration activities for best farm practices, and the development of farm groups. Furthermore, training of newly emerging private farmers will improve agricultural productivity, profitability, and sustainability.

Veterinary Services and Public Health

Despite a substantial decline, livestock activities remain an important part of the rural economy. During the transition from large farms to small private farms, services for animal health and disease control, including veterinary diagnostic services, deteriorated severely. While veterinary services should be provided by private clinics, the public sector needs to be involved in monitoring the prevalence of animal diseases, veterinary diagnostics, meat inspection, regulation of private veterinary clinics, and research, training and education. Veterinarians need access to credit to purchase refrigerators, medicine, and other equipment necessary to establish private clinics.

CHAPTER IX

STRATEGY FOR RURAL GROWTH AND POVERTY ALLEVIATION

Accelerating recovery and long-term sustainable growth in the rural sector, and alleviating rural poverty are closely linked. Some 75 percent of the population in six oblasts (excluding Bishkek) lives in rural areas and depends mainly on agriculture and related nonfarm activities for its livelihood. A strategy to improve the productivity, profitability, and sustainability of the agricultural sector will thus contribute to sustainable rural growth and poverty alleviation and to growth of the economy as a whole. Thus the country's strategic policy objectives should be to promote agricultural growth, alleviate rural poverty, and improve natural resources management. Key elements of a rural development strategy designed to achieve these policy objectives are: (i) deepening policy reforms, (ii) increasing public investment, (iii) promoting institutional development, and (iv) strengthening the information base.

DEEPENING POLICY REFORMS

The Kyrgyz Republic is a leader in agricultural reform in Central Asia. There is no room for complacency, however. Reforms must be deepened to complete the transition from a planned to a market economy and to provide economic incentives to the private sector to increase rural growth and alleviate rural poverty. The priority agenda for deepening agricultural policy reform consists of six vital components:

- deepening land reform and farm restructuring
- reforming the agricultural marketing system
- developing a commercial rural credit system
- strengthening fiscal management of agriculture
- revitalizing irrigation and rural infrastructure
- revamping inputs, technology, and support services.

There is also a need to examine laws and decrees dealing with the rural sector and to remove any inconsistencies, contradictions, and overlaps. The status of reforms and proposed actions for the Kyrgyz Republic are summarized in the agricultural policy matrix in the Executive Summary (Table 2).

Land Reform And Farm Restructuring

Accelerating the development of land markets and farm restructuring will be facilitated by enacting the Law on Registration of Rights to Immovable Property, the Mortgage Law, and the Land Code; establishing a proper land registration system; finalizing objectives and guidelines for auctioning land in the Land Redistribution Fund to ensure efficiency, equity, and transparency; issuing a Government Resolution on standard forms and procedures for transactions in land shares; accelerating the program of demarcating individual land parcels and issuing land share certificates to all who do not yet have them; completing the delineation of cadastral blocks for land parcel registration; reviewing and determining best practices for pasture management; incorporating the ability to serve small parcels into rehabilitation work on irrigation systems; amending the Constitution to permit private ownership of land; and educating the public on the individual rights granted by the land reform program and on the working of land markets.

Reforming Agricultural Marketing System

Policies for developing a competitive agricultural marketing system include eliminating informal internal transportation barriers and interference in the functioning of markets at the local level; establishing at least two wholesale markets, one in the north (Bishkek) and one in the south (Osh); updating the Law on Competition and legislation regulating joint-stock companies; establishing a nationwide market information system; formulating agricultural export promotion strategy with the CIS countries, particularly in the context of a Customs Union (Russia, Belarus, Kazakhstan, and the Kyrgyz Republic); simplifying registration procedures and reducing the number of permissions required to build agro-processing joint ventures; completing accession to the World Trade Organization; completing the case-by-case privatization of the large agro-industrial enterprises; and providing better access to commercial credit by agro-industry for working capital and capital investment by increasing the capacity of Kyrgyz Agricultural Finance Corporation (KAFC).

Developing a Commercial Rural Credit System

Policies to facilitate the development of a commercial rural credit system include accelerating implementation of KAFC and Small Farmers Credit Outreach Program, both components of a Rural Finance Project (World Bank) designed to foster a climate conducive to commercial credit; developing rural credit unions as part of the Rural Credit Project (ADB); phasing out budgetary transfers for agricultural credit in 1999; charging interest rates on budgetary credit that are no lower than those charged by KAFC; and completing the recovery and resolution of outstanding farm debt to Agroprombank, budgetary debt, and interenterprise arrears by June 1999.

Strengthening Fiscal Management of Agriculture

Policy recommendations for strengthening fiscal management of agriculture include shifting to program budgeting for the Ministry of Agriculture and Water Resources and other line ministries; introducing a development-oriented approach to budgeting, with a clear distinction between current and capital budgets; requiring all ministries to submit an annual report highlighting accomplishments, sector status, and plans along with their budgets; revising the land tax rate annually to increase tax revenue and promote intersectoral equity; gradually increasing irrigation water charges and collection rates to improve cost recovery; increasing electricity tariffs to improve cost recovery and reduce economic losses; and further rationalizing public expenditure and increasing budget allocations for priority public investment projects (such as agricultural research, information system, and rural infrastructure) for the rural sector.

Revitalizing Irrigation and Rural Infrastructure

Policy recommendations for revitalizing irrigation and other rural infrastructure include establishing clear priorities for the rehabilitation of primary and secondary irrigation systems; developing a strategy for rehabilitation, development, and cost recovery in lift irrigation and for the possible conversion of pumped schemes to gravity, particularly in the context of higher electricity tariffs; establishing water users associations to manage, operate, and maintain the irrigation schemes; gradually increasing water charges to improve cost recovery for operations and maintenance and new investment (particularly on-farm investment) in the irrigation system, with the option of having the water users associations operate and maintain the system; clarifying the water resource management role of various ministries, state agencies, design and research institutes, and water users associations; and preparing an overall irrigation and water management strategy and action plan and a strategy for the development of

rural infrastructure (roads and transport network, rural markets, telecommunication system, rural electricity, and social infrastructure).

Revamping Inputs, Technology, and Support Services

The policy recommendations for revamping critical agricultural inputs, technology, and support services to promote knowledge-based agriculture include preparing a strategy for the sustainable development and use of marginal rainfed and irrigated lands and common property pasture land; stimulating the development of a competitive input marketing system through competitive import financing, private dealer development, and farmer education about the benefits of best practices; establishing a legal framework for regulating the production, distribution, and use of pesticides; promoting the use of integrated pest management; establishing a legal framework to promote the development of leasing companies and custom service stations for farm machinery in the private sector; privatizing seed production farms and implementing the Seed Law and the Law on Plant Breeder Protection Rights; issuing a decree formalizing the establishment of a rural advisory and development service, based on the lessons learned from various pilot schemes; and establishing a legal framework to promote the development of veterinary clinics, a regulatory framework for surveillance of animal diseases, and a research/knowledge transfer system.

INCREASING PUBLIC INVESTMENT

Cost recovery, effective tax collection, efficient allocation and utilization of resources, and strategic public investment are essential to strengthen fiscal management of agriculture and the rural economy. Public investment in agriculture is far below the desirable level for developing the potential for improved agricultural productivity and facilitating investment by the private sector. Other sources of finance for new investments are not yet capable of contributing adequately to agricultural investment. Farmers' ability to finance new investments is very limited given the currentilliquidity of the agricultural sector and low savings rates. The high risks in agriculture, relative to other investments, make it a low priority for financing by the domestic private sector, including commercial banks. Similarly, foreign investors do not find it profitable to finance most agro-industrial projects, while regulations are too cumbersome and offer inadequate economic incentives to foreign direct investment.

That leaves the Government and multilateral donors (such as IBRD/IDA, IFAD and ADB) as the main sources of funds for financing agricultural projects in the public sector and EBRD and IFC in the private sector. IDA's assistance strategy for the rural sector has consisted of policy-based operations in support of structural reforms and investment lending operations in support of sectoral investments. Among IDA operations in support of structural reform in agriculture are a Privatization and Enterprise Sector Adjustment Credit (PESAC) for price and trade liberalization and improvement of the regulatory framework; an Agricultural Privatization and Enterprise Adjustment Credit (APEAC) to deepen market and price liberalization in agriculture, and a Financial Sector Adjustment Credit (FINSAC) that included support for the liquidation of Agroprombank. IDA's investment lending operations include a Sheep Development Project (SDP) supporting the privatization and export-orientation of the sheep industry and a Rural Finance Project (RFP) supporting the development of a commercial rural credit system. Two other IDA investment projects for agriculture were negotiated in March 1998 and were approved by the Board in May 1998: an Agricultural Support Services Project (ASSP); and an Irrigation Rehabilitation Project (IRP). Two new IDA investment projects for agriculture are also in the works: a Land Registration Project and an On-Farm Irrigation Project. As a follow-up, the Government has asked IDA to consider a Livestock and Pasture Development Project and a Rural Infrastructure Project.

IFAD co-financed the Sheep Development Project and has agreed to co-finance the Agricultural Support Services Project. ADB has approved a policy-based Program Loan and a Rural Credit Project and is also planning to finance two Area Development Projects focusing on rural infrastructure and institutional development. In addition, IDA, ADB, IFAD, TACIS, USAID, GTZ, British Know-How Fund, the Swiss Agency for Development and Cooperation, and the Dutch and Japanese governments have been providing funds, commodity credit, training, and technical assistance for agricultural activities that have direct implications for rural growth and poverty alleviation.

While an accurate estimate of total public investment requirements for the rural sector is difficult to make, it is clear that the funding requirements to finance even the priority public sector investments are large: rural infrastructure, including the irrigation network; agricultural research, training, and education; institutional development, including the legal and regulatory framework; agricultural support services; rural credit; and sustainable development of natural resources (land and water). The public investment program for 1998-2000 includes projects for rural infrastructure, credit, and advisory services. To reduce duplication of efforts, improve efficiency, and achieve synergy in addressing the twin development challenges of rural growth and poverty alleviation, the Government plans to more actively coordinate donor assistance, including training, technical assistance, and investment.

PROMOTING INSTITUTIONAL DEVELOPMENT

Institutional development is a slow and difficult process, even under normal conditions. The major rural transition under way in the Kyrgyz Republic makes the process even more difficult, but it is vital for the successful transition to a market economy. Global experience indicates that public actions and investment in four areas have particularly high payoffs in the long-run: establishing necessary legal and regulatory framework for private ownership and a market economy; dismantling or transforming the institutions of the command economy; creating new institutions that serve private agriculture and market economy; and providing education, training, and technical assistance for the staff involved in formulating and implementing policies and investment projects. The Government should therefore accord institutional development the highest priority.

Significant progress has already been made on the policy front in these four areas and in defining the appropriate roles for the public and private sectors, but there has been much less progress on the ground. Kyrgyz leadership has taken bold steps to design, create, and strengthen the institutions that serve private agriculture and is ready to move on to complete the transition to a productive, profitable, and sustainable agricultural sector that is adapted to the emerging global economy. Donors have supported this process of institutional development, and their support needs to be strengthened and better coordinated to address the development challenges of rural growth and poverty alleviation.

STRENGTHENING INFORMATION BASE

A major constraint in formulating agricultural policies is the lack of statistical data, economic information, and analytical studies. A knowledge management system for the agricultural sector is critical for enabling timely actions to address strategic policy issues. The information should also be readily available to all the stakeholders involved in rural development.

Natskomstat, the National Statistical Committee, is responsible for collecting, processing, and disseminating agricultural information. Data requirements, sources of data, and need for rapid dissemination have changed drastically during the transition from a command economy to a market economy, but Natskomstat has not yet caught up. Strengthening Natskomstat to meet the challenges of a

market economy will require its reorganization and the introduction of modern statistical sampling techniques, modern data processing facilities, and a knowledge management system. Training and technical assistance for staff are also needed. Donors can play an important role in supporting this process so that Natskomstat can meet the data requirements of policymakers, researchers, farmers, traders, and enterprises in the new market economy.

IMPLEMENTING RURAL DEVELOPMENT STRATEGY

Effective implementation of the rural development strategy requires concerted action by three main partners: government, NGOs, and donors.

Government

National and oblast governments have primary responsibility for effective and timely implementation of the proposed rural development strategy. Government initiates the policy reforms, provides budgetary support, and enforces laws and regulations. The Ministry of Agriculture and Water Resources, with support from other government agencies and regional administrations, has overall responsibility for formulating and implementing a rural development strategy, including formulation and implementation of agricultural policy and regulations, provision of agriculture information and support services, development of public infrastructure, and other public good activities such as agricultural research and development. Government should stay out of decision-making on agricultural production and marketing, which should be left to farmers, traders, and other entrepreneurs.

Nongovernment Organizations

Nongovernment organizations (NGOs) and other organizations of civil society and the private sector should work to see that the agreed rural development strategy is being implemented on the ground, the costs and benefits are being equitably distributed, use and management of natural resources are sustainable, all stakeholders and population groups are appropriately represented, and implementation is decentralized, with full participation by local governments and various interest groups. NGOs should also be involved in implementing selected pilot projects. Government should seek out their views and support their active involvement in implementation.

Donors

International donors can contribute to the rural development by providing financial resources and independent expert advice, thus helping to avoid missteps in the design or implementation of rural development strategy. Mistakes could be costly in terms of wasted resources and lost time and, more important, lost goodwill and support by the rural population. Donors have provided training, technical assistance, and financial resources during the transition. In future, they should continue to do so in priority areas identified by the government and in support of programs that promote rural growth, poverty alleviation, and natural resource management.

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ANNEX

ADDITIONAL STATISTICAL INFORMATION

The main purpose of this annex is to provide additional statistical information in the form of selected tables on different aspects of the agricultural sector and agricultural reform in the Kyrgyz Republic. Given the lack of readily available appropriate statistical data, particularly for the more recent transition years, it was felt necessary to provide this information for the benefit of the policymakers and readers of this report. These statistical annex tables are organized in the same order as the chapters.

Table A.2.1: Status of Macroeconomic Stabilization, 1996 and 1997

Indicator	Measurement unit	1996	1997	
			Target	Estimate
GDP growth (real)[a]	percent/year	5.6	6.5	10.4
Inflation (CPI)[b]	percent/year	35.0	10.0	14.7
Budget deficit[c]	percent of GDP	6.5	3.0	9.4
External current account deficit[d]	percent of GDP	22.0	9.0	8.1
International reserves[e]	months	2.0	> 2.0	3.0

a Estimated 1997 GDP = 30.4 billion som nominal; while the growth estimates are being finalized by the National Statistical Committee. IMF and the World Bank (in the 1999-2001 CAS document) have used the growth assumption of 6.5 percent.

b December 1996 to December 1997

c Overall 1997 fiscal balance: -2.9 billion som

d Current account balance in 1997: -2.5 billion som

e In terms of months of imports

Note: 1997 targets refer to IMF ESAF (Enhanced Structural Adjustment Facility) targets.

Source: Various IMF and World Bank documents.

Table A.2.2: Gross and Net Margins for Selected Crops and Livestock Activities, 1996

(Som per Ha)

Region/Farm Type	Gross margin	VAT	Land tax	Social security	Total taxes and social security	Net martin	Taxes as percent of gross margin	Net margin as percent of cost
Winter Wheat								
Chui Oblast								
Private farms	525	85	110	225	420	105.1	80	3
Average	525	85	110	225	420	105.1	80	3
Osh Oblast								
Large enterprises	993	120	121	869	1,111	-118.2	112	-1
Private farms	914	294	117	771	1,181	-267.9	129	-4
Average	942	232	118	806	1,156	-214.5	123	-3
Jalal-Abad Oblast								
Large enterprises	-1,034	487	126	762	1,375	-2,409.5	*	-25
Private farms	4,387	0	128	243	371	4,015.4	8	60
Average	2,128	203	127	460	790	1,338.4	37	17
Talas Oblast								
Large enterprises	-50	242	93	186	521	-570.4	*	-23
Private farms	-169	312	92	264	668	-837.4	*	-15
Average	-126	286	92	236	615	-740.3	*	-17
Issyk-Kul Oblast								
Large enterprises	1,094	292	111	134	538	555.7	49	23
Private farms	-611	0	107	320	427	-1,037.8	*	-24
Average	120	125	109	241	474	-354.9	397	-10
National Average								
Large enterprises	192	277	114	526	917	-725.0	478	-12
Private farms	1229	169	112	415	696	533.3	57	9
Average	924	210	112	457	779	145.0	84	1
Cotton								
Osh Oblast								
Large enterprises	4,463	688	129	1,193	2,010	2,452	45	24
Private farms	5,446	2,387	120	435	2,942	2,504	54	36
Average	4,944	1,538	125	814	2,476	2,478	50	29
Tobacco								
Osh Oblast								
Large enterprises	4,312	3,063	121	2,916	6,100	-1,788	141	-10
Private farms	6,985	5,000	126	1,978	7,104	-119	102	-1
Average	4,758	3,386	122	2,759	6,268	-1,510	132	-9

Table continued on the next page

Region/Farm Type	Gross margin	VAT	Land tax	Social security	Total taxes and social security	Net martin	Taxes as percent of gross margin	Net margin as percent of cost
				Milk				
Chui Oblast								
Large enterprises	1,073	1,012	-	149	1,162	-88.4	108	-2
Private farms	1,735	135	-	37	172	1,563.2	10	26
Household plots	3,122	920	-	0	920	2,201.6	29	40
Average	2,238	718	-	46	764	1,474.0	34	27
Osh Oblast								
Private farms	-2,292	206	-	157	362	-2,654.5	*	-45
Household plots	-1,827	89	-	0	89	-1,915.1	*	-45
Average	-1,574	122	-	45	167	-1,740.9	*	-45
Jalal-Abad Oblast								
Household plots	-9,478	1,200	-	2	1,202	-10,679.3	*	-70
Average	-9,478	1,200	-	2	1,202	-10,679.3	*	-70
Talas Oblast								
Large enterprises	-3,285	85	-	110	195	-3,480.1	*	-50
Private farms	2,067	460	-	77	537	1,529.8	26	72
Average	1,175	398	-	83	480	694.8	41	24
Issyk-Kul Oblast								
Large enterprises	72	465	-	153	618	-546.5	864	-20
Private farms	4,007	870	-	34	904	3,103.6	23	99
Household plots	4,037	955	-	16	971	3,065.8	24	85
Average	3,609	872	-	37	909	2,699.5	25	80
Naryn Oblast								
Private farms	322	3	-	30	34	288.5	10	7
Average	322	3	-	30	34	288.5	10	7
National								
Large enterprises	372	760	-	145	905	-532.9	243	-13
Private farms	2,128	437	-	55	493	1,635.9	23	41
Household plots	1,611	800	-	6	806	805.2	50	15
Average	1,618	654	-	45	699	919.5	43	20

*: Not applicable as gross margin is negative
- : Not applicable

Notes:

1. VAT was levied on all cash sales at 20 percent rate. Zero VAT for private farms in selected oblasts means that these farms record no cash sales subject to VAT.
2. Social security contribution was equal to 24.5 percent of all wages paid either in-kind or in-cash, excluding family labor. The collection of tax and social security contributions has been low. As a result, many farms which were making losses on the net margin basis had artificially positive balance sheet.
3. For milk, the estimates are in som per dairy cow.
4. Averages for oblasts and the nation were calculated as the simple arithmetic averages of all relevant observations.

Source: Based on data derived from Farm Survey, the World Bank, July 1997.

Table A.2.3: Estimated Annual Per Capita Food Consumption, 1990-96

Food item	Quantity (kgs)				Percent change over 1990
	1990	1993	1995	1996	
Meat products[a]	54	44	38	39	-28
Eggs (no.)	154	81	33	33	-79
Milk products [b]	266	193	172	186	-30
Potatoes	69	58	82	70	0
Vegetables [c]	78	48	44	50	-36
Fruits & berries	16	10	7	20	25
Sugar [d]	37	14	15	14	-62
Vegetable oil	11	5	5	5	-55
Bread [e]	139	135	109	145	4
Percent share of household budget spent on food	30	51	57	n.a.	90

n.a.: Not available

a Meat and meat products

b Milk and milk products

c Including melons

d Including confectionery

e Bread and bread products

Source: *Natskomstat* (National Statistical Committee).

Table A.2.4: Estimated Grain Balances, 1987/88 to 1996/97

Item	1987/88	1989/90	1993/94	1996/97
Production	1827	1601	1500	1160
Net imports	1000	1100	580	20
Available	2827	2701	2080	1180
Total use	2850	2718	1828	1180
Seed	150	145	160	a
Industry	65	64	25	a
Food	764	799	813	620
Feed	1670	1550	680	310
Waste	201	160	150	a

a Equal to 250 thousand ton total (seed + industry + waste) as opposed to 416 in 1987/88, 369 in 1989/90 and 335 in 1993/94.

Source: Natskomstat (National Statistical Committee).

Table A.3.1: Number of Certificates for Use of Land Share Issued, April 1997

Oblast	Number of farm families	Certificates issued		
		Total	Permanent	Temporary
Jalal-Abad	99,347	99,347	10,849	88,498
Osh	201,949	201,949	55,298	146,651
Issyk-Kul	169,134	65,683	15,660	50,023
Talas	27,793	27,793	6,751	21,042
Chui	284,000	487,353[a]	--	487,353
Naryn	20,798	20,798	0	20,798
Total	803,021	902,923	88,558	814, 365

-- None or negligible

a In Chui oblast, certificates were issued to individuals rather than families.

Source: Goszemagenstvo (State Agency for Land Tenure and Land Resources).

Table A.3.2: Area of Land Share Distribution, January 1, 1997

Oblast	Total ag. land area	Land redistribution fund	Land for distribution by shares	Total land distributed by shares	Non-distributed land	Percentage of land not distributed
Jalal-Abad	191,464	47,836	143,601	134,116	9,485	6.7
Issyk-kul	186,258	38,206	123,682	123,682	0	0.0
Naryn	178,859	37,831	94,028	94,028	0	0.0
Osh	360,225	90,758	259,000	233,054	25,946	10.1
Talas	134,101	26,871	90,057	90,057	0	0.0
Chui	447,610	111,909	276,098	91,534	184,564	66.8
Total	**1,498,517[a]**	**353,438**	**986,466**	**766,471**	**219,995**	**22.3**

a Does not add, because 109,738 ha. in seed and breeding farms, which are still exempt from distribution, are not included.

Source: Republican Center for Land and Agrarian Reform (RCLAR).

Table A.3.3: Farm Restructuring and the Number of Agricultural Enterprises, 1991-97

Year	Number of SCFs		Farm enterprises created by the restructuring of SCFs						
			Private farms			Collective farm enterprises			
	Unrestructured	Restructured during year	Total	Individual	Group	Total enterprises	Agricultural cooperatives	Joint stock companies	Other collective farm enterprises
1991	518	--	4,567	a	a	--	--	--	--
1992	437	81	8.695	a	a	170	125	--	45
1993	405	32	18,269	a	a	239	160	--	79
1994	247	158	21,264	a	a	340	152	72	116
1995	86	161	23,180	a	a	909	608	74	227
1996	54	32	31,078	9,576	21,502	995	639	61	295
1997[b]	22	32	38,218	13,505	24,713	672	327	45	300

--: None or negligible

a Separate data was not available before 1996

b As of July 1, 1997

Note: SCF refers to state and collective farms

Source: RCLAR (Republican Center for Land and Agrarian Reform).

Table A.3.4: Number of Agricultural Enterprises by Oblast, December 31, 1996

Oblast	Number of SCFs		Farm enterprises created by the restructuring of SCFs						
			Private farms			Collective farm enterprises			
	Unrestructured	Restructured during year	Total	Individual	Group	Total enterprises	Agricultural cooperatives	Joint stock companies	Other collective farm enterprises
Jalal-Abad	9	0	2,790	218	2,572	105	80	16	9
Issyk-Kul	2	7	2,519	537	1,982	93	15	1	77
Naryn	6	7	5,550	1,173	4,377	33	8	7	18
Osh	11	2	9,726	1,893	7,833	504	466	9	29
Talas	7	6	1,803	524	1,279	104	36	2	66
Chui	18	11	8,690	5,231	3,459	390	34	61	295
Total	53	33	31078	9576	21502	995	639	61	295

Note: There are slight differences between the numbers given in the regional breakdowns and those given in the national totals.

Source: RCLAR (Republican Center for Land and Agrarian Reform).

Table A.3.5: Area of the Land Redistribution Fund, by Oblast and Type, June 1, 1997

Oblast	Total LRF Land (ha)	Arable (ha)			Perennial plants (ha)			Hay fields and other types of agricultural land
		Total	Irrigated	Non-irrigated	Total	Irrigated	Non-irrigated	
Jalal-Abad	48,009	39,800	22,400	17,400	1,300	1,300	0	6,909
Issyk-Kul	34,850	31,932	21,808	10,124	746	746	0	2,172
Naryn	55,001	37,768	19,500	18,268	0	0	0	17,233
Osh	90,574	66,078	34,034	32,046	6,591	6,591	0	17,905
Talas	28,645	25,400	17,300	8,100	510	377	133	2,735
Chui	111,909	102,500	59,400	43,100	2,300	1,800	500	7,109
Total	368,988	303,478	174,442	129,038	11,447	10,814	633	54,063

Notes:

1. Land Redistribution Fund land includes (i) arable land -- 82%, (ii) land under perennial plants -- 3%, and (iii) hay fields and other types of agricultural land -- 15%.

2. Out of the total Land Redistribution Fund land, atleast 50% is irrigated.

Source: RCLAR (Republican Center for Land and Agrarian Reform).

Table A.4.1: Estimated Input/Output Price Ratios, 1991-96

Output	Input	Input/Output price ratio[a]					
		1991	1992	1993	1994	1995	1996
Grain	Nitrogen[b]	1.00	0.18	0.33	2.55	1.98	1.13
	Diesel fuel	1.50	0.23	4.05	3.40	2.72	1.27
Cotton	Herbicides	0.88	0.42	2.73	3.23	n.a.	37.29
	Diesel fuel	0.20	0.04	0.57	0.21	n.a.	0.58
Potato	Potash[b]	0.15	0.07	0.16	n.a.	n.a.	1.20
	Diesel fuel	0.44	0.29	1.86	1.85	1.74	1.20
Wool	Mixed feed	0.004	0.008	0.04	0.24	0.17	0.27
Cattle (beef)	Mixed feed	0.03	0.07	0.16	0.54	0.35	0.35
Milk	Mixed feed	0.21	0.26	0.74	1.46	1.05	0.95
Eggs (per 1000)	Mixed feed	0.66	0.92	1.58	2.57	2.29	1.71

n.a.: Not available

a The input/output ratio refers to tons (or kgs) of output needed to purchase one ton (or kg) of a specific input.

b Refers to nutrients.

Source: Natskomstat (National Statistical Committee).

Table A.4.2: Marketed Surplus for Selected Commodities, 1992-96
(Thousand tons)

Commodity	1992				1993				1994				1995				1996			
	Percent share			MS	Percent share			MS	Percent share			MS	Percent share			MS	Percent share			MS
	LE	PF	HP		LE	PF	HP		LE	PF	HP		LE	PF	HP		LE	PF	HP	
Grain	86	10	4	423	82	13	5	515	94	3	3	375	68	19	13	252	55	39	6	465
Potatoes	77	a	23	101	50	3	47	93	51	4	45	64	24	5	71	72	12	20	68	139
Grapes	98	0	2	25	58	0	42	8	85	0	15	16	77	1	22	17	55	5	41	12
Meat	70	0	30	120	59	9	32	98	48	9	43	82	35	13	52	70	8	24	67	134
Milk	92	2	6	365	82	1	17	291	68	a	32	227	39	12	49	276	17	25	58	293
Eggs (million units)	90	0	10	332	88	a	12	150	55	a	45	67	23	7	70	36	4	17	80	53

a Less than 1 percent

Note: LE: Large enterprises; PF: Private farms; HP: Household plots; MS: Marketed Surplus

Source: Natskomstat (National Statistical Committee).

Table A.4.3: Marketing Channels for Selected Commodities, 1996

(Percent of production)

Crop[a]	Marketing channels								Retained on the farm	Wages in-kind and barter	Sales	Wages in-kind and barter as percent of all marketing channels	Cash sales as percent of all marketing channels
	Government procurement	Processing plant	Private sale		Consumer cooperatives	Wages in-kind	Barter	All marketing channels					
			Wholesale	Retail									
Winter Wheat													
LF	3	1	17	11	6	33	15	86	14	48	38	56	44
PF	7	0	12	2	0	20	20	61	39	40	21	66	34
Spring Wheat													
LF	0	0	31	0	19	26	6	83	17	32	51	39	61
PF	0	0	18	1	0	36	10	64	36	45	18	71	29
Cotton													
LF	0	32	17	5	0	0	4	58	42	4	53	8	92
PF	20	0	64	0	0	0	0	84	16	0	84	0	100
Tobacco													
LF	0	2	27	0	0	0	71	100	0	71	29	71	29
PF	0	15	76	0	0	0	0	91	9	0	91	0	100
HP	0	0	100	0	0	0	0	100	0	0	100	0	100
Potato													
LF	0	0	0	0	19	2	55	76	24	58	19	75	25
PF	0	0	51	23	0	14	2	89	11	16	73	18	82
HP	0	0	20	21	0	1	11	52	48	11	41	22	78
Milk													
LF	0	67	1	16	0	3	0	87	13	3	84	3	97
PF	0	7	2	21	0	7	8	45	55	15	30	34	66
HP	0	3	5	31	3	0	0	42	58	0	42	0	100

a LF - large farms; PF - private farms; HP - household plots.

Source: Farm Survey, the World Bank, July 1997.

Table A.4.4: Farm-Level Prices by Marketing Channel and Farm Type, 1996

(Soms per ton)

Crop/Farm Type	Government procurement	Processing plant	Private sale		Consumer cooperatives	Wages in-kind	Weighted average
			Wholesale	Retail			
Wheat: Average	2,382	2,500	2,485	--	1774	1,687	2,245
Large farms	2,550	2,500	2,125	--	1774	1,487	2,083
Private farms	2,285	--	2,806	--	--	1,826	2,339
Potato: Average	--	--	2,000	2,321	1,638	1,642	2,125
Large farms	--	--	--	--	1,638	1,000	1,459
Private farms	--	--	2,000	2,375	--	1,675	1,867
Household plots	--	--	--	2,310	--	1,900	2,343
Cotton: Average	5,382	4,750	5,007	5,600	--	--	5,048
Large farms	--	4,750	5,417	5,600	--	--	5,357
Private farms	5,382	--	4,757	--	--	--	4,835

--: Not applicable

Notes:

1. Average refers to national average.

2. Wage-in-kind is derived based on average market wage rate expressed in cash as well as in specific commodities.

Source: Farm Survey, the World Bank, July 1997.

Table A.4.5: Farm-Level Prices by Marketing Channel, 1996
(soms per ton)

Commodity	Marketing channels						Weighted average	Coefficient of variation
	Procurement and direct arrangements	Sales to consumer cooperatives	Private markets, private shops and stalls	Wages in-kind and public catering	Barter arrangements	Sales of households on the market [a]		
Grain	2321	2294	1979	1423	1962	2401	1963	17.6
Potatoes	-	2300	1822	1533	1892	3592	2080	36.4
Tomatoes	552	1500	4910	422	514	4386	3219	100.6
Cotton	4312	-	-	-	-	-	4312	0.0
Tobacco	9251	-	9700	-	-	-	9688	3.4
Cattle (beef)	4442	7069	7664	5202	7152	10071	6888	28.6
Milk	2142	2929	2616	1879	2127	4400	2527	34.4
Eggs (per 1000)	1000	-	1194	829	1159	1440	1401	20.3
Wool	6176	9746	9087	8065	9220	-	9003	16.7

--: Not applicable

a Refers to sales by household plots to private markets.

Source: National Statistical Committee.

Table A.4.6: Foreign Trade in Agriculture and Food Industry, 1993-97

(Million U.S. Dollars)

Item	1993	1994	1995	1996	1997	Percent change in 1997 over 1993
Total economy						
Exports	351.2	340.1	408.9	505.4	603.8	72
imports	435.5	317.0	522.3	837.7	709.3	63
Net exports	-84.3	23.1	-113.4	-332.3	-105.5	
Agriculture						
Exports	11.5	10.6	42.9	63.2	45.2	294
Imports	30.4	28.3	17.0	27.7	34.6	14
Net exports	-18.9	-17.7	25.9	35.5	10.6	
Food industry						
Exports	57.3	55.4	79.1	127.0	79.6	39
Imports	45.2	32.7	84.2	162.0	83.3	84
Net exports	12.1	22.7	-5.1	-35.0	-3.7	
Agriculture and food industry						
Exports	68.7	66.0	122.0	190.2	124.8	82
Imports	75.6	61.0	101.2	189.7	117.9	56
Net exports	-6.8	5.0	20.8	0.5	6.9	
Agriculture and food industry as percent of total						
Exports	19.6	19.4	29.8	37.6	20.7	
Imports	17.4	19.2	19.4	22.6	16.6	

Note: The data for 1993 have been converted from soms at the annual average exchange rate of 5.04 soms per US dollar.

Source: National Statistical Committee.

Table A.5.1: Budgetary Credit to Agricultural Enterprises, 1992-97 (million som)

Year	Principal[a]	Interest	Written -off	Recovered	Due annual		Due cumulative	
					Principal	Principal + Interest - Written-off - Repaid	Principal	Principal + Interest - Written-off - Repaid
1992	1.0	0	0	0	1.0	1.0	1.0	1.0
1993	60.6	0	0	0	60.6	60.6	61.6	61.6
1994	150.0	0	42.3	0	150.0	107.7	211.6	169.3
1995	220.2	94.0	0	0	220.2	314.2	431.8	483.5
1996	138.6	11.0	0	103.5	138.6	46.1	570.4	529.6[b]
1997	150.0[c]	--	--	177.0[d]	150.0	-27.0	720.4	502.6

--: Not applicable

a Does not include bilateral (primarily Japan and EU) grants as commodity credits during 1996 and 1997.

b According to the Decree, 552.9 million som is to be recovered from the regions (in million som):

Osh	:	125.7	Naryn	:	64.5	Talas	: 49.2
Jalal-Abad	:	95.4	Issyk-kul	:	72.2	Chui	: 133.5

This is to be recovered by the Republic Ministry of Agriculture and Water Resources (MAWR) and the Regional Administrations, except 15 million som from Dyikan-Ordo Farmers Association which is to be recovered by DEBRA.

c Government allocation it from the recovered budgetary debt for agriculture and use it for fertilizer (118), leasing (20), herbicides (5) and KAFC (7 million som).

d Projected credit recovery.

Notes: 1. Out of 103.5 million som recovered in 1996, (mostly in-kind in the form of commodities), 80 million som was used to procure seed and fertilizer for 1996 winter planting.

2. In 1997, $13 million Japanese grant (outside the budget) was used to finance imports of farm machinery ($8 million), fertilizer ($2.5 million) and fuel ($2.5 million). Prices for grant financed inputs are generally higher than prevailing market prices.

Source: Ministry of Finance.

Table A.5.2: Uses of Budgetary Credit for Agriculture, 1992-97
(million som)

Item	1992	1993	1994	1995	1996	1997 (est.)
1. Replenishment of state farms current assets	21					
2. Restore farm buildings damaged by earthquake	1					
3. Transfer of debt from Agroprombank to Ministry of Finance		40				
4. Fuel			117.7	117.5	78.9	28.9
5. Seed			11.5	28.1	35.5	
6. Fertilizers and chemicals			7.4	27.9	80.2	146.9
7. Spareparts			2.3	36.9	10.2	
8. Mini mills and processing equipment			1.0			
9. Farm machinery					59.0	92.2
10. Herbicides						5
11. Leasing company						20
12. KAFC						7
Budgetary credit	22	40	140	210	139	150
Donor grants	--	--	--	--	124[a]	150[b]
Total	**22**	**40**	**140**	**210**	**263**	**300**

--: Not applicable

a About 115 million som from Japan -- in the form of fuel (19.1), fertilizers (27.8), spare parts (9.7) and farm machinery (59.0), and 9 million som from the European Union in the form of fuel (0.8), seed (5.5) and fertilizers chemicals (2.4).

b 150 million som from Japan for fuel (28.9 million som), fertilizer (28.9 million som) and farm machinery (92.2 million som).

Source: Ministry of Agriculture and Water Resources.

Table A.5.3: Outstanding Agriculture Debt to Agroprombank
(As of October 1, 1996)
(million som)

Debt owed by	Principal		Interest on overdue	Total	
	Due	Overdue		Amount	Percent
Ministry of Agriculture [a]	272.2	59.7	69.0	400.9	39.6
Agricultural construction	0.9	0.3	b	1.2	0.1
Kyrgyz Food Company [c]	37.3	12.6	5.5	55.4	5.5
Kyrgyz Dan Azyk Company	105.4	27.9	19.0	152.3	15.1
Kyrgyz Fish Processing Co.	b	b	b	b	b
Kyrgyz Petrobsoyuz (Consumer Union) [d]	89.6	24.0	12.2	125.8	12.4
Kyrgyz Oil	55.2	15.7	26.7	97.6	9.6
Ministry of Irrigation	0.8	0.6	0.1	1.5	0.1
Kyrgyz Forest Committee	1.3	0.0	0.4	1.7	0.2
Cooperatives	0.4	0.8	1.2	2.4	0.2
Peasant Farmers Associations	38.7	17.6	16.8	73.1	7.2
Leased agricultural enterprises (farms)	0.1	0.1	0.1	0.3	b
Privatized companies and small ventures	11.6	30.9	35.0	77.4	7.7
Other Ministries	9.5	9.9	2.5	21.9	2.2
Total	**623.1**	**200.4**	**188.5**	**1012.0**	**100.0**
(Percent)	**(61.6)**	**(19.8)**	**(18.6)**	**(100.0)**	

a Consists of credit to agro-industry (5.2 percent of total), collective farms (15.9 percent), state farms (11.8 percent), material/input supply organizations (3.9 percent), procurement of agricultural output (0.2 percent), inter-farm organizations (0.1 percent) and others (2.6 percent).

b Less than 0.1 million som or less than 0.1 percent.

c Including tobacco (1.5percent), canned food (1.1 percent), meat (1.8 percent), dairy (0.4 percent) and other (0.6 percent).

d Including retail trade (8.2 percent),procurement (2.9 percent) and other (1.3 percent).

Source: Debt Resolution Agency (DEBRA).

Table A.5.4: Alternative Sources of Credit Supply for Agriculture, 1996 and 1997 (million som)

Credit sources	1996	1997 (est.)
1. Budgetary credit allocation	139	150
2. Bilateral donors [a]	124	150
3. NGOs [b]	55	75
4. KAFC (World Bank) [c]	-	50
5. Credit unions (ADB) [d]	-	15
6. Commercial companies [e]	2	5
7. Commercial banks	?	?
8. EBRD	?	?
9. IFC	?	?
10. Rural credit cooperatives (RCC)	?	?
TOTAL	320	445

a Mainly Japan and European Union

b Includes Mercy Corporation, Caritas/Halvetas, GTZ, Kyrgyz Republic/U.S. Joint Commission and FINCA.

c Kyrgyz Agriculture Finance Corporation (KAFC) was established in 1996 and became operational in 1997 as part of the World Bank Rural Finance Project.

d Credit unions are being established as part of the Asian Development Bank (ADB) Rural Credit Project.

e Such as Kyrgyz Agricultural Company (KAC) which is involved in contract farming for wheat.

Source: Compiled by World Bank staff from various sources.

Table A.6.1: Irrigation Charges and Budgetary Support for the Irrigation Sub-Sector, 1993-97

Year	Water charges (som/cu. m.)	Water usage in agriculture (mil cu. m.)	Recovery of water charges (mil. soms)	Budgetary support (mil. soms)	Total expenditure (mil. soms)	Recovery of water charges		Total expenditure		Recovery as percent of expenditure
						(soms/cu. m.)	(soms/irri. ha)	(soms/cu. m.)	(soms/irri. ha)	
1993	0.030	9671	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1994	0.015	7700	1.0	32.7	33.7	0.0001	0.93	0.004	31.50	3
1995	0.015	6400	10.3	62.6	72.9	0.002	9.63	0.011	68.13	14
1996	0.015	6400	30.8	99.6	130.4	0.005	28.79	0.020	121.87	24
1997	0.015	6400	55.9	66.7	122.6	0.009	52.24	0.019	114.58	46

n.a.: Not available

Notes:

1. Total expenditure is financed by budgetary support and revenues from the recovery of water charges.

2. Total area under irrigation is about 1.07 million ha; out of which about 10 percent is based on irrigation by pumping stations i.e., lift irrigation.

3. In 1997, 39.2 million soms were collected as water charges for that year and 16.7 million som were collected as the water charges arrears for the previous years; budgetary support figure is an estimate; and water usage figure is based on an extrapolation.

Source: Original data were obtained from the Ministry of Finance, the Ministry of Agriculture and Water Resources and *Natskomstat* Statistical yearbook 1996.

Table A.6.2: Prices and Consumption of Electricity in Agriculture, 1993-98

Sub-Sector	1993 Jan-Nov	1993 Dec	1994 Jan-Feb	1994 Mar-Dec	1995 Jan-Dec	1996 Jan-Mar	1996 Apr-Jun	1996 Jul-Dec	1997 Jan-Dec	1998 Jan-Feb	1998 Mar-	1998 Proposed[a]
A. Price (Tyins/KWH)												
Industry	4.6	5.45	5.45	11.0	11.0	11.0	15.0	25.0	25.0	25.0	25.0	30.0
Agriculture	2.8	3.78	3.78	11.0	11.0	11.0	15.0	25.0	25.0	25.0	25.0	30.0
Dairy	2.8	3.78	3.78	11.0	11.0	11.0	10.8	20.0	20.0	20.0	20.0	21.5
Pumps	2.8	3.78	3.78	11.0	11.0	11.0	3.0	3.0	3.0[b]	3.0[b]	6.0	6.0
Households	1.7	3.0	3.0	6.0	6.0	6.0	9.0	10.0	12.0	12.0	12.0	14.0
B. Consumption (mil. KWH)												
Industry	2,489		2,060		1,991		1,939		1,843		2,189	
Agriculture	1,846		1,526		892		921		677		858	
Of which pumps[c]	347		347		347		347		448[d]		543[d]	
Social	1,195		1,086		1,041		1,147		1,154[e]		993[e]	
Population	2,455		3,159		3,251		2,747		2,123		2,967	
Total	**7,985**		**7,830**		**7,175**		**6,754**		**5,797**		**7,550**	

a Expected to be implemented in 1998.
b Reported price in Naryn and Issyk-Kul Oblasts was 1.5 tyins/KWH.
c Estimate from 1993 to 1996.
d Out of which, 23 million KWH in 1997 and 29 million KWH in 1998 is in Naryn and Issyk-Kul Oblasts.
e Calculated as residual.

Source: Energy Sales Department, Joint Stock Company "Kyrgyzenergo" of the Kyrgyz Republic.

Table A.6.3: Average Land Tax Rates (Effective January 1, 1997)
(soms per hectare)

Oblast	Arable irrigated	Arable non-irrigated	Perennial crops	Hay fields	Pasture land
Talas	346.7	163.9	157.3	19.3	8.4
Chui	438.6	170.9	206.8	45.9	15.0
Issyk-Kul	351.5	207.3	155.3	72.0	14.0
Naryn	101.2	38.9	--	20.0	4.6
Osh	483.0	172.4	207.4	47.3	8.8
Jalal-Abad	505.3	150.4	234.2	50.1	15.7
Kyrgyz Republic	383.2	157.5	177.8	40.8	10.8

--: Not applicable

Notes:

1. These are weighted averages of rayon-level land tax rates in a particular oblast.

2. Land tax rates vary from one rayon to another depending on cropping pattern and land productivity.

3. Effective January 1997, land tax is the only agricultural tax and it replaced the old land tax, profit tax, road tax, emergency situation tax and value added tax.

Source: Ministry of Finance.

Table A.7.1.: Crop Area and Yields under Irrigation, 1995

Crop	Irrigated as percent of total sown area[a]	Percent share of crops in irrigated Area	Irrigated yield as percent of non-irrigated yield
Grains	69	51.5	189
Wheat	71	34.8	170
Barley	53	10.8	170
Rye	88	0.1	--
Oats	80	0.3	166
Corn (grain)	99	4.7	147
Millet	100	b	--
Buckwheat	97	0.1	--
Rice	100	0.6	--
Pulses	87	0.1	159
Sorghum (grain)	100	b	--
Cotton	100	4.5	--
Sugarbeets	98	1.8	--
Tobacco	100	1.1	--
Oilcrops	44	3.4	131
Potato	99	5.8	--
Vegetables	100	4.3	--
Melons (edible)	95	0.5	143
Corn (fodder)	99	5.3	--
Hay (perennial)	79	21.8	117
Total	75	100.0	--

--: None or negligible

a Total sown area during 1995 was 999 thousand ha.

b None or negligible

Note: Crop yields refer to average yields based on sown, as opposed to harvested, area.

Source: Natskomstat (National Statistical Committee).

Table A.7.2 Water Utilization in the Kyrgyz Republic during 1993

(Million cubic meters per year)

River Basin	Water utilization						Including ground water use
	Domestic	Industry	Agriculture		Other sectors	Total	
			Total	For irrigation			
1. Amu Daria	--	--	87	85	--	87	2
2. Syr Daria	98	236	4,684	4,570	53	5,071	454
3. Talas	10	11	933	915	5	959	15
4. Assa	1	--	98	97	--	99	1
5. Chu	274	601	2,781	3,072	17	3,964	325
6. Issyk-Kul Lake	31	14	1,245	1,224	9	1,299	62
Kyrgyz Republic	414	852	10,119	9,671	84	11,479	859
Percent of total	3.6	7.4	88	84	0.7	100.0	7.5

--: None or negligible

Source: National Environment Action Plan, 1995.

Table A.8.1: Change in Average Crop Yields, 1989/91 to 1995/97

Crop	3-year average 1989/91	3-year average 1995/97	Percent change
Wheat	2.66	2.12	- 20
Barley	2.23	1.59	- 29
Corn	6.28	4.19	- 33
Potato	13.57	11.15	- 18
Vegetables	19.70	11.60	- 41
Sugar beet	16.47	15.14	- 8
Cotton	2.64	2.35	- 11
Tobacco	2.27	2.09	- 8

Source: Derived from Natskomstat data.

Table A.8.2: Estimated Fertilizer Use by Regions, 1996
(Tons of nutrients)

Region	N	P2O5	K2O	Total	Percent share
Issyk-Kul	884	97	3	983	6
Jalal-Abad	4332	271	67	4670	29
Naryn	21	41	n.a.	63	0.4
Osh	3089	n.a.	n.a.	3089	19
Talas	1094	19	n.a.	1113	7
Chui	4995	667	265	5926	37
Total	14414	1095	335	15843	100

n.a.: None or negligible

Notes:

1. Fertilizer use has declined from 176 thousand ton in 1990 to 16 thousand ton in 1996; implying 91% reduction. Fertilizer use in 1990 was even lower than in the 1980s.

2. During 1996, three crops accounted for over 80% of the fertilizer use:
   - Wheat: 61%
   - Cotton: 14%
   - Corn (grain and fodder): 8%

3. Data refers to the former and restructured state and collective farms.

Source: Natskomstat (National Statistical Committee).

Table A.8.3: Average Farm Size for Different Farm Organizations, January 1995

Farm	Farm size--arable land (ha)							Percent arable land
	Jalal-Abad	Issyk-Kul	Naryn	Osh	Talas	Chui	Kyrgyz Republic	
Peasant farms and private farms	25	8	18	27	10	5	12	12
Association of peasant farms	628	1330	509	0	309	2714	800	12
Cooperatives	411	2254	462	460	755	522	723	11
Collective farms	1927	3756	1845	1405	2744	3063	1644	25
State farms	1314	2430	1869	2060	3721	2239	2186	23
Other[a]	311	127	272	128	155	275	213	17
Percent arable land	12	14	10	20	9	34	100 (1.3 m. ha)	100 (1.3 m. ha)

a Includes joint stock companies, state research institutes and state subsidiary agricultural enterprises.

Source: State Inspectorate on Land Resources and Engineering.

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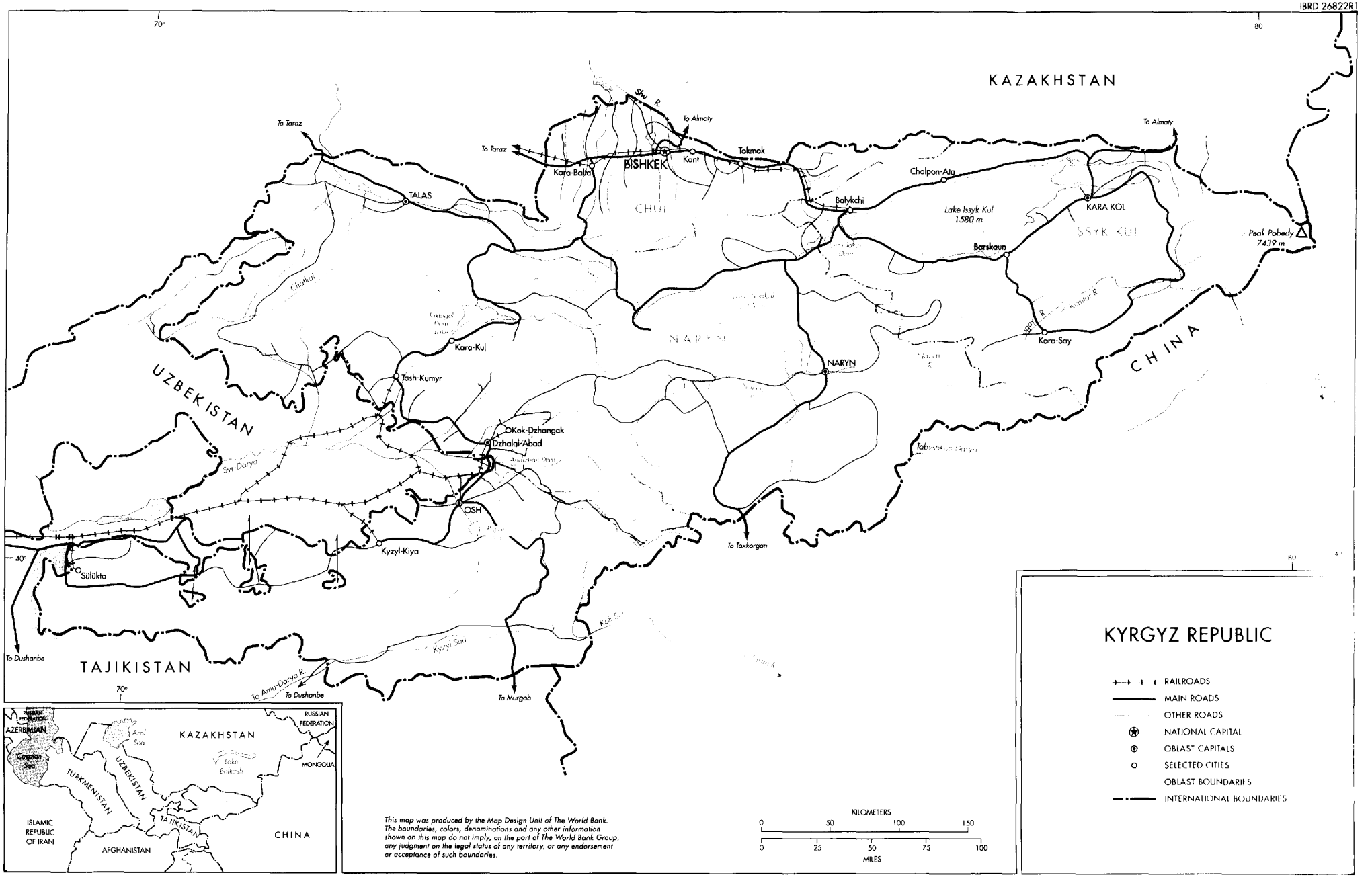

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ISBN 0-8213-4326-2