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**Agrarian Reform in Kyrgyzstan: Achievements and
the Unfinished Agenda**

by

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Agrarian Reform in Kyrgyzstan: Achievements and the Unfinished Agenda¹

Zvi Lerman and David Sedik

Introduction: The Significance of Agrarian Reform in Kyrgyzstan

The dramatic changes that occurred in Kyrgyzstan's agriculture during the transition from plan to market are perhaps best illustrated by the shifting role of agricultural enterprises and individual farms. In 1988, toward the end of the Soviet era, just 500 agricultural enterprises (collective and state farms) controlled 98% of arable land. The quasi-private sector consisting of hundreds of thousands of small household plots controlled the remaining 2% of arable land. Twenty years later, in 2008, the share of agricultural enterprises (about 1,200 privatized successors of collective and state farms) in arable land had gone down to 25%, while the share of the individual sector (the traditional household plots and some 300,000 peasant farms that have emerged since 1992) had increased to 75%.

The individualization of land holdings has been accompanied by an even sharper shift of livestock inventories from enterprises to family farms: the successors of collective and state farms have lost virtually all their animals, and livestock today is concentrated almost exclusively in household plots and peasant farms.

The shift of productive resources – land and livestock – from enterprises to the individual sector has resulted in a significant increase in the share of individual farms in agricultural production. At the end of the Soviet era individual farms (the traditional household plots at that time) contributed 45% of Gross Agricultural Output (GAO) and agricultural enterprises produced the remaining 55%; in 2008, individual farms (household plots and peasant farms combined) contribute 98% of GAO and the share of enterprises had shrunk to just 2%.

Individual farms achieve consistently higher levels of land productivity than agricultural enterprises. Among the two components of the individual sector, the traditional small household plots outperform the newly emergent peasant farms. Because of the higher productivity of family farms, the individualization of Kyrgyz agriculture has led to significant recovery of agricultural production. The steep decline in GAO that characterized the early years of transition (1990-1994) – a standard outcome of transition disruptions in all CIS countries – changed to robust growth after 1995, with GAO recovering to the 1990 Soviet-era peak already in 2002.

The positive response in agricultural production occurred despite decrease in agricultural land use, shrinkage of machinery inventories, and sharp reduction in the use of fertilizers and other purchased inputs. Thus, renewed agricultural growth can be attributed primarily to changes in farming structure associated with the process of land reform. Agricultural recovery was

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driven entirely by growth in the individual sector of household plots and peasant farms, while the formerly dominant sector of agricultural enterprises continued its decline.

Land reform in Kyrgyzstan has been highly successful by the measures of privatization and individualization. However, the progress with land ownership and land tenure reform has not been matched by reform or upgrading of farm support services and infrastructure for agriculture. The transition from the Soviet command system to a market-oriented economy has inevitably disrupted the old supply and marketing channels, while insufficient attention has been given to the creation and development of new channels. The situation is further exacerbated by the fact that the Soviet services were geared specifically to a few hundred large-scale agricultural enterprises, whereas land reform has produced over a million small- and medium-sized producers with fundamentally different needs. The recommendations in this study address the need for creating market services specifically geared to small farms, such as service cooperatives and extension services.

Legislative Framework for Land and Farm Reform

The process of land reform in Kyrgyzstan, as in all former Soviet countries, had to move agriculture from the Soviet model of state-owned land and predominance of large-scale farm enterprises to a market-oriented model of privately owned land with predominance of small- and medium-sized family farms. Land reform accordingly consisted of a two-pronged effort: (a) change in legal ownership of land from state property to private property (privatization); (b) shift in farming structure from corporate to individual farms (individualization). To the extent that large corporate farms continued to exist for various political and pragmatic reasons, their internal organization and management structure had to be radically changed from the old command-economy orientation to compliance with market-economy principles.

Kyrgyzstan was the latest among the former Soviet republics to allow private land ownership. While Russia, Ukraine, and Moldova were the privatization trailblazers abolishing the monopoly of the state in agricultural land ownership at different stages between 1990 and 1993, Kyrgyzstan recognized private land ownership as late as June 1998 following a referendum.² The referendum resulted in a constitutional change that explicitly allowed private ownership of land, in addition to municipal and state ownership:

Land ... is the property of the Kyrgyz Republic, used as a foundation of life and activity for the Kyrgyz people and enjoying special protection by the state.

(Article 4, para 2)

Land may also be in private, municipal, and other forms of ownership ... as determined by law. (Article 4, para 3)

Prior to 1998, all land was state owned, as in the former Soviet Union, but use rights were secure for 99 years and, after 1994, fully transferable. Having recognized private land ownership in 1998, Kyrgyzstan immediately imposed a 5-year moratorium on all transactions in privately owned land (1999 Land Code), thus moving backward by measures of land transferability compared with the pre-referendum period. Kyrgyzstan motivated the moratorium by the need to let the new landowners get used to the entire set of their property rights and fully recognize the implications of irrevocable decisions. The moratorium was

² Kazakhstan allowed universal private ownership of all agricultural land even later, in 2003. However, the concept of private land ownership had been recognized in Kazakhstan prior to that, although only for household plots.

lifted in March 2001 (by the Law on Agricultural Land Management), largely in response to international donor pressure, but transferability of land continued to be constrained by a new administrative restriction: only persons who had lived in rural areas for a minimum of two years were eligible to own land.

Table 1. Chronology of land legislation in Kyrgyzstan

Reform phases	Date	Name
First phase	Feb 1991	Law on Peasant Farms (superseded by 1999 law)
	Feb 1991	Law on Enterprises
	Apr 1991	Law of Land Reform
	Apr 1991	Measures for Implementation of Land Reform
	Jun 1991	Land Code (superseded by 1999 code)
	Dec 1992	Measures for Continuing Implementation of Land and Agrarian Reform
	May 1993	New Constitution
Second phase	Feb 1994	Measures on Deepening Land and Agrarian Reform
	Mar 1994	Creation of the National Land Fund (later renamed Land Redistribution Fund)
	Aug 1994	Procedures for Implementation of Land and Agrarian Reform
	Aug 1994	Procedures for Reorganization of Agricultural Enterprises
	Aug 1994	Procedures for Land Share Determination and Issue of Land Use Certificates
	Jun 1998	Referendum on Private Landownership (leading to a new constitution)
	Oct 1998	Presidential Decree on Private Land Ownership
	Dec 1998	Law on State Registration of Immovable Property Rights and Transactions in Them
	May 1999	Law on Mortgage (Ch. 6: Special features of land mortgage)
	Jun 1999	Land Code (superseded the 1991 code)
	Jun 1999	Law on Peasant Farms (supersedes the original 1991 law)
	Jan 2001	Law on Agricultural Land Management: lifting the moratorium on land sales (Mar 2001)
Third phase	Apr 2004	New Directions and Measures of Land and Agrarian Reform
	Jun 2004	Law on Cooperatives
	Jun 2007	Standard Procedure for Agricultural Land Leasing from the State Redistribution Reserve
	Oct 2008	Tax Code (Section XIV, Chapters 48-51): Land Tax
	Jan 2009	Law on Pastures

Kyrgyzstan has gone through three stages of land reform since gaining independence (**Table 1**):

- First phase (1991-1993): the laws passed in this period set the basic principles and procedures for the reorganization of former collective enterprises through distribution of land and property shares to rural residents; the share mechanism facilitated the augmentation of household plots and the emergence of new family-style peasant farms operating outside the collectivist framework (contrary to the traditional household plots run by employees of collective farms and rural administrative organs);
- Second phase (1994-2004): mass distribution of transferable land shares (with a target of covering 75% of all arable land) in conjunction with sweeping individualization of farming, especially after recognition of private ownership in 1998; creation of the Land Redistribution Fund with target holdings of 25% of all arable land remaining in state ownership for future contingencies;
- Third phase (since 2004): officially designated “the concluding stage of land and agrarian reform”, with the following list of priorities (New Directions and Measures of Land and Agrarian Reform, Presidential Decree, April 2004):
 - wide range development of cooperatives;
 - development of peasant farms and agri-businesses;
 - focus on credit cooperatives, mortgage financing, and agricultural insurance;

- determination of optimal plot sizes and registration;
- rehabilitation and development of seed and livestock selection;
- encouragement of agricultural sciences, consulting and marketing services;
- creation of an effective system for technical, agrochemical, and veterinary service;
- development of marketing, processing, and export systems for agricultural products;
- improvement of water and pasture management;
- social development of rural areas.

While the first two phases were primarily concerned with the basics of land reform and farm restructuring – setting up land share allocation, converting land shares into physical plots, establishing mechanisms for creation and operation of peasant farms – the third phase in effect looks “beyond land reform”, by emphasizing attention to services and infrastructure. These are an essential component of any reform program and are intended to provide a supportive market environment for normal functioning of post-reform farms.

Agricultural land is classified into two main components: arable land, which is the land cultivated to grow crops, and pastures, the uncultivated component used for grazing animals. Pastures make up 85% of agricultural land in Kyrgyzstan, with arable land accounting for the remaining 15%. Pastures were not subject to privatization and remained state property. Privatization efforts focused only on arable land. The land reform legislation set a privatization target of 75% of arable land, with the remaining 25% to be held in a State Land Redistribution Reserve for future contingencies. The privatization goal had been achieved by 2003, when 940,000 hectares of arable land had been distributed in the form of land shares to nearly 2 million landowners – two-thirds of the rural population (**Table 2**). By February 2009 the number of land-share owners had reached 2.7 million individuals or more than 80% of the rural population (Gosregister web site, http://www.gosreg.kg/gosreg_ru/index.php?option=com_content&task=view&id=129&Itemid=179).

Table 2. Status of land privatization 2003-2008

	2003	2008
Total arable land	1239	1209
Arable land in private ownership	937	940
% of arable land in private ownership	76	78
Number of private landowners	1,712,042	2,043,004

Source: Gosregister, annual land balances for 1.1.2004 and 1.1.2009.

The ultimate intent of the mechanism of land share distribution to the rural population was conversion of land shares into privately owned land plots for individual farming. This process triggered a rapid increase in the area of arable land under individual cultivation. Most but not all the land-share owners actually claimed their entitlement in physical form. The proportion of arable land in individual use (i.e., land claimed through conversion of land shares) grew steadily in the process of land reform, reaching 70% in 2003 and 73% in 2007 – slightly below the achieved privatization target of 75%. As the privatization process approached completion, the total arable land in individual use (by peasant farms and household plots combined) stabilized at around 920,000 hectares, with the remaining agricultural enterprises and other users controlling less than 400,000 hectares (**Figure 1**).

Kyrgyzstan: Arable land in individual farms

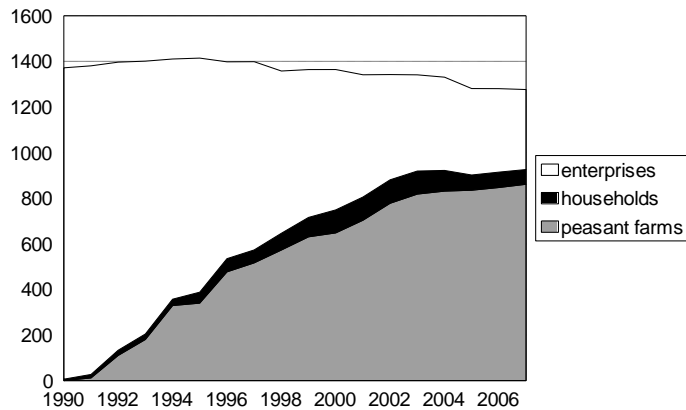


Figure 1.

The increase in land cultivated in the individual sector was accompanied by a rapid increase in the number of peasant farms, which rose from 20,000 to 250,000 during the period characterized as the second phase of land reform (1994-2001).³ The increase in the number of peasant farms outstripped the growth of arable land, resulting in a sharp decline in average farm size – from 15 hectares in 1994-96 to 3 hectares since 2002 (**Figure 2**). The number of household plots is estimated at around 750,000 (first determined during the 2002 Agricultural Census) and based on this estimate the average plot size is 0.1 hectares.

Kyrgyzstan: Development of peasant farms

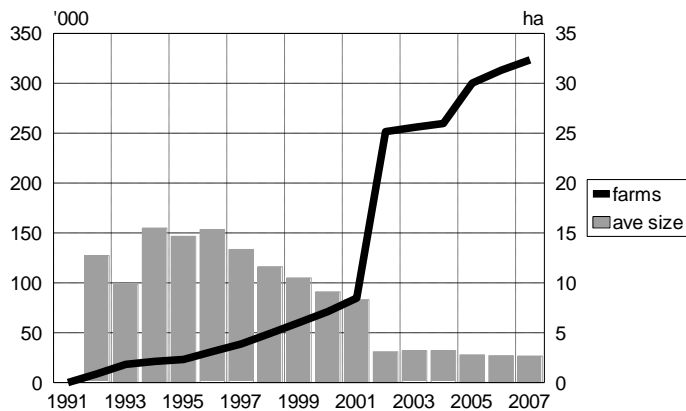


Figure 2.

The changes in farm structure in the post-independence period are schematically demonstrated in **Table 3**, which compares the traditional Soviet farm structure with the structure that has emerged since the beginning of reforms in 1991. While the general classification into corporate and individual farms remains, the individual sector now consists of two distinct components: the traditional household plots carried over from the Soviet period and the new emergent peasant farms.

³There was a large one-time jump in the number of peasant farms in 2002, and the new (higher) number reflects the 2002 agricultural census findings. The abrupt increase in the number of peasant farms in 2002 was not accompanied by a commensurate change in arable land in peasant farms, which suggests that the increase in numbers was not due to technical reclassification from household plots to peasant farms in 2002.

Table 3. Changes in farm structure: Soviet period and post-independence

Soviet period	Since independence
Corporate farms	Corporate farms
<i>Collective and state farms (kolkhozes, sovkhoses)</i> Large-scale agricultural enterprises with thousands of hectares of land run by appointed managers subject to centrally set production plans	<i>Limited-liability partnerships, joint-stock companies, agricultural production cooperatives</i> Successors of agricultural enterprises reorganized as share-based companies run by hired managers and greatly downsized (hundreds instead of thousands ha)
Individual farms	Individual farms
<i>Household plots</i> Small (less than 0.5 ha) family farms producing mainly for subsistence and selling their surplus output in the market; managed by rural residents (employees of corporate farms, employees of rural services, pensioners)	<i>Household plots</i> Basically the same as in the Soviet period, with substantially enlarged land holdings, but still very small; mix of subsistence and commercial farming with predominance of livestock <i>Peasant farms</i> Mid-sized family farms (1-10 ha) created outside the corporate framework under new (post-1992) legislation on land allocated from state reserves to qualified applicants; mainly commercial farming with predominance of crop production

Outcomes of Reform: Agricultural Production and Resources

Land and farm reforms in all transition countries are intended to cure the chronic inefficiencies of the Soviet legacy. The inefficiency of inherited agriculture can be traced to a system of distorted incentives inherent in the Soviet system's reliance on corporate farms in preference to family farms that dominate agriculture in market economies. Individual accountability characterizing family farms and missing in corporate farms is expected to cure the many weaknesses and failings of agriculture based on large-scale corporate farms. Consistently with these theoretical considerations, land and farm reform legislation in all CIS countries, including Kyrgyzstan, emphasizes transition to individual land tenure and a shift from large-scale corporate farms to more manageable small- and mid-sized family farms. In the sections that follow we show that in Kyrgyzstan these changes have indeed led to agricultural recovery through resumption of growth and improvement of farm productivity.

The main outcome of reforms is best illustrated by the recent changes in the long-term pattern of agricultural development in Kyrgyzstan (**Figure 3**). During the last three decades Kyrgyzstan's agricultural development has gone through three successive phases, which are discernible for all CIS countries. The first phase can be characterized as the Soviet growth period, and it extended until 1990. The GAO index in 1990 was 150% of the GAO level in 1980, and it is notable that Kyrgyzstan did not suffer from the stagnation that was typical of the Gorbachev era (1985-1990) in other CIS countries. The second phase is the transition collapse triggered by the dismantling of the traditional Soviet system and the disruption of all support services in agriculture. The GAO index dropped by 40% between 1990 and 1995, bottoming out in 1995 at 80% of the 1980 level. The third phase is the recovery phase characterized by renewed agricultural growth after 1995, when the changes associated with land and farm reform began to be felt.

Kyrgyzstan: GAO 1980-2007 (all farms)

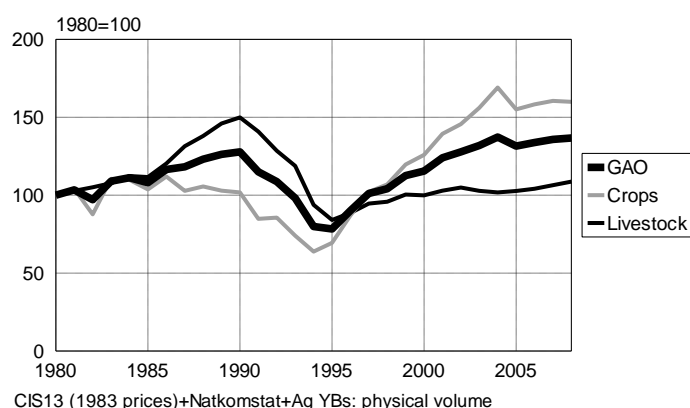


Figure 3.

The remarkable growth since 1995 was definitely not caused by an increase in agriculture's resource base. Arable land contracted from a peak of 1.4 million hectares in 1994 to 1.3 million hectares in 2007, while more than 5 million hectares of pasture land shifted out of productive use by farms and villages. The potentially negative effect of the decrease in agricultural land resources was reinforced by the shrinkage of machinery inventories and sharp reduction in the use of fertilizers and other purchased inputs compared with the Soviet levels in 1988 (**Table 4**). Still, agricultural production has shown robust increase, rising by 75% since 1995 and overtaking the Soviet record. In the absence of significant increases in resources, this is apparently associated with the dramatic changes in incentives that accompanied the shift from former collective agriculture to individual and family farming in the process of land and farm reform.⁴

Table 4. Farm machinery inventories and fertilizer application 1988-2007 (all farms)

	1988	2007	2007 in percent of 1988
<i>Farm machinery (physical units)</i>			
Tractors	32,653	24,531	75
Grain combines	4,229	3,091	73
Feed combines	2,155	326	15
<i>Fertilizer application</i>			
Total (all farms), '000 tons	296.4	28.7	10
Per hectare sown, kg*	181	25.5	14

*Agricultural enterprises in 1988, all farms in 2007.

Source: 1988 from Narkhoz KyrSSR 1988; 2007 from 2007 AgYB

Individualization of agriculture

The most remarkable change in Kyrgyz agriculture since 1991 is the dramatic individualization of land tenure and farm production triggered by the process of land and farm reform even before the privatization referendum of 1998. As a result of these processes, the share of agricultural enterprises in arable land went down from 98% in 1988 to 25% in 2008, while the share of the individual sector increased from just 2% to 75% (see **Figure 1**). In 1988, toward the end of the Soviet era, just 500 agricultural enterprises (collective and state farms) controlled over 1.3 million hectares or 98% of arable land. The quasi-private sector

⁴ Agricultural labor is the only factor of production that showed a steady increase over time, growing faster than the total population. It is hard to argue that this factor alone could lead to growth in agricultural production by offsetting the negative effects of the decline in land, machinery, and purchased inputs.

consisting of hundreds of thousands of small household plots controlled the remaining 2% of arable land – less than 60,000 hectares. Twenty years later, in 2008, the holdings of the now privatized successors of collective and state farms (about 1,200 in number) are down to 350,000 hectares of arable land while individual farms (the traditional household plots and some 300,000 peasant farms that have emerged since 1992) control 950,000 hectares.

Kyrgyzstan: Livestock inventories by farm type

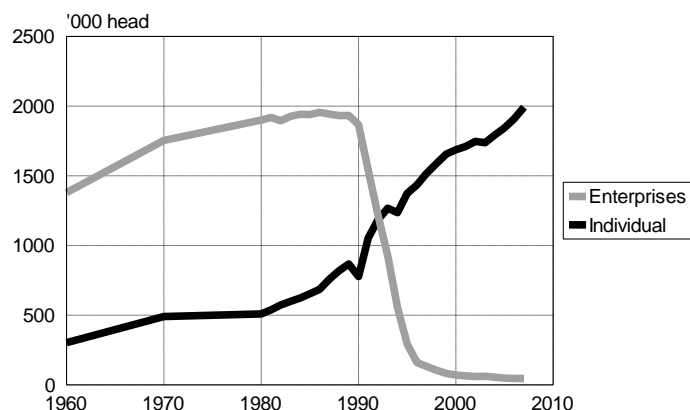


Figure 4.

The individualization of land holdings has been accompanied by an even sharper shift of livestock inventories from enterprises to family farms (**Figure 4**): the successors of collective and state farms have lost virtually all their animals, and livestock today is concentrated almost exclusively in household plots and peasant farms.

The shift of productive resources – land and livestock – from enterprises to the individual sector has resulted in a significant increase in the share of individual farms in agricultural production (as measured by the aggregate value of Gross Agricultural Output – GAO). At the end of the Soviet era individual farms (the traditional household plots at that time) contributed 45% of Gross Agricultural Output (GAO) and agricultural enterprises produced the remaining 55%; in 2008, individual farms (household plots and peasant farms combined) contribute 98% of GAO and the share of the enterprises had shrunk to just 2% (**Figure 5**).

Kyrgyzstan: GAO by farm type 1991-2007

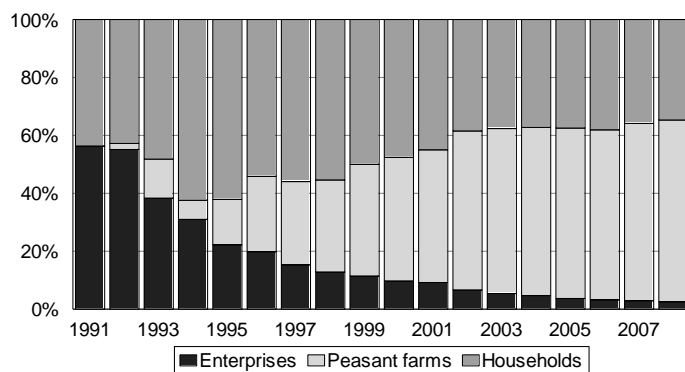


Figure 5.

Natkomstat

Productivity of different farm types

The individual sector – household plots and peasant farms combined – contributes 98% of GAO (the value of agricultural output) on just 75% of arable land. This disparity between the share of individual farms in output and land is a persistent phenomenon that was observed also in the Soviet period, when household plots – the only type of family farm in existence at that time – produced 45% of GAO on just 2% of land. The disparity between shares of production and land provides a measure of relative productivity: the entire agricultural sector produces 100% of GAO on 100% of land with relative productivity of 1; relative productivities higher 1 (when the share of output is greater than the share of land) are indicative of land being used more efficiently than the average for the entire sector, while relative productivities less than 1 (when the share of output is less than the share of land) suggest that land is being used less efficiently than the sectoral average.

Kyrgyzstan: Relative crop productivity by farm type 1999-2007

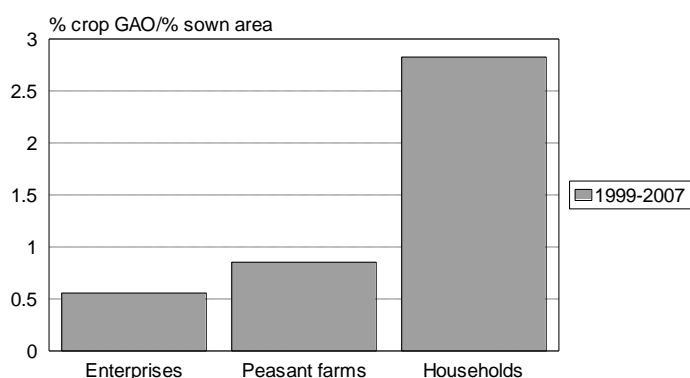


Figure 6.

Estimates of relative efficiency of land utilization for farms of the three main types – agricultural enterprises, peasant farms, and household plots – presents a clear ranking (**Figure 6**), with the efficiency of land utilization rising sharply from enterprises (the lowest) to household plots (the highest). The low relative productivity of agricultural enterprises suggests that they are very inefficient in the utilization of the large land resources that they continue to control: more efficient farming could generate substantially greater output from the available arable land.

Kyrgyzstan: Crop productivity by farm type 1999-2007

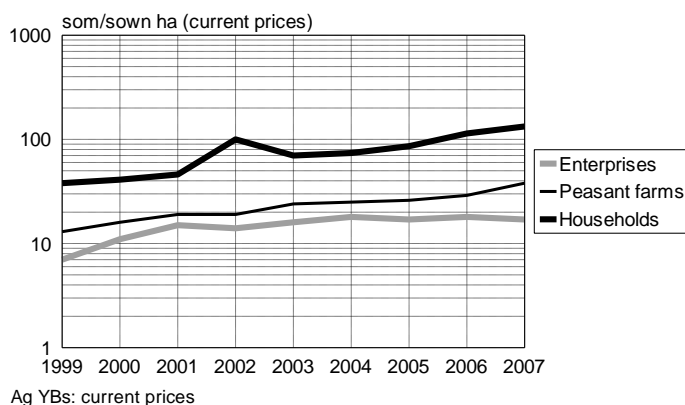


Figure 7.

Alongside relative productivities of land utilization, we can also calculate the absolute land productivity for different farm types as the value of crop production (which is available in current prices since 1999) per hectare of sown land. Individual farms are observed to achieve consistently higher levels of land productivity than agricultural enterprises (**Figure 7**). Among the two components of the individual sector, the traditional small household plots outperform the newly emergent peasant farms.

Because of the higher productivity of family farms, the individualization of Kyrgyz agriculture has led to significant recovery of agricultural production. The steep decline in GAO that characterized the early years of transition (1990-1994) changed to robust growth after 1995, when the second phase of land reform began. Following the shift to more productive individual agriculture GAO recovered to the 1990 Soviet-era peak already in 2002 (**Figure 8**).

Kyrgyzstan: GAO 1990-2008

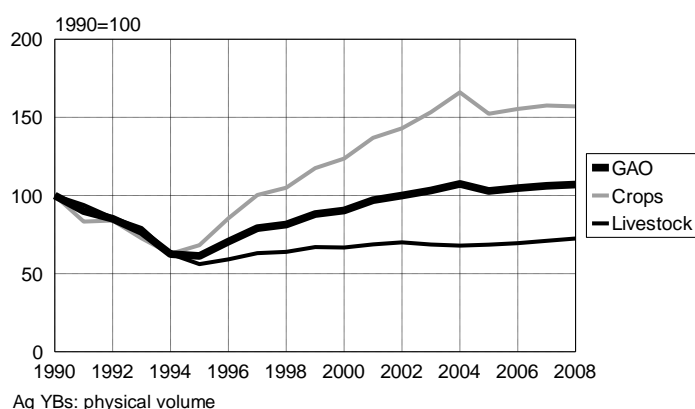


Figure 8.

Agricultural recovery was driven entirely by growth in the individual sector of household plots and peasant farms, while the formerly dominant sector of agricultural enterprises continued its decline (**Figure 9**).

Kyrgyzstan: GAO by farm type 1990-2006

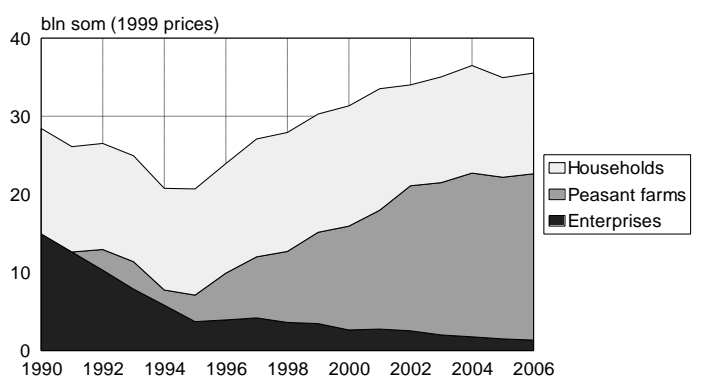


Figure 9.

Farm sizes and land concentration

Land reform distributed land in one form or another to roughly 1.2 million farmers: about 900,000 household plots and 300,000 peasant farms. The 2002 Agricultural Census provides information that enables us to compute the average size of farms of the three main types –

enterprises, peasant farms, and household plots (**Table 5**). The average enterprise in 2002 had 220 hectares of arable land – a far cry from the average size of 2,500-3,000 hectares at the end of the Soviet period (1988-1990). Still, even the shrunken enterprises were two orders of magnitude larger than peasant farms (3.80 hectares on average), which in turn were an order of magnitude larger than household plots (0.10 hectares).

It is noteworthy that peasant farms and even household plots augment their private holdings with leased land: peasant farms have nearly 20% of leased land in their total holdings, while household plots lease 11% of the land they farm. At least some of this land comes from enterprises (mainly state farms), which lease out much of the land under their control. Thus, 685 state farms control in total about 350,000 hectares of arable land, but they actually use only 130,000 hectares, leasing out 220,000 hectares to other users (peasant farms and household plots).

Table 5. Number of farms and average farm size in the 2002 Agricultural Census

Farm type	Number of farms	Ave size, ha	Percent of owned land in used land
State farms	685	192	260
Collective farms	722	246	83
All enterprises	1,407	220	158
Peasant farms	243,294	3.80	81
Household plots	753,334	0.10	89

The overall outcome of the land distribution process can be summarized by a standard Lorenz land-concentration curve, which plots the cumulative percentage of (arable) land versus the cumulative percentage of farms (**Figure 10**, also from the 2002 Agricultural Census). For Kyrgyzstan (thick black curve) 90% of (smallest) farms control just 20% of arable land and the remaining 10% of (larger) farms control 80% of arable land. This Lorenz curve is characterized by very high inequality, as measured by the area of the bulge between the diagonal (the ideal uniform distribution) and the actual curve. Kyrgyzstan after all its reform efforts still has very high concentration of land in relatively large farms and a very large number of small farms with very little land. This type of land concentration is similar to what prevailed during the Soviet era and what is still observed in low-reform countries such as Russia or Ukraine. The land-concentration curve for Azerbaijan (thick gray curve), on the other hand, shows much more equality than the Kyrgyzstan curve and is clearly closer to the market-model curve as represented by USA (thin black curve).

Kyrgyzstan: Concentration of arable land 2002 census

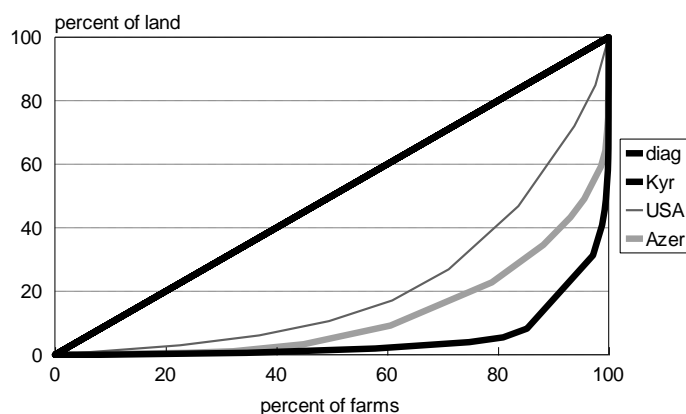
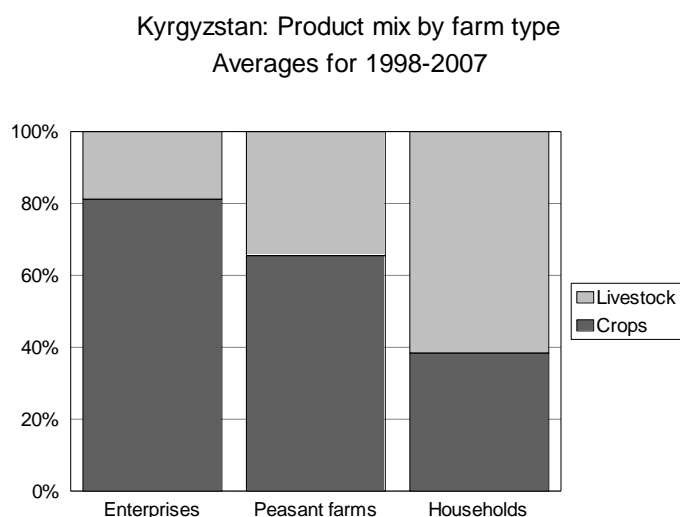


Figure 10.

Combining the results of this section – low productivity of large corporate farms and high concentration of land in large farms – we conclude that the land reform process in Kyrgyzstan is only partially complete. Further efforts are needed to reallocate the land locked in non-productive large farms to more productive individual farms. This process will create a larger number of mid-sized family farms and transform the Kyrgyzstan land-concentration curve to one closer to Azerbaijan.

Product mix

There are considerable differences in the product mix (shares of crop and livestock production) between household plots and farms of other types (**Figure 11**). Household plots lean toward livestock specialization, with more than 60% of their output originating from livestock production (averages for 1998-2007; no data on output by farm type are available prior to 1998). At the other extreme, agricultural enterprises specialize in crops, with less than 20% of their output in livestock products. The peasant farms that began to emerge after 1992



occupy an intermediate position, with a strong leaning toward crop production: their product mix is 65% crops and 35% livestock – more livestock than in agricultural enterprises but substantially less than in household plots. The livestock bias of production in household plots is consistent with their dominant share in animal numbers.

Figure 11.

Nationally, the product mix since 1999 has fluctuated around 55% crops and 45% livestock. This contrasts with 45% crops and 55% livestock that persisted all through the 1980s and the early 1990s (**Figure 12**). The switch between the two product mix regimes occurred between 1995 and 1998, at the peak of the individualization process.

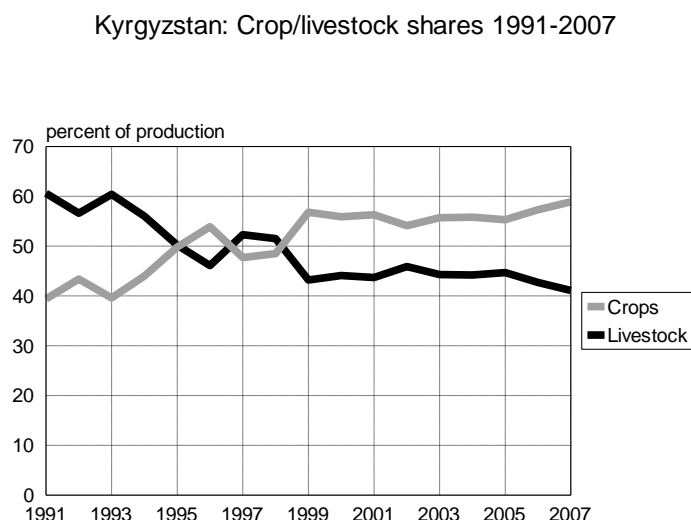


Figure 12.

Changing cropping pattern

The steady increase of livestock inventories during the Soviet era (1960-1990) was supported by the increase of areas sown to forage crops, which came at the expense of areas allocated to cereals and to a certain extent also cotton. During the post-Soviet transition period, on the other hand, we witness dramatic reduction of areas under forage crops, which allowed re-expansion of cereals (from considerations of food self-sufficiency) and cotton (from apparently misguided considerations of export potential). In addition to increasing cereal and cotton areas, Kyrgyzstan increased the share of land under high-value crops, such as vegetables and melons (**Figure 13**).

Kyrgyzstan: Cropping pattern (all farms)

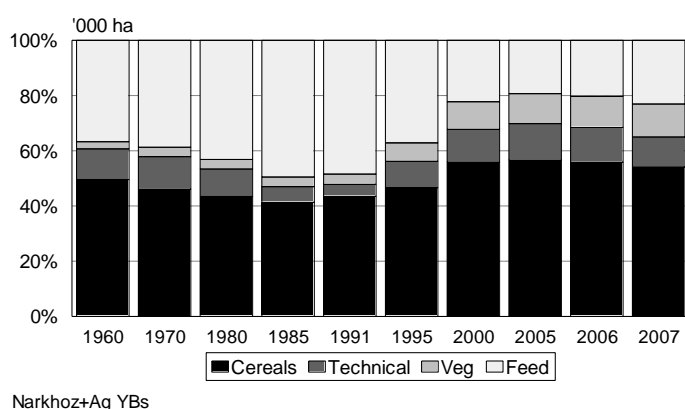


Figure 13.

The increased share of high-value crops in sown area is a reflection of the strategy followed by the small household plots, which are better adapted to growing vegetables rather than the traditional cash crops and rely on these readily marketable crops as an important supplement of family income.

The Unfinished Reform Agenda

By all standard measures land reform has been highly successful in Kyrgyzstan. Fully 78% of arable land has been transferred to private ownership since the introduction of private land ownership a decade ago (Gosregister, 1 January 2009), 75% of arable land and nearly 100% of livestock are now in individual use, and the individual sector currently contributes 98% of gross agricultural output. The shift to individual farming has been unquestionably one of the main factors responsible for the resumption of agricultural growth after 1995.

Yet Ministry of Agriculture officials remain dissatisfied and highly skeptical of these achievements. They view land reform as a destructive process that dismantled the capital-intensive and highly commercialized large-scale farms and drove Kyrgyzstan to highly fragmented small subsistence farms. In promoting this view, they ignore the well-documented chronic inefficiency of the Soviet model of agriculture and the recent evidence of superior performance of family farms in all CIS countries, including Kyrgyzstan.

These official views are responsible for the following dismal picture of Kyrgyz agriculture today:

Most village families practice subsistence agriculture and are allocated small parcels of land to produce food for their families. These plots are often barely sufficient to feed each family, and the purchase of seed and fertilizer is often too expensive. Even if a surplus can be produced, it is difficult to transport it to markets. The lack of machinery means that the labor is mainly carried out by family members. Most villages lack basic facilities to process wool, preserve fruit, and add value to their crops.

Kyrgyzstan Community Business Forum (Web Site), Subsistence Agriculture,
http://www.kyrgyzstan-cbf.org/Community/Subsistence_Agriculture/subsistence_agriculture.html.

It is of course true that family farms created in the process of land reform are small, with average holdings of just 0.8 hectares of arable land per farm (2002 Ag Census; 3.1 ha per peasant farm, 0.1 ha per household plot). However, even these small farms are not pure subsistence operations, as suggested by the above paragraph: sales of farm products from the household plot consistently account for 20% of family cash income (between 2001 and 2007; *Uroven' zhizni naseleniya* 2001-2005, 2003-2007, Bishkek). Kyrgyz farmers suffer from what is generally known as “the curse of smallness”, and institutions are needed to help them achieve the benefits of larger size – not so much in production as in product marketing and in access to inputs or machinery.

The unfinished agenda of land and farm reform broadly consists of two sets of issues:

- 1) Further land allocation efforts, including distribution of land from the State Redistribution Fund, attention to small farm consolidation options, and novel pasture management techniques designed to counteract continued abandonment of pastures.
- 2) Development and improvement of farm services and farm infrastructure, designed specifically for small family farms and intended to counteract the “curse of smallness”.

In what follows we describe some priority areas for further action by international donors that can provide assistance with respect to the unfinished reform agenda. Ongoing and recently completed projects of international donors in farm-related areas are listed in **Annex Table A.1**.

Priority areas for action: development of cooperatives, access to farm credit, extension and training

Agriculture is the main source of livelihood for the rural population in Kyrgyzstan, which is relatively poor compared with urban population. The issue of raising rural incomes and improving the rural standard of living is therefore a major concern for policy makers in Kyrgyzstan. Rural development theory generally identifies four approaches to improving rural incomes:

- a) Increases in productivity (i.e., yields per unit of land or yields per head of livestock) – intensive approach;
- b) Increases in endowments (land, livestock, machinery, fertilizers, other purchased inputs) – extensive approach;
- c) Increases in commercialization through improvement of access to market channels and shift to higher value-added products;
- d) Improved knowledge transfer and extension;
- e) Diversification into non-agricultural employment in rural areas.

The last item – diversification into non-agricultural employment in rural areas – falls outside the scope of the present proposal and should be dealt with separately in view of its extreme importance for rural incomes. Two other items relating to increases in both productivity and endowments are the focus of various technical projects implemented by major international donors, including the World Bank and USAID. A more appropriate niche for FAO is probably to focus on technical assistance for increasing commercialization levels among individual farmers and also improving extension and training systems, which in turn have a direct impact on productivity and rural incomes.

Land is one component of the operating environment that encourages commercialization: empirical evidence shows that larger farms tend to be more commercial. However, given land, farmers should be able to produce, which requires channels for the delivery of knowledge, inputs, and machinery to the farms. Once the harvest is in, farmers should be able to sell it, which requires access to marketing channels.

In the past, the traditional individual sector – the household plots – was generously supported by the local collective or cooperative enterprise, which actually provided all the upstream and downstream services. In this way, the large farm enterprise substituted for the missing market channels and enabled the household plots to maintain their partial commercialization. Today, the individual sector largely has to fend for itself in the new market environment, however imperfect. World Bank surveys in CIS provide consistent evidence that the individual sector – both household plots and peasant farms – is shifting its business from farm enterprises and state-affiliated channels to private traders, wholesalers, and retail markets. This observation is equally valid for both product sales and farm supply purchases.

Individual farmers experience many difficulties in their attempts to sell farm products. Farmers universally complain of low prices received; they often complain that it is difficult to find a buyer for their products; they experience serious problems with transporting their products to the market; individual farmers recognize that their output is too small to sell. With regard to farm inputs, the universal complaint is that the prices are too high, although physical availability as such (i.e., finding a supplier) is not a problem.

All these are typical problems of smallness. They are not unique to transition countries: family farmers all over the world experience similar problems, although admittedly they are less acute in a functioning market environment. In addition to difficulties with sales and inputs due to lack of bargaining power (prices) or restricted physical access to markets (finding a buyer, transport), the problems of smallness are also reflected in shortage of machinery (too expensive to buy for a small farmer) and restricted access to credit (lack of collateral, high transaction costs for small loans).

Service Cooperatives, Machinery Pools, and Farm Credit Cooperatives

The standard solution for the problems of smallness in market economies is to establish a farmers' service cooperative. Both theory and world experience suggest that service cooperatives are established to correct for market failure, i.e., when private entrepreneurs are reluctant to enter into a particular area for various reasons (spatial dispersion, remoteness, narrow product requirements) and as a result farmers are faced with missing services (Cobia, 1989). Service cooperatives cure the problems of smallness by endowing small individual farmers with the benefits of collective operational size; they assure access to supplies and markets for their members; and achieve market power through size. Cooperative machinery pools relieve the individual farmer from the pressure of purchasing own equipment. Service cooperatives also achieve overall risk reduction through portfolio diversification effects (Zusman, 1988). This improves their credit standing vis-à-vis the banks, enabling them to negotiate access to loans and lower interest rates for their members.

These advantages of joint action through cooperation in services (as opposed to cooperation in production) are borne out by long-term experience all over the world. In market economies, cooperatives of course are not the only institution that small farmers use. Many functions and services are handled competitively by private entrepreneurs, obviating the need for service cooperatives. In transition economies, where the market environment is still underdeveloped and not fully functional, the benefits of cooperation appear to be self-evident. There is, however, a strong psychological resistance to cooperation bred from years of abuse of the whole concept by socialist regimes. As aptly noted by Plunkett Foundation (1995),

The use of the word "co-operative" in Central and Eastern Europe will not only create the wrong impression, it will also create barriers to progress. The old style of co-operative or collective has no relevance in the new free-market approach.

Despite this resistance, we are witnessing the emergence of new forms of cooperation among individual farmers in transition countries. This is voluntary cooperation, often informal and sporadic, that stands in a stark contrast to the all-pervasive mandatory cooperation of the socialist era. Cooperation in machinery is one of the major areas of cooperation among individual farmers in transition countries. Through cooperation, the actual access of individual farmers to machinery and machinery services is much higher than that suggested by machinery ownership rates. Thus, in Armenia only 14% of farmers own farm machinery (either individually or jointly with their relatives and neighbors). Machinery pools and service cooperatives, however, ensure that fully 80% of individual farmers in this country have access to machinery or mechanical field services (Lerman and Mirzakhanian, 2001). In Moldova, less than 30% of peasant farmers participating in the 2000 World Bank survey have their own machinery; another 40% have access to machinery through joint ownership (a kind of low-level cooperation) or rental; finally over 30% buy mechanical field services. Both cooperatives and private rental companies provide an adequate solution to the problems of

smallness and fixity, which prevent widespread ownership of farm machinery by small individual farmers. If private entrepreneurs provide competitive machinery rentals and services, all the better. If no such services are available from private companies, cooperatives can be established to fill the gap.

Kyrgyzstan seems to have overcome the generally suspicious attitude toward the concept of cooperative that prevails in CIS. There appears to be considerable interest in cooperatives and cooperation at all levels of administration and society. Cooperatives are indeed viewed as a possible cure to the problems of smallness created by land privatization. However, there is a great deal of general confusion about what type of cooperatives are desirable (service cooperatives in the broad sense of the word) and what type of cooperatives should not be promoted (production cooperatives) in the light of experience in market economies. Technical assistance from international donors can contribute on several levels:

- Providing general policy guidance and policy advice regarding the advantages and disadvantages of cooperatives, especially aiming to steer the Kyrgyz decision makers from the idea of re-establishing large collective farms in the guise of production cooperatives
- Providing instruction materials and specific technical advice on organization and functioning of cooperatives
- Providing advice on the re-drafting of the law of cooperatives; this advice should rely on a combination of economic and legal considerations and be provided by experts from both fields.

Access to Credit

The conventional wisdom is that individual farmers in transition countries suffer from a severe shortage of credit – both short-term working capital credit and long-term investment credit. This, of course, is presented as an obstacle to normal and efficient farm operation. However, small farmers worldwide are highly conservative and risk-averse individuals who are reluctant to borrow. Experience in market economies shows that farmers do not rush to the banks to finance every investment instantly with debt. Farmers wait until they have accumulated enough savings to buy or build, as needed. When credit is easily available through (generally subsidized) government sources, farmers, like everybody else, fall into the moral hazard trap of soft-budget constraints: they over-borrow, over-invest, and end up in serious trouble. To facilitate investment, we need to encourage farmers to be profitable and save “out of cash”. Sophisticated rural credit facilities for investment are probably less relevant.

In market economies, short-term loans for working capital are often handled through channels that do not involve bank borrowing. First, there is natural supplier credit that all farms use. Second, short-term financing can be raised through a variety of product–credit interlinkage arrangements: the farm pledges its future harvest against a bridging loan for working capital. Interlinkage arrangements are universally practiced by service cooperatives, which supply inputs and extend credit to their members in return for the promise of future delivery of members’ harvest.

A more sophisticated non-cooperative interlinkage scheme involves contract production, whereby a farmer undertakes to produce and deliver a certain crop to a marketer or a processor in return for a working-capital loan or inputs supplied in kind. Service cooperatives often assume the responsibility for financing under contract production arrangements. Outside the cooperative framework, the buyer–financier may be a large foreign corporation with a

special interest in gaining a market share for its products (farm inputs) or securing a source of farm commodities for its marketing or processing operations (grain, grapes, vegetables). Warehouse receipts, whereby financing is made available against stored commodities pending their sale, is in a sense a variety of contract sales.

A popular solution for rural credit problems advocated by international donors involves the establishment of credit unions. These are small specialized credit cooperatives that rely on mutual guarantee and strong peer pressure for successful operation. Their operation is not interlinked with input supply or product marketing: their charter is to lend money to their members for business needs (including farming). There are large numbers of such credit unions in Armenia, Georgia, Moldova, and the Baltics. Efforts are underway to extend the network to Ukraine and Russia. The problem is that, by their very nature, they are designed to make very small loans: somewhere between \$50 and \$100. This is nowhere near what farmers perceive as their credit needs. Credit unions may be an excellent solution for the development of small cottage industries or, indeed, for the support of subsistence farming. They are too small for the purpose of moving from subsistence to commercialization, where interlinkage and contracting are more appropriate mechanisms.

Extension and Education

Education and human capital in general are extremely important for successful operation of the farm, especially in the context of the thesis that individual farms should be encouraged to grow in the interest of commercialization. After all, farms in market economies grow until the owner reaches the limit of his or her managerial capacity, which is clearly determined by a combination of personal intelligence, experience, and education.

Farmers participating in various surveys express a clear need for instruction and advice related to preparation of business plans and farm management practices. There is clearly nothing in their background that prepares them for these specific farm-management tasks that are essential in a market-oriented environment. Yet farmers also express a very strong need for technical extension services related to straightforward crop and livestock production. They seek advice concerning seed selection, fertilizer and pesticide application, crop rotation, and animal health.

In the past, household plots received all their technical advice and extension services from the large team of agro-specialists in the local farm enterprise. This mechanism does not function any more, and field visits in transition countries indicate that the delivery of extension to the farm level has indeed suffered considerably. Partial solutions include establishment of private advisory services by former collective-farm specialists. A more comprehensive solution to instruction, technical advice, and extension services could be found in local cooperative frameworks. After all, member education is one of the traditional subsidiary tasks of farmer cooperatives in all market economies. Yet we cannot ignore the fact that education and information are public goods, and governments certainly should play an active role in rehabilitation and reanimation of the agricultural extension systems in transition countries.

A particular area that requires extension reinforcement is livestock management on small farms. Virtually the entire livestock herd is concentrated in rural households, each with two-three cows. Although the milk yields in Kyrgyzstan are the highest among the five Central Asian nations, they are low by world standards at around 2,000 liters per cow per year. Yields can be improved by attention to animal genetics, animal health, and feed supply, issues that can be effectively addressed by technical assistance and guidance geared specifically to small farmers with very small herds.

As with credit, the need for extension and education has to be put in a proper perspective. The small farmers in transition countries are not illiterate peasants. These are educated people who spent all their lives working on a large farm. Even if their formal job was a tractor driver or a milking-machine operator, they had gained valuable all-sided experience from many years of work on the household plot. They essentially know how to farm even under the new conditions, without the strong traditional backing of the old farm enterprise. Extension can help to improve their performance and raise their profitability. In this way, extension should be conducive to greater commercialization. Yet the small farmers in transition countries will continue to operate and develop even if extension systems are not fully in place for some time to come.

Development of working procedures and legislation on land allocation and land tenure

The hugely important work on land allocation and land tenure undertaken by the USAID Land Reform Project remains unfinished with the premature termination of the project in mid-2009. Attention to the following outstanding issues can advance allocation of undistributed arable land to rural residents and, as a consequence, promote augmentation and consolidation of the very small farms that characterize Kyrgyzstan's agriculture today.

- Strategies and procedures for reclamation of degraded land (both state and privately owned) are urgently needed: while there is no precise information on the total area of degraded land, there is a general feeling that this constitutes an acute problem requiring attention.
- State-owned arable land (about 15% of all arable land in Kyrgyzstan) requires development of allocation procedures (through leasing auctions and other mechanisms) geared to differential land quality (such as prime quality land, land requiring investment for improvement, degraded land requiring reclamation by investors).
- Another 15% of arable land is classified as "land of uncertain ownership". This is neither private land nor state-owned land, and it is currently managed by municipalities contrary to the provisions of the Land Code. These "uncertain ownership" lands should be surveyed and mapped in each village and their ownership and tenure status should be formalized in accordance with the law.

Annex Table A.1. Selected international donor projects in Kyrgyzstan

The projects in the table are categorized by main areas of activity (in the first column under “category”), but the “terms of reference” in fact cut across several categories, as can be easily seen from the last column that lists the objectives. More details on these and other projects can be found in the document *Agricultural Sector and Related Projects*, prepared by the Policy Support Project and Directorate for Agrarian Policy and Investments, Ministry of Agriculture, Water Resources, and Processing Industry (MAWRPI) of the Kyrgyz Republic (Bishkek, December 2008).

Category	Project	Donor	Period	Cost (mlns)	Objectives
Rural development	Agricultural Area Development Project in Chui Oblast	ADR	2000-2006	\$45.0	(a) farmer training, (b) land rehabilitation, (c) irrigation, (d) farm services and marketing
	Southern Agriculture Area Development Project	ADR	2007-2013	\$29.3	same as above
	UNDP Poverty Reduction Programme	UNDP	2005-2010	\$4.55	assistance in meeting MDG
	Kyrgyz Agro-input Enterprise Development Project II:	USAID	2001-2010	\$5.6	increase rural incomes through improved crop and livestock productivity
	Support to Food Security, Regional Cooperation and Stability in Batken Region	GTZ	2002-2007	Euro 4.3	poverty alleviation and improvement of living standards through improved production, services, and training
Land reform	Agriculture Support Services Project	World Bank	1998-2007	\$27.3	Land and agrarian reform; rural advisory services; environmental protection
	Land Reform and Land Market Development in Kyrgyzstan	USAID	2005-2009	n.a.	legislation support, agricultural land mortgage, management of state-owned agricultural land
	Central Asian Countries Initiative for Land Management:	CACLM (multi-donor funding)	2006-2016	\$1.4 billion	multi-country, multi-donor initiative to enhance the productivity of degraded land and improve rural livelihoods
Farm services	Local Market Development	Swiss Government	2006-2012	Euro 0.6/year	value chain approach: “operators, supporters, influencers”
	Agribusiness and Marketing Project:	World Bank	2005-2010	\$14.9	market development for agricultural commodities; export promotion; access to credit for enterprises in agriculture and food sector
	Farmer to Farmer:	USAID	1993-2008	n.a. (grant)	agro-processing, marketing, water management, cooperatives, education
Cooperatives	Cooperatives Development Fund Raiffaisen	GTZ	2003-2008	n.a.	Development of legal framework and operating methodology for service cooperatives
	Development of Trade and Service Cooperatives	GTZ	2003-2008	n.a.	Assistance to groups interested in forming service and trade cooperatives

Category	Project	Donor	Period	Cost (mlns)	Objectives
Extension and training	Agricultural and Rural Vocational Education Project	Swiss Government	2001-2008	\$0.5/year	“new form of training for farmers”
	Kyrgyz Swiss Agricultural Programme	Swiss Government	1995-2010	\$15.7 \$2.4 (2007-10)	Establishment of Rural Advisory Services centers and an Advisory Training Center
	Osh Agricultural Training and Extension	TES Centre	since 02/99	n.a.	design training and consultation programs for farmers to increase farming incomes
	Policy Support Project	Swiss Government	2002-2009	\$30,000/year	MAWPRI capacity building, extension policy
Water management	Water Users Association Support Program	USAID	2004-2010	\$1.39	strengthening organizational capacity, financial sustainability, infrastructure rehabilitation, water conservation
	On-Farm Irrigation Project	World Bank	2001-2013	\$50	establishment and strengthening of water-users associations, infrastructure rehabilitation
	Water Management Improvement Project	World Bank	2006-2011	\$28.2	improved irrigation service delivery, improved national water resource management
Livestock and pastures	Agricultural Investments and Services Project	World Bank	2008-2013	\$25.5	pasture management and improvement; advisory services to farmers; food security
	Sustainable Mountain Pastures Management in the Suusamyр Valley	UNDP	2007-2012	\$1.95	reduce negative effects of grazing through cost-effective pasture management mechanisms
	Central Asian Breeding Services	CABS	n.a.	n.a.	improve cattle genetics and access to veterinary medicines
Alternative crops	Organic Cotton Production and Trade Promotion Project	Swiss Government	2003-2010	\$2.88	promote organic farming in Central Asia through capacity building, production support, and trade promotion

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