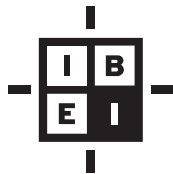


TEN PROPOSITIONS ON RURAL POVERTY AND AGRARIAN TRANSITION IN CENTRAL EURASIA

Max Spoor

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Abstract: The relation between agricultural development and rural poverty reduction in six Central Eurasian countries, namely Azerbaijan (South Caucasus) and Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan (Central Asia), is discussed by presenting and analyzing ten propositions. These propositions cover a broad range of issues that relate to rural poverty in this region, such as: the state of income and non-income poverty; the diverse processes of land reform and farm restructuring, and agricultural policy reform; and finally, the institutional and market framework that is needed for dynamic agricultural and rural development. The paper contends that rural poverty is not responding as robustly to rapid economic growth in these countries, and that agricultural growth, in particular in the newly emerging peasant farm sector, is necessary to promote rural poverty reduction.

Key words: Central Eurasia, Rural Poverty, Agricultural Development; Economic Growth.

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O. Introduction

This paper analyses the relation between agricultural development and rural poverty reduction six Central Eurasian countries, namely Azerbaijan (South Caucasus) and Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan (Central Asia). It argues that agricultural development and rural poverty reduction should have a central place on the overall 'growth, development, and poverty reduction' agenda for this region, as there is insufficient 'trickle down' of current rapid economic growth towards the impoverished rural areas. This group of countries was chosen for comparison, as they share a common legacy – as the Islamic periphery of the former Soviet Union (FSU) – with a comparable (although sometime different) transition from a planned towards a market economy.

Ten propositions are presented, that analyze the trends and causes of rural poverty, the possibilities for its reduction, its link with agricultural and agro-industrial development, the context of changing markets and institutions, and the role of government in these countries. Each Proposition is empirically analysed, on the basis of the most recent studies on agricultural development and rural poverty. The paper brings together and uses the results of the important body of literature that has recently emerged on this sub-region and on the socio-economic development of the individual countries.

The first section of *four propositions* (1-4) deals with the state of income and non-income poverty. Poverty is analyzed according to its spatial distribution, and aspects of child poverty, malnutrition and the gendered face of poverty are analyzed. The severity of rural poverty in the CEA countries is emphasized and its relatively limited reduction in response to overall economic growth. The second section of *three propositions* (5-7) looks into the diverse processes of land reform and farm restructuring, agricultural policy reform, and the development of higher land productivity in combination with a 'risk aversion' attitude of farmers. These have not responded to individualization of landholding as was initially envisaged in case of relatively advanced reforms (such as in Azerbaijan, Kazakhstan and Kyrgyzstan), and even less when the policy and institutional environment remained more interventionist (Tajikistan, Turkmenistan and Uzbekistan). The third section of *three propositions* (8-10) looks into what is needed for dynamic agricultural and rural development, and to increase rural poverty reduction. In particular emphasis is given to the improvement of product supply chains, input markets and agricultural investment, resource management, and the appropriate policy and institutional environment (finance, research, services and regulatory and legal framework) which is needed. The final section present conclusions that refer back to the ten propositions presented.

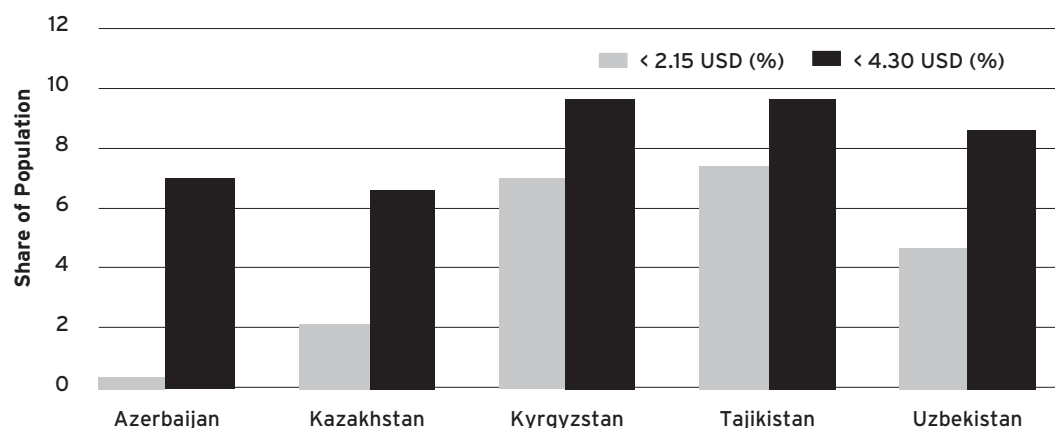
The first section, it will be shown that income poverty in the CEA countries is severe (with some exceptions), and that poverty has particularly a 'rural face'. Most countries have predominant rural populations, while the share of agricultural labour in total employment is still high. In spite of the decreasing importance of agriculture in GDP and exports, the CEA countries have a high degree of 'rurality' (*Proposition 1*). Non-income poverty is also problematic, because of deteriorated public services

(such as health and education) and social infrastructure (*Proposition 2*). There is also a ‘feminization’ of rural poverty, and child poverty is on average higher than overall poverty incidence (*Proposition 3*). Finally, it will be shown that the effect of GDP growth on reducing *rural* poverty is substantially lower than its effect on *urban* poverty (*Proposition 4*).

1. Income Poverty in the CEA Countries is High in Comparison to Other CIS Countries. Rural Poverty is Higher than Urban Poverty, and Responds less Robustly to Economic Growth

Income poverty, measured by the internationally comparable poverty line of 2.15 USD per day, in the CEA countries (with the exception of Azerbaijan) is quite high. For example, Kyrgyzstan and Tajikistan both have poverty levels above 60 percent of the population (Figure 1). The CEA countries have the highest poverty rates in the CIS, with the exception of Azerbaijan. For instance, the European CIS countries of Belarus, Russia and Ukraine showed poverty rates of 2, 9 and 3 percent in 2002 (World Bank, 2005a).

Figure 1: Poverty & Vulnerability Rates



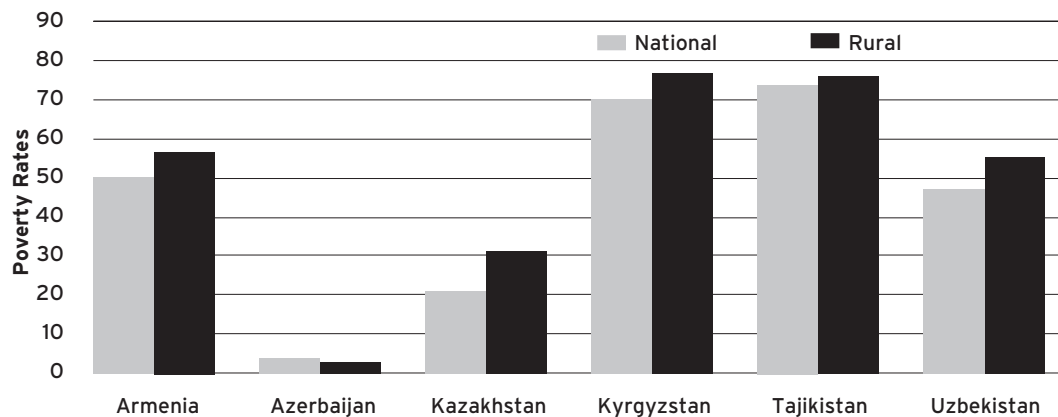
Even where the poverty headcount was low, as in Azerbaijan and Kazakhstan, the group close to the poverty line and ‘vulnerable’ to poverty is fairly large. In Figure 1 (Data from World Bank, 2005a) 70 per cent of the population of Azerbaijan and 66 per cent in Kazakhstan earn less than 4.30 USD/day. In Kyrgyzstan, Tajikistan, and Uzbekistan these percentages are even substantially higher, namely 96, 96 and 86 per cent, respectively.

In addition, it is also useful to analyse the national poverty lines (with respect to income, expenditure, basic needs, or food basket), as these provide important additional information for policy analysis. For example, while Azerbaijan scores

high in the World Bank (2005a) study, the poverty profile made by that same institution for the years 2002–04 (World Bank, 2006b) indicates that 49.6 per cent of the population in 2001 were below the nationally defined poverty line, although that share had dropped to 27.5 per cent by 2004. For Kyrgyzstan, a recent poverty update was the 2003 Kyrgyz Integrated Household Survey, which measured poverty at 50 per cent, with 17 per cent of those categorized as ‘extremely poor’ (World Bank, 2005b). In this case the poverty levels are less than the shares obtained using the poverty line of 2.15 USD, while for Azerbaijan this was the opposite.

For most countries under review the risk of being poor is substantially higher in the countryside than in the cities (Spoor, 2004b). National poverty rates can be used to compare urban and rural poverty, though they are not comparable between countries, because national poverty lines differ by country (Figure 2; Data from World Bank, 2005a). World Bank (2000) explained higher rural poverty by pointing to the high urban poverty rates of the early 1990s, and the consumption buffer that was created for the rural poor with the distribution (and expansion) of subsidiary household plots. Rural poverty rates were by 2003 higher than national average rates, again with the exception of Azerbaijan. In nearly all cases, poverty incidence is highest among households with many children, youths, single-headed households, unemployed, and low-skilled workers with irregular income. In rural areas, particularly agricultural wage earners, those without land, and women are poor.

Figure 2: Rural & National Poverty (2003)



Why is income poverty higher in the CEA countries and why it is more a rural phenomenon than an urban one? First, initial conditions on the eve of transition largely determined the relatively disadvantageous position of these countries versus for example Russia and Ukraine. Second, throughout the world there is a well-known positive correlation between high degree of rurality and low income. As the agricultural sector and the rural economy grow at a far slower pace than urban areas, rural poverty is not adequately reduced, while macro-economic growth does not trickle down enough to rural areas.

The initial conditions in Azerbaijan and the five former Soviet Central Asian states in late 1991, on the eve of their independence, were relatively unfavourable. Some of them indeed had rich endowments of mineral resources, such as oil (Azerbaijan and Kazakhstan), natural gas (Turkmenistan and to a lesser extent Uzbekistan), precious metals (Kazakhstan, Kyrgyzstan, and Uzbekistan), and thermal potential (Kyrgyzstan and Tajikistan, although under-utilized). Furthermore, all of these countries had relatively high-potential human capital, with near full literacy rates which bode well for ‘development’. Yet these countries also had a higher degree of poverty than elsewhere in the former Soviet Union (Table 1). This meant that efforts to alleviate poverty would need to be concentrated in rural areas.

Table 1: Poverty Incidence in the USSR, 1989 (%)

Azerbaijan	33.6
Kazakhstan	15.5
Kyrgyzstan	32.9
Tajikistan	51.2
Turkmenistan	35.0
Uzbekistan	43.6
USSR	11.1

Source : Pomfret (1998).

The Central Asian countries are also quite rural. For example, in Uzbekistan, the most populous country of the region, more than 60 per cent of the population resides in rural areas (Table 2). Tajikistan has even experienced an increase in its rural population over the past few years. Rural dwellers in these countries are largely dependent on the agriculture for their livelihoods. The data on agricultural labour as a share of employment provide an indicator of the relative importance of agriculture in the labour force (Table 2). In addition the shares of Gross Agricultural Output (GAO) in Gross Domestic Product (GDP), and the share of agricultural exports in overall exports are indicators of the ‘rurality’ of the CEA countries (Lerman, 2007).

Table 2: Agrarian Profile of CEA Countries (2004)

	Share of Rural Population	Share of Agriculture in Total Employment	Share of Agriculture in Overall GDP
Azerbaijan	48.5	40.0	11.3
Kazakhstan	42.9	33.2	7.9
Kyrgyzstan	65.1	51.8	32.9
Tajikistan	73.6	67.6	24.2
Turkmenistan	56.4	..	20.2
Uzbekistan	62.6	..	28.2

Source: Lerman (2007)

2. Non-Income Poverty is also Worse in Rural Areas, because of the Weakening of Rural Services and Social Infrastructure. Furthermore, Food Poverty should not be ignored, as Malnourishment is Widespread

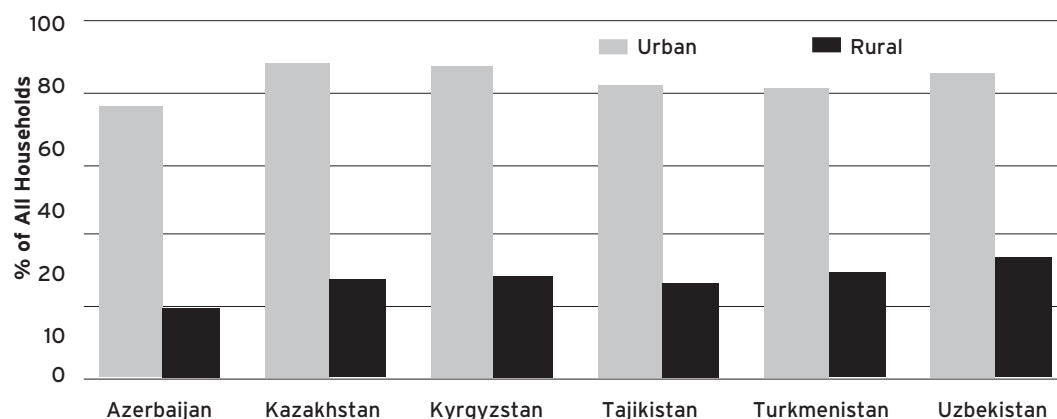
Only concentrating on income poverty, as we did in the first Proposition, contributes to the idea that rural poverty can be resolved by improving agricultural production and output. However, such a purely ‘money-metric’ approach does injustice to the actual meaning of poverty. Poverty can be defined as living in a state of “unacceptable deprivation in well-being.” Thus, problems of deteriorating access to social services, such as public health (medical, water, and sanitation services), education, and social safety networks (transfers, pensions, and unemployment benefits) are a fundamental aspect of poverty as well. Collective and state farms used to play an important social role in the lives of rural dwellers. With their dissolution, many social services deteriorated, as local administrations were unable to provide them in the same way as before. Local governments often lack financial resources, and though with decentralization they were delegated the responsibility for social service provision, and even the option to levy taxes, the tax base in many rural areas remains weak. Therefore, local institutions have very limited financial revenue.

2.1 Access to Social Services in Rural Areas

Though there is a lack of data on rural-urban differences in terms of hospital access and availability of medicine, available data on clean drinking water (Figure 3; Data from UNICEF, 2006) may provide a good proxy for access to social services. Household access to clean water from pipe connections (in the house or yard) is crucial for public health, although sometimes such services are included under housing rather than health statistics.

According to UNICEF (2006), only 19 per cent of the rural households in Azerbaijan had direct access to piped water, while 76 per cent of the urban dwellers had this. The difference in access between urban and rural is apparent for all of the countries under review. Of the six CEA countries, Kazakhstan had the highest share of urban households with a connection to piped water, at 88 per cent, while Uzbekistan had the highest share of rural households, at 33 per cent.

Figure 3: House Connections to Piped Water (2002)



Many other factors are relevant in determining rural health conditions, such as air pollution (see Spoor, 2006c), which is particularly severe in many of the cotton-producing areas of Turkmenistan and Uzbekistan. Notably, these are the same areas where water is more contaminated with nutrient and pesticides residues than in the countries further upstream (see also proposition 9).

2.2 Public Expenditures on Health and Education

After the deterioration of economic performance that lasted until the mid-1990s, the CEA countries all entered a stage of sustained high growth rates (see also Proposition 4).

Table 3: Public expenditure on health and education (1998-2004)

	% of GDP		Per Capita 2003 (USD/PPP)	% of GDP	
	1998	2002-04		1998	2004
Azerbaijan	0.9	0.8	33	3.4	3.5
Kazakhstan	1.8	1.6	180	3.9	n.a
Kyrgyzstan	2.6	2.1	66	4.3	3.9
Tajikistan	1.1	1.0	15	2.2	2.8
Turkmenistan	3.6	2.9	149	6.1	6.9
Uzbekistan	3.3	2.4	68	n.a.	n.a.

Source : UNICEF (2006).

Given these higher growth rates, and thus higher government revenue, one would expect public expenditure on health care and education to have risen, or at least be constant as a share of GDP. However, the share of health expenditure dropped on average (which means with growth there is a slight absolute increase), while educational expenditure as share of GDP increased slightly, such as in Azerbaijan, Tajikistan and in Turkmenistan, if one compares the average for 2002-4 with 1998 (Table 3). Finally, there are vast differences in per capita public expenditure

on health, with Kazakhstan the highest (180 USD/annum) and Tajikistan the lowest (15 USD/annum) in 2004. These health and education expenditure figures are at the level of poor developing countries, or even lower.

2.3 Food Poverty and Malnourishment

Food poverty is also an important phenomenon in the CEA countries. In some countries of the CEA poverty is accompanied by substantial levels of malnourishment, indicating food insecurity. This link is not necessarily consistent, as can be noted from Table 4.

Table 4: Malnourishment in Central Eurasia, 1993-2004

	1993-95	2001-03 (%)	2002-04
Azerbaijan	34	10	7
Kazakhstan	<2.5	8	6
Kyrgyzstan	21	4	4
Tajikistan	22	61	56
Turkmenistan	12	8	7
Uzbekistan	8	26	25

Source : FAOSTAT (2007).

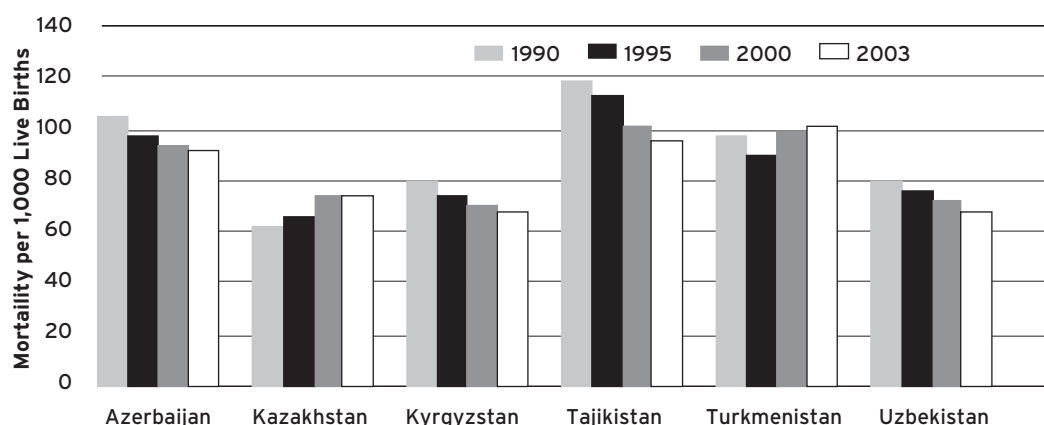
For example, Tajikistan and Uzbekistan both show a strong increase (in the period 1993-2004) in malnourishment, estimated respectively at 56 and 25 per cent of the population. Kyrgyzstan, in spite of high levels of income poverty, shows low levels of malnourishment, possibly related to the early recovery and growth of the agricultural sector. Azerbaijan, which had quite high levels of malnourishment at the beginning of the 1990s had reduced this substantially by 2001-03, as a result of widespread growth of agriculture.

3. Poverty is Higher for Children, while Average Household Poverty is Higher for those with more Children, and with Household Heads that Work in the Agricultural Sector

Child poverty is a serious problem in the CEA countries under review, not only with regard to insufficient income, but also related to other indicators, such as water and sanitation, clean heating sources, food, and health conditions (UNICEF, 2006). To compare, the countries of Central Asia, the Southern Caucasus and Moldova, have more than half of their children living in income poverty (defined as <2.15 USD PPP/day), which is 'ten times higher than in some SEE countries' (*Ibid*). Rural child income poverty rates are higher than those in urban areas, and child poverty is substantially higher in those households with three or more children (in both rural and urban areas). For example in Tajikistan (2003),

child poverty for the capital Dushanbe was 59.6%, whereas it was 71.7% in rural areas (and similar in urban areas other than the capital). In 3+ children's households this was even 65.6% and 73.9%, with urban areas other than the capital even having a child poverty rate of 77.2% (*ibid.*: 37).

Figure 4: Under-5 Mortality Rate (1990-2003)



Furthermore, under-five mortality rates are still quite high, and in 2003 were even higher than those in 1990 in Kazakhstan and Turkmenistan (Figure 4; Data from UNICEF, 2006). The levels are fairly constant over a ten-year period, and in some cases under-five mortality rates have even increased. UNICEF (2006) cites examples from Uzbekistan, Turkmenistan, Azerbaijan and Kazakhstan, indicating that rural child mortality is twice as high as its urban counterpart.

The sustained economic growth has not yet diminished the phenomenon of child labour, which is common in the CEA countries in particular on the household plots, but also in cotton harvesting, when schools shut down and children and youth must work in the fields. UNICEF (2006) reported that in a number of transition countries, poverty is more pervasive when the head (taken as the father) of the household works mainly in agriculture, and is lower for other professions. It is also higher if he is unemployed. Fathers who migrate provoke higher child poverty rates than for those who work in non-agricultural rural sectors, but lower than for those households with a father working in agriculture. It seems that remittances indeed play a complementary role in this respect.

Table 5: Stunting (Chronic malnutrition)

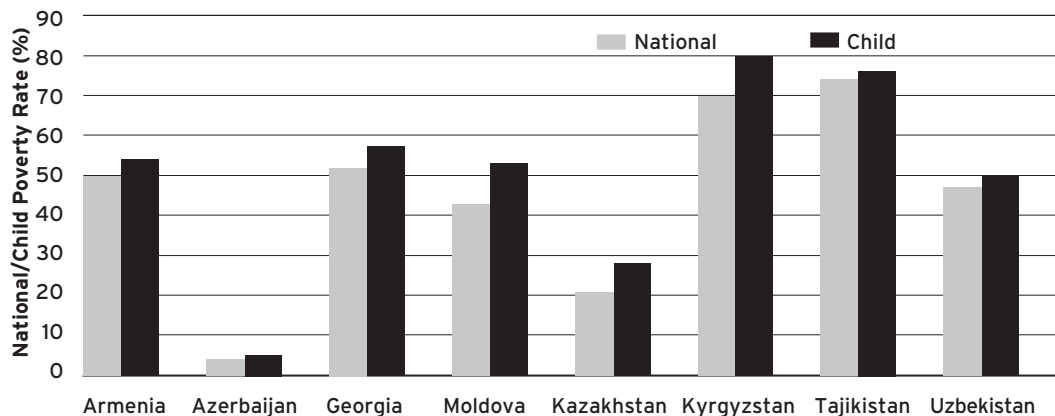
	Rural	Urban	Poor
Azerbaijan	29
Kazakhstan	22	8	31
Kyrgyzstan	25	..	
Tajikistan	41		
Uzbekistan	31		

Source: Rokx et al (2000)

Malnutrition has serious effects on the health and future development of children. Chronic malnutrition shows itself through stunting. An early study of Rokx et al. (2000) indicated that malnutrition amongst children was serious. In the two countries which by 2003 had the lowest poverty rates, they reported for example for Azerbaijan as having ‘.. one of the highest chronic malnutrition rates in the region, in particular in the rural areas where more than one of every four children is too small for their age’ (ibid: 61).

Malnutrition in Kazakhstan was also found to be high, ‘.. in particular in the rural areas and among the poor’ (ibid: 69). In Kyrgyzstan, Tajikistan and Uzbekistan stunting was measured for between 25-40 percent of the children (see Table 5). Finally, the most preoccupying feature of child poverty is not only that it is high in most of the CEA countries, mortgaging their future. Even worse, in all cases, the child poverty rate (<16 years) is higher than the national poverty rate, sometimes by even 10 percentage points (see Figure 5; Data from World Bank, 2005a).

Figure 5: Child Poverty (< 2.5 USD)



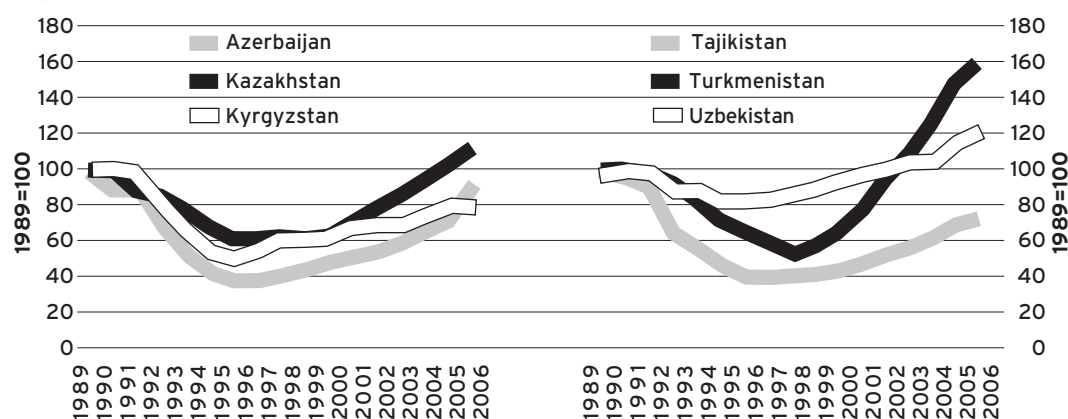
4. Poverty Increased Rapidly in the Early 1990s, Followed by Some Reduction in the second half of the Decade. Poverty rates have since been reduced in the CEA Region. However, Rural Poverty did not drop as Robustly as Urban Poverty in Response to High Economic Growth

As is well known, all six CEA countries went through a deep economic crisis in the early 1990s. This economic trough was accompanied with a rapid increase of poverty. The main cause of the sudden emergence of such high levels of poverty is to be found in the shockwave sent by the disintegration of the Soviet economy to the periphery of the system. Many industries were only artificially productive; their *raison*

d'être being the subsidized transfer price system, which ignored or under-priced transport costs. Furthermore, the substantial transfers from the 'all-Union' budget were cut off in 1992–93, worsening the financial crisis in the newly independent states. Hyperinflation, which is always highly regressive, especially affected those who relied on wage income, without other assets. Finally, wage income itself fell drastically as a main income source, with self-employment and informal sector activities becoming predominant, with all their inherent uncertainties.

Macro-economic stability was re-established in the latter 1990s, and growth rates became positive, although some southern Caucasus and Central Asian countries received another blow because of the impact of the Russian financial crisis of 1998. But economic recovery started with a much worsened income distribution. After 2000, growth rates even reached high levels, in particular in countries driven by the oil and gas sectors, which later benefited from high international prices and growing demand from the emerging and fast growing Asian economies (Figure 6A and 6B).

Figure 6A & 6B: Real GDP (1989-2006)

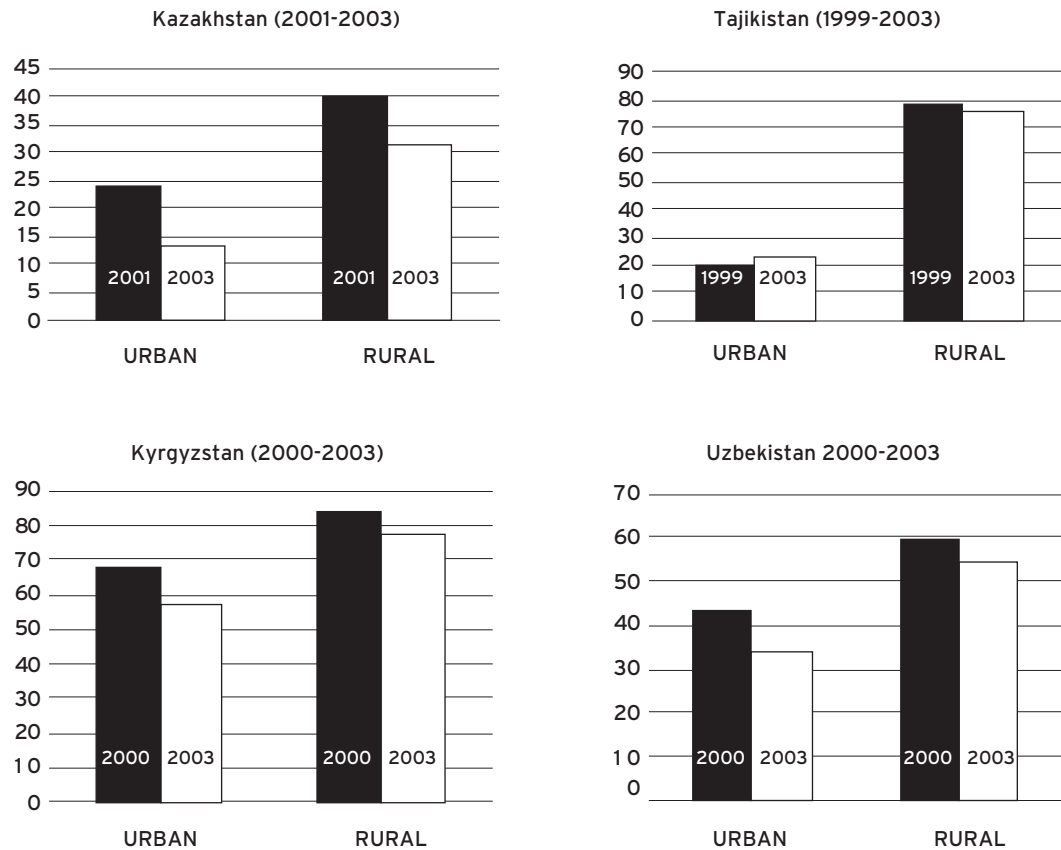


How did the strong macroeconomic recovery translate into poverty reduction and how was it spatially distributed? In other words, how high was the 'poverty reduction elasticity of growth'? The latter has been quite impressive indeed, leading to a substantial average reduction of poverty during the period 1999–2003, as evidenced by World Bank (2005a) which provided spatially differentiated data on poverty incidence (see Figure 7 for Urban-Rural differences in poverty rates; Data from World Bank, 2005a).

What is striking and also evident to any regular visitor to these countries is that the fruits of economic development are best visible in the rapid reduction of poverty in large urban centres. For example, while in Astana (Kazakhstan) poverty incidence (<2.15 USD) has diminished to only 2 per cent, in rural areas this is still 31 per cent. In Uzbekistan, the difference is even larger, with a poverty incidence of 4 per cent for Tashkent and 55 per cent in rural areas. In Tajikistan it is just as striking — 7 per cent (in 2003) in Dushanbe and 76 per cent in rural areas, with very little change since 1999 (World Bank, 2005a). Comparing these trends with other, relatively poor CIS-

countries, Moldova was the only country able to reduce poverty in rural areas at more or less the same pace as in the capital.

Figure 7: Spatial Differences in Poverty Incidence (1999-2003)



This was partly the consequence of high rural-urban migration, but also because of the positive effects of a late, but comprehensive land reform of 1998–99, which provided access to land (and hence, food and income) to large numbers of rural poor (Weeks et al., 2005). The same holds for Azerbaijan (Sedik, 2006; World Bank, 2006). In further comparison, Armenia and Georgia initially had lower rural poverty rates than the six countries under review. Both of these countries were more urbanized on the eve of transition, with, respectively 34 and 45 per cent of their populations residing in rural areas, shares that increased slightly thereafter due to some initial reverse migration. Finally, as was shown above, urban poverty has been falling rapidly in most CEA countries, while rural poverty remains a problem. For a larger set of countries, including Hungary, Poland, Romania, Bulgaria, Russia, Kazakhstan, Belarus, Armenia, Moldova, Georgia, Kyrgyzstan, Tajikistan and Vietnam, World Bank (2005a) has calculated the poverty reduction elasticity of growth, showing that this is generally twice as high for urban poverty as for rural poverty.¹

¹ The poverty reduction elasticity of growth is measured as the percentage change in poverty for a 1 percent change in average income.

There are two reasons for this. First, there are insufficient linkages between the urban and rural (and industrial and agricultural) economies, and hence less trickle-down and multiplier effects of growth. Second, agricultural and agro-industrial growth is insufficient, because of incomplete reforms, 'missing markets and institutions', deficient rural policies, and in general a non-enabling environment provided by the state (see also propositions 5-7).

In the next section we will show that there was a diverse implementation of land reform and agricultural policies in the CEA countries, in terms of profoundness, timing, as well as sequencing (*Proposition 5*). This has led to substantial differences in the current agrarian structure and the policy environment for agricultural production, in spite of early, possibly naïve expectations on uniformity in the reform process. In those countries with wide-scale reforms (Azerbaijan, Kazakhstan and Kyrgyzstan) one can observe a positive contribution of reform and high degree of individualization of landholdings on agricultural efficiency, although newly emerging individual farms tend to choose risk aversion over profit maximization in view of 'missing markets and institutions' (*Proposition 6*). In those countries with incomplete reforms, insecure property rights, and continued state interference in production decisions (Tajikistan, Turkmenistan, and Uzbekistan), agricultural growth is more inhibited than enabled (*Proposition 7*).

5. Diversity in land and Agricultural Policy Reforms and their sequencing has determined Substantial differences in the Current Agrarian Structure and Agricultural Policy Environment of the CEA Countries

The implementation of agricultural policy reforms (such as deregulation, opening of domestic and foreign markets) and individualization of assets (such as through land reform) was expected in the early years to lead to a rather similar, small farm dominated agrarian structure (see World Bank, 1992). This was, however, not the case, in particular not in Central Asia. In some of the CIS countries, land reform has indeed strongly stimulated individualization of landholdings and agricultural production. The most far-reaching reforms took place in Armenia and Georgia in the early 1990s, and Azerbaijan, Kyrgyzstan, and Moldova in the late 1990s (Lerman, 2003, 2007; Lerman, Csaki and Feder, 2004; Spoor and Visser, 2001; Swinnen, 2003, Swinnen and Rozelle, 2006, Wegren, 1998, 2005). Land reform and agricultural policies transformed the highly inefficient and cumbersome production of the large-scale state and collective farms in the CIS, a system that was also characterized by a near 'parasitic symbiosis' between large-scale collective production and the intensive household production on subsidiary plots and *datcha* gardens (Spoor & Visser, 2001; 2004). The large farms were taxed by the state procurement system and subsidized through administered pricing of inputs, while they also had an important social function in rural areas, providing

social services and transfers, something which has not been substituted sufficiently by municipal administrations, after their dissolution.

The post-1991 agricultural sector reforms in the CIS countries have focused on privatization of assets, in particular of land, and the transformation of the existing state and collective farms. The reforms undertaken were quite diverse in content and implementation. Privatization took the form of asset distribution to workers or members, restitution of properties to former owners, sales (with a variety of conditions attached), and leasing arrangements (such as physical plot or share distribution). Farm restructuring led to new forms of association, such as cooperatives, joint stock companies, partnerships, associations of peasant farms, and individual peasant farms.

Comparison of the six CEA countries also points to a diversity of reform processes, sequencing and outcomes. The diverse outcomes can be explained by, amongst others, 'rapid', 'gradual' or 'slow' land and agricultural policy reforms; (rural) elites that clung to power (such as in the cotton sector); low incentives to break away from the 'safe environment' of the collective farm; and the link between large farm enterprises and large-scale surface irrigation systems (such as is the case in much of Tajikistan, Turkmenistan and Uzbekistan), which could not be broken up without incurring into high costs, as they were not designed to supply water to a large number of small producers.

5.1 Land Reform: Extent and Impact

Land reform – in terms of the formation of private family farms – has made considerable progress in Kazakhstan and Kyrgyzstan. Azerbaijan followed in the late 1990s with a redistributive land reform. Much less reform was implemented in Uzbekistan and even very little in Turkmenistan. Since the peace agreement in Tajikistan in 1997, land reform has also at least partially been implemented.. However, land reform and other agricultural policies have more often provoked nominal or cosmetic changes in some of these countries (Sedik, 2006; Lerman, 2007). In order to structure our analysis more, we introduce a differentiation into two groups. Group 1 is formed by Azerbaijan, Kazakhstan and Kyrgyzstan (representing medium-level to advanced reform). Group 2 is formed by Tajikistan, Turkmenistan and Uzbekistan (low to medium level reform). Acknowledging that there are also substantial differences between reforms of countries within groups, we will discuss them in order of estimated impact and profoundness of land reform and agricultural policies, using the 'policy reform' and 'land reforms' indices developed by the World Bank (Table 6). These indices measure the status of agrarian reforms in the economy, with each index ranging from 1 (centrally planned economy) to 10 (market economy). The measures are the result of an annual expert assessment by World Bank staff.

Table 6: Agricultural and Land Reforms in the CEA Countries

	ECA Reform Index	ECA Land Reform Index	Watershed Year of Land Individualization	Individual Land (%), 2000
Azerbaijan	6.6	9	1996	34
Kazakhstan	6.2	5	2003	21
Kyrgyzstan	7.4	8	1998	23
Tajikistan	5.2	6	1999	20
Turkmenistan	1.8	2	1998	6
Uzbekistan	4.0	5	2004	0.3

Source: Lerman (2007), Lerman, Casiki and Feder (2004)

Group 1:

Azerbaijan, initially showed slow progress in land reform until late 1990s, after which the reform drive grew much stronger. In the final waves of this quite radical re-distributive land reform, comparable to that in Armenia, the large farm enterprises were largely dismantled. As a result, by late 2003 more than 620,000 small household and peasant holdings had been formed with a size of just two to three hectares. Covering nearly 1.5 million hectares, these small farms controlled most of Azerbaijan's agricultural and arable land (World Bank, 2006a).

In *Kyrgyzstan*, land reform started as early as 1992 though it was not without starts and stops. With the economy increasingly depressed and a collapse of marketing, the privatization programme was suspended until early in the 1993 agricultural season. That year, land reform again showed only modest progress, particularly in the (mostly formal) transformation of state farms into joint stock companies. In early 1994, the Kyrgyz government gave new impulse to the reform process, reducing the procurement quota that private farms had to sell to the state. Land was still state owned, but private farms were given usufruct rights for 49 years, extended not much later to 99 years. Private land ownership became a much debated issue in the Kyrgyz parliament over the subsequent years, which upheld a moratorium on sales until 2003, after which it was finally lifted. Initially medium-sized peasant farms were formed, but by the late 1990s, a much larger number of 60,100 peasant farms emerged (and smaller average size), growing further in 2002 to 84,600, with an overall area of nearly a quarter of the agricultural land (Spoor, 2004a).

In *Kazakhstan*, agrarian reform also advanced, albeit again with ups and downs, throughout the 1990s. Though initiated in the early 1990s, privatization progressed only gradually. Reform impetus was renewed in 1994–95. At first 'privatization' mostly meant establishment of joint stock companies with only internal stockholders (managers and workers), although here, the amount of land available for private use by households within these enterprises substantially increased. Many of the former state and collective farms were transformed into corporate private farms (though initially still with state ownership of land), in particular after the introduction of a bankruptcy law in the late 1990s. Quite a number of these enterprises, however, had functioned under the same operational regime as before, just touting a new name.

Group 2:

In *Tajikistan* the process of land reform stagnated during the civil war (1993–97), and picked up again after peace was restored in the country. By early 2000 more than half of the state and collective farms had been dismantled and about 45 per cent of arable land was in the hands of households and *dehkhan* farms. While the number of individual farms did not grow, the total area rapidly increased. In 2005 it was estimated that there were 23,300 *dehkhan* farms, with a total area of 4.7 million hectares. Such farms are of two types: share-based collective farms and individual or family ‘owned’ farms for which firm leaseholds have been granted (World Bank, 2006b). There is a transformation of the former into the latter visible, but this process is only gradual. Tajikistan progressed further in land reform in the post-war decade, than Uzbekistan and Turkmenistan – although the reform is by no means complete and many obstacles remain in terms of the institutional framework (see proposition 7), particularly in the cotton sector (*Ibid*).

In *Uzbekistan* the process of dividing large farms and forming medium-sized farms took very long. It only accelerated after 2003, in response to the accumulating debts of many of the ‘post-collective’ enterprises, the *shirkats*. In the Soviet era, members of collective farms and workers on state farms had a small family plot, on which they produced a substantial part of the household cash income and food. After 1991, additional land was privatized in this manner, leading to an increase in the size of private household plots and *dacha* gardens and orchards (which had also existed in the Soviet era). More importantly, it led to the use of contracting schemes within the collectives (Spoor, 2004a). This process was followed by the formation of a large number of small *dehkhan* farms, which are primarily food production-oriented.

After the mid-1990s, only a gradual process of forming individual peasant farms took place in Uzbekistan, often with land being assigned to the best informed or most influential cadres of the former state or collective farms. In 1995, there were 14,200 such ‘leasehold’ peasant farms. By the year 2000, this number was estimated at nearly 31,100. These farms covered 665,700 hectares, with an average landholding of 21 hectares. By late 2005, when most of the bankrupt *shirkats* had practically all been liquidated, the number of individual farms (named *fermer*) had grown to 181,700 (with an area of 4,747,000 hectares of mostly arable land). These medium-sized *farmers* are partly exempted from taxes but are still obliged to sell a substantial part of their output (cotton and grain) to the state at ‘negotiated’ (below-market) prices. Hence, this is a land reform in which production has been largely individualized, but with much of the interventionist institutional environment, at least for crops such as cotton and wheat, remaining largely unchanged (Spoor, 2004a; StatKomSNG, 2006).

Turkmenistan is the ‘slowest’ reformer in terms of macro-economic policy, and it has also shown to be a near non-reformer in the agricultural sector. Though the right to private property is constitutionally entrenched, in practice privatization and farm restructuring here has been limited. Apart from the household plots, whose total area gradually expanded during the 1990s, also ‘private’ farms emerged, in

ownership and in leasehold. This privatization, however, is less real than it may appear, as much of the produce is still sold through the omnipotent state order system. Producers have little freedom to determine their crop mix, and many prices continue to be administratively controlled. As in the other republics, by 1995 only a small share of arable land was in private use, in the form of household subsidiary plots, namely 119,600 hectares. Private farms had only 98,000 hectares. By 1998 individualization of landholdings was only covering 252,200 hectares, evidence of the minimal transformation of the sector in terms of land reform (Lerman and Stanchin, 2003).

Turkmen survey data showed a total of 5,200 ‘private’ farms in 2002 (*Ibid*). These first acquired a long-term lease on land, and thereafter a land title (inheritable, but with no sale permitted). After the late 1990s, the former collective and state farms, as in Uzbekistan some years earlier, were transformed into peasant associations in which members’ households (357,000) received paper shares and leasehold contracts (for limited time periods) on the land they could till. These remained within the strict state procurement system, however, with only a small group of private farmers given the freedom to choose their crop mix.

5.2 Different Agrarian Structures as Outcomes of Reforms

The various reforms have not led to the originally expected level of individualization in the Central Eurasian countries. However three countries, Azerbaijan, Kyrgyzstan and Kazakhstan, come close to those CIS countries that have seen the most profound land reforms, namely Armenia, Georgia and Moldova (Table 7).

Table 7: Differences in Implementation of Land Reform in the CEA

	Potential Private Land Ownership	Allocation Strategy	Transferability	Farm Organization
Armenia	All	Plots	Buy/sell, lease	Individual
Georgia	All	Plots	Buy/sell, lease	Individual
Azerbaijan	All	Plots	Buy/sell, lease	Individual
Moldova	All	Shares to Plots	Buy/sell, lease	Individual + Corporate
Kyrgyzstan	All	Shares to Plots	Buy/sell, lease	Individual + Corporate
Kazakhstan	All	Shares to Plots	Buy/sell, lease	Individual + Corporate
Tajikistan	None	Shares to Plots	Use Rights	Individual + Corporate
Turkmenistan	All**	Leasehold	None	Individual Leaseholds
Uzbekistan	None	Leasehold	None	Individual Leaseholds

Source: Lerman (2007:3)

Notes: *In June 2003 land shares were forcefully converted into physical plots or equity capital of corporate farms;

**Turkmenistan has private property guaranteed in the Constitution, but not de

The Soviet agrarian structure that was dominated by collective and state farms has definitely changed, however, albeit with substantial differences. We can consider three different types. Firstly, in Armenia, Georgia and in Azerbaijan, land reform was based on distribution of physical plots, which have full transferability. This type of

reform has produced predominance for small individual peasant farms (see Table 7). Secondly, in Moldova, Kyrgyzstan and Kazakhstan, the distribution was based on 'shares to plots' (Lerman, 2003, 2007), which –again with full transferability– has led to a tri-modal agrarian structure of household subsidiary plots, peasant farms and corporate farms (sometimes formed on the basis of renting in land from small holders). In all these cases there is private ownership of land. Thirdly, Tajikistan distributed land through land shares, with transferability of use rights. Land is largely used through small individual leaseholds. In Turkmenistan in theory (through its mentioning in the constitution) land can be held privately, but in practice the country is the least reformed in this respect. Only more recently there is a large number of small leaseholds, but as part of state-controlled peasant associations. Finally, with the recent break-up of the *shirkats* in Uzbekistan, now medium-sized individual leaseholds dominate another tri-modal agrarian structure (next to the *dehkhans* farms, and household plots, which remain very important in terms of production). Hence, in the last three cases, de-facto or de-jure, no land is held in private ownership.

6. Individualization of Agricultural Production, in Particular in those CEA Countries with wide-scale land reform and 'Enabling' Agricultural Policies has positively contributed to Agricultural Efficiency (Yield Increases), but peasant farms chose for a 'Risk Aversion', Rather Than a 'Profit-Maximization' Strategy

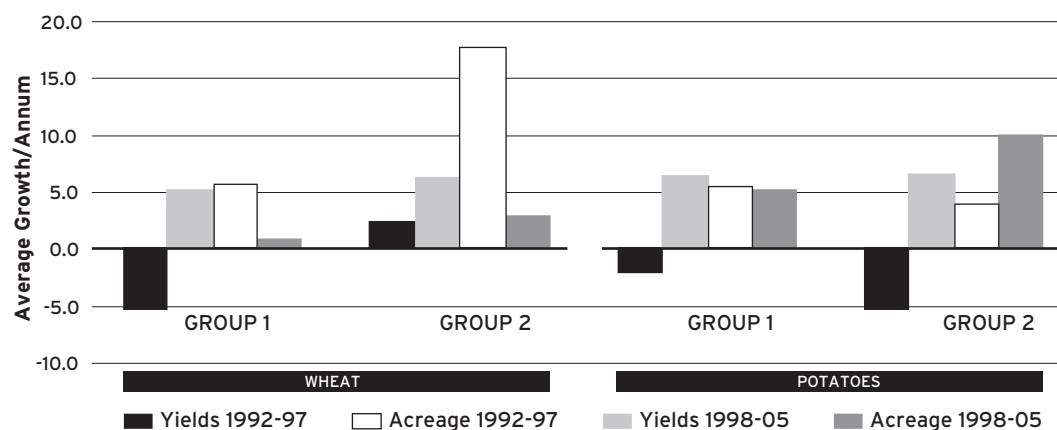
The transition towards individualized agricultural production, through the land reforms that took place in the CEA countries under review, was accompanied by the expectation that individual farming would lead to productivity improvements and a shift towards cash crops in accordance with a profit maximization strategy. In particular, in view of the comparative advantages of several of these countries (Azerbaijan, Georgia, Armenia and Moldova) in fruit, wine, and vegetable production, a greater emphasis in the crop mix on these products was foreseen. In fact, newly formed private farms pursued a 'risk aversion' strategy, producing food for self-consumption and low-input production, rather than high-value (input-intensive) fruit and vegetable production.

Output of most fodder crops, except for maize, fell with the collapse of (strongly subsidized) livestock production. Most of these crops had previously been produced on the large collective farms. With the increase in individual agriculture farmers concentrated on expanding area in low-input wheat and potatoes. This seems to represent a 'risk-aversion' or 'food self-sufficiency' response by peasant farmers, in view of a risky market and institutional environment. On the other hand,

individual farms began producing substantially more vegetables and fruit, reflecting the profit-maximization side of the equation. However, these are mostly low-investment cash crops, such as tomatoes and watermelons, rather than high-investment cash crops such as grapes (for fresh markets and wine production), which also require supply chain-links with (and development of) agro-industry (see proposition 8).

In terms of *wheat* production, there was a clear trend towards rapid expansion. On the other hand, the main wheat producer of the CEA region, Kazakhstan, saw its wheat production drop from 18.3 million tons in 1992 to only 4.7 million tons in 1998, after which production climbed to 10.9 million tons in 2005 (FAOSTAT, 2007). There was therefore a slight growth of wheat production at the regional level, but this hides a large (and partly policy-induced) differential development. Five of the countries more than tripled their wheat production, while the most important one (Kazakhstan) dropped to slightly more than half of its original production. The absence of regional grain flows due to ‘economic nationalist tendencies’ and high transaction costs, combined with peasants’ risk aversion in some countries and a state-directed focus on food self-sufficiency in others (Turkmenistan and Uzbekistan), explains this extraordinary development. Growth in the period 1992-97 was very much based on this state-induced area increase (group 2), while yield growth (in both groups) was predominant in the period 1998-2005 (Figure 8A).

Figure 8 A: Yields & Acreage Compared (1992-05) Wheat and Potatoes

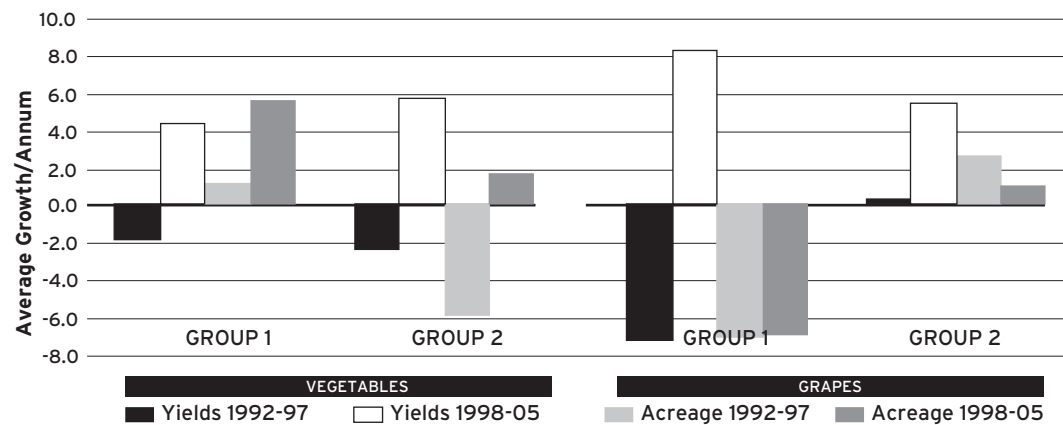


Source: FAOSTAT (2007)

Even stronger expansion is evident for *potatoes*, a traditional food staple, in particular in Kazakhstan and Kyrgyzstan. Again, comparable with wheat, the initial growth of potato output was caused by area expansion rather than yield growth, although this case is less clear-cut than for wheat. Potatoes were produced first and foremost on household subsidiary plots (group 2), and on the newly formed peasant farms (group 1). Overall output has expanded substantially for both groups, based on growth of area during the first period, and expansion of area and higher yields during the second period.

With the increased individualization of agricultural production, and in particular the opening of domestic and external markets, vegetable and fruit production were expected to substantially increase, and with intensification of production on small farms land productivity was also forecast to rise. Apart from all of the separate products, FAOSTAT reports on an aggregate category *vegetables*. This is relevant since in most of the countries reviewed vegetables form an important cash crop category (a similar exercise would be possible for fruits).

Figure 8B: Yield & Acreage Compared (1992-05). Vegetables and Grapes



Source: FAOSTAT (2007)

However, the data show a sharp fall in area, yield, and production of vegetables up to 1997, with overall production dropping from an aggregate level of 9.5 million tons in 1992 to 7.0 million tons in 1997. After this year there was a rapid expansion and recovery, with production rising to 12.7 million tons in 2005. The initial drop in group 2 was larger, as the area decreased rapidly. Yields in both groups dropped on average in the first period (see Figure 8B). Yields and area increased substantially in both groups during the second period although there was more yield increase than expansion of area for group 2, indicating that most production was indeed coming from the subsidiary plots, which had severe size restrictions.

To complete our discussion of how agricultural produce was influenced by the individualization of production and the liberalization of input and output markets, we looked at *grapes*. This is a product linked to fresh markets and the wine industry, both of which were and still are important in countries such as Armenia (for the local brandy), Georgia and Moldova (wine), and Tajikistan and Uzbekistan (mostly for fresh consumption). On one hand, one might expect that with the privatization (or individualization) of vineyards after the various land reforms, grapes would have become an important cash crop on the small peasant farms. However, case studies in other CIS-countries, such as Moldova and Armenia (Spoor, 2006a; 2007) have shown that grape production requires substantial investment, regular renewal of plants, and well-developed supply relations with wine companies (see Proposition 8).

Because finance is a bottleneck in many of these rural economies, peasant farms tend to have sub-optimal grape production. Such farmers may even cut their vineyards to plant crops such as wheat, reflecting a negative transition ‘from grapes to grain’ (Spoor, 2007).

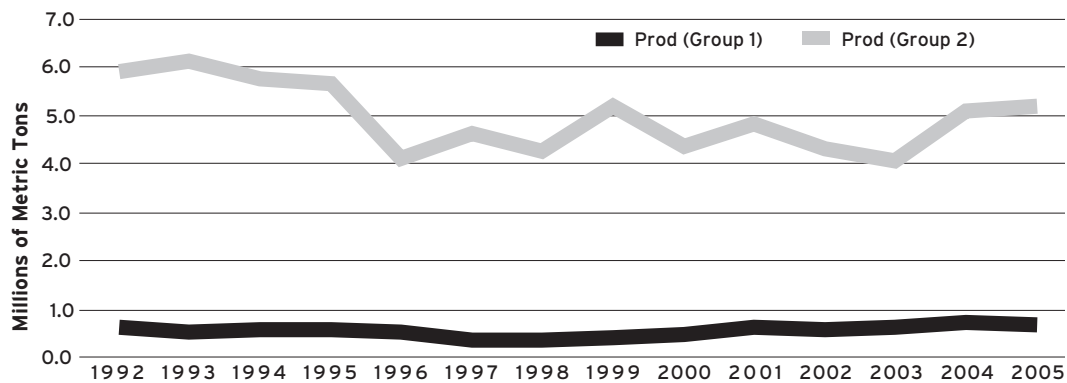
The data from FAOSTAT (2007) is showing that the harvested area of vineyards dropped from 597,000 hectares in 1992 to 385,900 hectares in 2005, with Azerbaijan exhibiting the largest fall. Production also dropped, from 2.7 million tons in 1992 to 1.8 million tons in 2005 (with a trough of 1.4 million tons in 1998, the year of the Russian crisis, which possibly negatively affected fruit exports). The picture for vineyards and their output is quite different from that for vegetables. This more specialized, capital intensive (and also labour intensive) production, seems not to have picked up, despite existing comparative advantages.

Overall, small farmers tended to respond with mixed strategies on highly insecure market environments. How this has impacted on rural poverty reduction is unclear. Initially it did certainly provide a (food security-led) cushion against poverty, but in a later stage, when macro-economic growth resumed, agriculture was insufficiently market-oriented to be able to compete with opening markets, and produce growth rates which could translate into reduced poverty rates, in particular through the insertion of small farms into value-chains and developing niche markets.

7. Incomplete Reforms, Unclear And Insecure Property Rights, and Continued State Interference in Production Decisions of Farm Households resulted in Fragmented Markets, Which -With High Levels of explicit and implicit Taxation- Inhibit Agricultural Growth Rather Than Enabling it

In Tajikistan, but in particular in Turkmenistan and Uzbekistan, incomplete reforms resulted in fragmented, and often monopolistic markets, with a high degree of political interference, and high transaction costs. The most striking example of such environment can be found in the production, domestic marketing (with still existing state procurement systems) and exports of cotton, which is held to be a ‘strategic’ (and hence very much controlled) crop in all three countries. It is of relatively less importance in Kazakhstan and Kyrgyzstan which produce cotton in smaller quantities, in particular regions (in both cases the southwest). Hence, our emphasis is on analysing the developments in group 2.

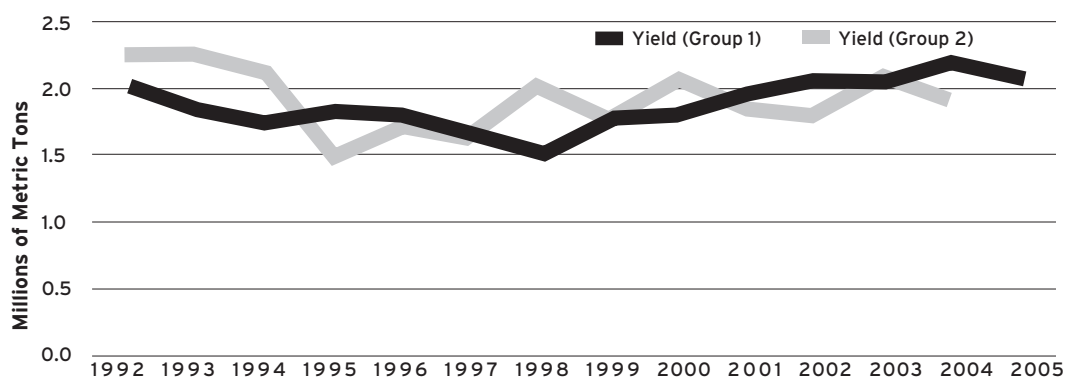
Figure 9A. Cotton Production (1992-2005)



Cotton (known as ‘white gold’) remained a key crop in group 2 of the CEA countries, in particular in Turkmenistan and Uzbekistan, followed by Tajikistan, and to a lesser extent by Kazakhstan, and Kyrgyzstan. Of the region’s total production in 2005, 3.8 million tons came from Uzbekistan and 1.0 million tons from Turkmenistan, although this might be an overestimate² (Figure 9A; Data from FAOSTAT, 2007). The cotton area was somewhat reduced in the first period (in total from 2.9 to 2.6 million hectares), partly due to the expansion of the wheat sector (FAOSTAT, 2007).

Cotton yields dropped in the group 2 countries until around 1998 (see Figure 10B), after which there was a gradual recovery in Tajikistan (after the civil war ended), while in Turkmenistan and Uzbekistan another downturn followed from 2000 to 2003. In the three countries under review in this Proposition, during most of the period cotton was produced by large farm enterprises (such as the *shirkats* in Uzbekistan). Furthermore, state influence remained strong in production decisions, and state procurement guaranteed surplus extraction, state revenue generation, but also gave rise to rent seeking. In Uzbekistan, during the past few years, under the influence of the dismantling of these *shirkats*, production has shifted towards medium-sized commercial farms, which – however – still operate in a strongly state-intervened market environment.

Figure 9B: Cotton Yields (1992-2005)



² At the SOAS conference ‘The Cotton Sector in Central Asia: Economic Policy and Development Challenges’, November 3-4, 2005, it was reported that output was estimated at 723,000 tons. Hence, differences in data are substantial.

In contrast, it is worth noting that Kazakhstan increased substantially its output since 2001, because of higher farm efficiency (in response to market liberalization), but also of cross-border sales of Uzbek cotton, attracted by higher prices in Kazakhstan. Recovery since 1998 can be noted in all countries of Group 1.

Cotton could have developed as a high-yield cash crop in the current agro-ecological conditions of much of Central Asia, but the restrictive institutional environment in the countries of group 2, has not enabled higher yields. There has been little incentive for a strong supply response, despite the increased demand for Central Asian cotton in international markets, such as from China. Lack of public and private investment, poor rural infrastructure and insufficient (or inefficient) marketing and processing facilities (see Proposition 8) also hinders this development.

Because of the current political economy of cotton, with substantial state and private interests pushing towards surplus extraction, wages of cotton workers and farm-gate prices for producers have long been problematic. The cotton *kolkhozniki*, as the agricultural workers are known, are by far the poorest group in society, as is most evident in Tajikistan, Turkmenistan, and Uzbekistan. While cotton has potential in the region as a cash crop, rural poverty is greatest in the areas where it is raised. Cotton production, moreover, has had significant degrading effects on land and water resources, in particular in the Aral Sea Basin (Spoor, 1998, 2005). This has accelerated the deterioration of livelihood conditions in this area (see also Proposition 9).

7.1 Taxation and State Procurement: Providing Disincentives to Agriculture

Taxation, as part of an institutional environment in which individualized and corporate farms function in the countries of group 2, has a complex history. During the Soviet era prices were accounting prices; they bore no relation to scarcity or surplus. Taxes were mostly paid by collective and state farms in the form of a turnover tax. Agricultural output was implicitly taxed through the overvaluation of the exchange rate, but this 'price discrimination' was compensated by large subsidies on inputs. Because of the non-convertibility of their exchange rates, some countries, even after independence, continued this 'creaming of' their agricultural sectors, in particular in the cotton sector (see below for detailed analysis of Uzbekistan). In recent years, however, there has been more convergence of domestic and world market prices, reducing the implicit tax. Many of the agricultural product markets in most of the countries under review have been liberalized, and state procurement has disappeared. However, this is not the case for wheat and cotton in Turkmenistan and Uzbekistan and to some extent in Tajikistan.

If we take the example of Uzbekistan, the largest producer of cotton in the region (a similar situation exists in Turkmenistan), at the start of transition, in 1993 it was estimated that taxation (land tax, procurement pricing, overvalued exchange

rate, etc.) on cotton production was 1,362 million USD, while subsidies (water, energy, inputs and finance) represented a total of 561 million USD. This meant a net outflow of 801 million USD (World Bank, 2005d). At the level of the cotton farm this implied that only 20 per cent of farm income could be held, while 80 per cent was taxed as government revenue. In Uzbekistan's chosen macro-economic model, which was a gradual import-substitution strategy, this forced resource flow was seen as the best option for financing the start-up costs of energy independence. A decade later it seems that the taxation has substantially diminished, and has possibly reversed the above relationship (farm income versus government revenue (World Bank, 2005d). In 2004, taxation increased somewhat, as official prices continued to lag behind improved world market prices, but did not fundamentally change the trend that remained clearly visible (*Ibid*). Output prices improved again in 2005–06, but the fiscal climate (hidden or explicit) is still such in Uzbekistan that cotton producers are continued to be taxed (also the newly formed commercial *farmers*, who have to still deliver to the state procurement system), which translates negatively to income development of the poorest of the Uzbek rural society, the cotton workers.

7.2 Business Environment

There are also serious payment problems for farm enterprises and the emerging 'private' farms, in terms of arrears, lack of cash, and under-valuation of quality. This is the case in all countries of group 2, although no specific data is known for the case of Turkmenistan. In Tajikistan, the debt problem of the large farms (something which inspired the Uzbek move towards medium-size farms), has now been redistributed to the small leasehold farms, who are currently confronted with completely unsustainable debts towards the 'futures holders', large companies in wholesale and exports of cotton (Shagaida, 2006).

The state procurement system that is still partly in force in all three countries, was and is still clearly open to 'rent seeking' behaviour. In the cotton sector in particular this has led to a 'political economy' that is captured by important interests that keep the 'status quo' largely intact, despite some improvement in the past few years. Uzbekistan still retains obligatory nominal procurement quotas (before for the *shirkats* and now for their offspring, the individual farms) for cotton and wheat (see Spoor, 2005). In practice these quotas are higher because of existing trade monopolies, which make it difficult to sell anywhere else than to the state (or a parastatal) agent. In Turkmenistan the situation is even less reformed, while in Tajikistan the state monopoly has been replaced with a small group of 'futures holders', which have a tight grip on cotton trade.

The institutional environment business and investment remains characterized by the existence of informal taxation and bribes. These substantially increase transaction costs in various markets, with prohibitively high transaction costs often leading producers and traders to decide not to participate in the market. In the countries of Group 2, there is insufficient attention to establishing a 'rule of law'. Although the legal framework mostly has been installed, legislation is often erratic, and sequences of many laws have not contributed to increased trust in the state.

Furthermore, with the centralization of power structures, and the unclear separations between the executive and legislative power, there are regular cases of abuse –in spite of the fact that these are against the law (Cornia et al., 2005, Chapter 8).

Property rights are not secure at all, while political interference, for example from the district or regional governors (*hokims*) makes the business climate more difficult (Cornia et al., 2005). Access to markets often depends on political connections, and transparency is minimal. An early study by the World Bank (1999) investigated how rent seeking by state officials affected enterprises in Uzbekistan. It concluded on the basis of a survey, that 65 percent of the firms reported having to pay bribes. However, the institutionalized bribes were also providing with substantial security that the service was delivered or license obtained without further due, a phenomenon that is well-known in all of the CEA countries. Nevertheless, it is clear that this is highly detrimental for private enterprises, and for domestic and foreign investment to become attractive. It cannot be eliminated overnight, and also not only by repressive measures, as the origin lies in the extreme low remuneration of the civil servants, and the many options for rent-seeking that omnipotent state interference, non-transparent subsidies and taxation are providing.

Then next section presents an analysis of what particularly is needed to initiate dynamic agricultural and rural development, and to improve rural poverty reduction. Firstly, well-functioning supply chains need to be in place. The currently still strong state domination or interference in processing, marketing, and international trade is mostly inefficient, inhibiting rather than enabling agricultural growth (*Proposition 8*). Better management of natural resources (through public policies and economic incentives) should be a priority for national governments in the region. Environmental degradation (water, land and forests) impacts negatively on production as well as on the quality of rural livelihoods (*Proposition 9*). Finally, agricultural growth can be stimulated by fundamental issues such as building land rental markets, systems of rural finance, creating credible institutions ('the rule of law'), and agricultural services, such as research and extension (*Proposition 10*).

8. Dynamic Agricultural Development Depends on the Well-Functioning of the Entire Supply Chain. State Domination of processing, marketing, Exports and imports in some CEA Countries Inhibits Such Development, to the Detriment of Rural Poverty Reduction

Well-functioning supply-chains, which connect agricultural and livestock producers to the processing industry and trade, will most likely contribute to improved product quality, specialization, and hence, higher prices for producers and increasing rural wages. Swinnen et al. (2006) clearly show the changes in the relation between agricultural producers and agro-industry in Central and Eastern Europe.

The proximity of Western European markets and the rising influx of foreign direct investment (FDI) have led to rapid development of vertically integrated supply chains, making agricultural sectors more efficient and competitive. As we will show in this section in the CEA countries this process has been more complex, with current supply chains being still very much subject to state intervention and inefficient.

This section first discusses the agricultural sector's minimal share in fixed capital investment, which is an indication of skewed priorities of national growth strategies. Fixed capital investment has increased quite rapidly in volume, but agriculture's share seems to have remained the same, or to have even fallen. This reveals one important aspect of the unbalanced growth of the CEA countries. Second, the cotton sector is examined, in which strong forward and backward linkages exist. State domination of this sector, however, continues to limit incentives to producers and keeps wages low.

Third, we will look at some examples of agro-industrial development, including other countries from the CIS-7 grouping (Armenia and Moldova), where short-term monopolistic behaviour is still a problematic aspect of the relatively rapidly growing agro-industrial sector, to which more and more peasant farms (individual or within corporate rental arrangements) are connected. Fourth, the available data on agricultural (and agro-industrial) exports and imports are examined, in particular focusing on the continuation of state intervention in certain countries, and to detect tendencies towards a concentration on high-value agricultural production which would stimulate exports.

8.1 Fixed Capital Investment in Agriculture

Table 8: Fixed capital investment in agriculture and industry, 2000-05 (%)

	2000	2001	2002	2003	2004	2005
Azerbaijan						
<i>Industry</i>	68	71	76	80	80	72
<i>Agriculture</i>	1	1	1	1	1	1
Kazakhstan						
<i>Industry</i>	65	58	54	47	40	35
<i>Agriculture</i>	1	1	1	1	2	2
Kyrgyzstan						
<i>Industry</i>	42	17	26	33	27	38
<i>Agriculture</i>	4	4	5	5	3	4
Tajikistan						
<i>Industry</i>	36	34	18	16	14	19
<i>Agriculture</i>	8	6	7	7	4	3
Turkmenistan						
<i>Industry</i>	46	44	40	46	..	33
<i>Agriculture</i>	9	8	9	9	..	10

Source: StatKomSNG (2006).

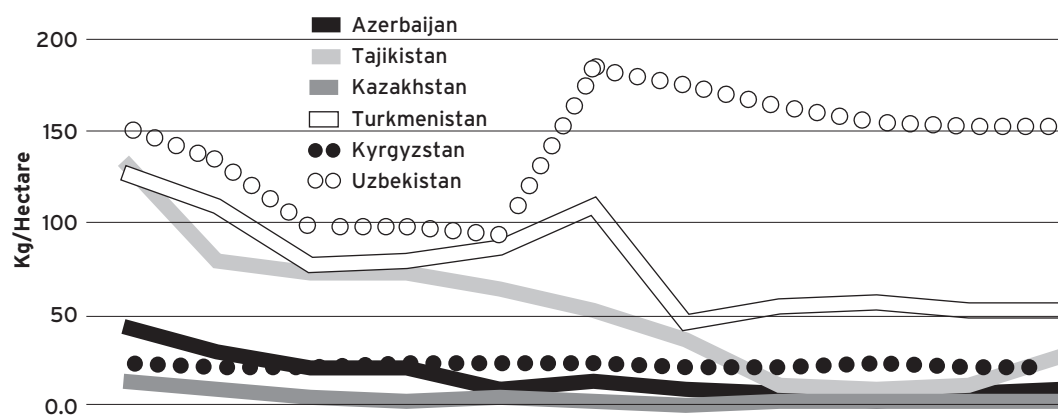
As further evidence of agriculture being the 'Cinderella' of the growth strategies of most of these countries, it can be noted that the estimated fixed capital investment in agriculture is very low in comparison to that in industry. This latter

includes investments in agro-industry, which is counted under the industrial sector. In most of the CEA countries, furthermore, the data is rather imprecise, as more and more fixed capital investment is found under the category 'other' (StatKomSNG, 2006). Only in Kyrgyzstan and Tajikistan, with their relatively small industrial sectors, is there a significant share left for agriculture. Regardless, the data indicate a relatively small role for agriculture in the growth strategies, as investment in this sector is extremely low.

8.2 Input (fertilizer and machinery services) Markets

One of the most complicated issues for the newly emerging peasant farmers (and less so for the large farm enterprises because of horizontal relationships and even vertical integration patterns) has been the absence of well-functioning input markets. This is particularly true for chemical inputs, such as fertilizers and pesticides, but also for machinery services and agricultural extension. The latter agricultural services were simply absent, as they had been embedded in the state and collective enterprises (see also Proposition 10). Input markets were at first dominated by state (or quasi-state) companies, which were gradually, and in some countries rapidly, privatized.

Figure 10: Fertilizer Consumption (1992-2002)



Although no comprehensive study has been done of CEA factor (in particular input) markets, it is indicative that there was a huge drop in fertilizer use in those countries that practically eliminated state provisioning of inputs, and moved to private input markets. Input prices seem to have adjusted much farther upwards than output prices of agricultural commodities, turning the terms of trade sharply against producers (see also for the cases of Moldova and Armenia; Spoor and Izman, 2006; and Spoor, 2007). There might have been over-use of fertilizers (and pesticides) before the transition, as no price-induced sanctions existed. However the very low levels of fertilizer use recorded particularly in the 1990s indicate an (over)-adjustment because of relative prices, but possibly also that markets for inputs had not yet very much developed.

Markets for capital goods are similar in their development. Much of the machinery assets of the collective and state farms were privatized, often erratically, leaving many peasant farms without any such assets. A great deal of this machinery park – as it has not been renewed – is in dire straits, as spare parts are difficult to get, and new tractors and harvesters will need to be imported at world market prices. We have only hints of this process of degradation. In Moldova, one of the countries beyond those under review, our study concluded that many of the tractors that are still mentioned in the national statistics were 15–20 or more years old, and had already exceeded their useful life. Finally, small farmers will demand machinery services, as purchasing large machines would be economically inefficient (and relating to their precarious income) even impossible. Therefore, the diminished numbers of tractors might indicate more a transition towards individualized landholdings and production, rather a market failure.

8.3 The Cotton Supply Chain

In the most important agro-industrial sector in the CEA countries, namely that in which cotton is produced, ginned, processed, and exported as lint, three pathways of reforms are in evidence, with various outcomes (Sadler, 2006). First, in Kazakhstan and Kyrgyzstan the supply chain has been liberalized and deregulated, leaving producers, whether individual or corporate farms, to contract inputs, services, processing, and output channels freely, with a substantial degree of competition. Second, in Tajikistan, with the emergence of ‘futures holders’ export companies the market has changed, but there are varying degrees of ‘official and unofficial’ state intervention, in particular at the regional level. Third, in Uzbekistan and Turkmenistan, there is still a high degree of state procurement and is export dominated by monopsonic state companies.

In Uzbekistan, state administered prices have risen to near border price levels, but much of the market is still controlled by state companies or others with special permissions to trade. With the liquidation of the *shirkats* during 2004–06, and the formation of medium-sized individual farms, the latter were brought under the still existing procurement quotas for cotton and wheat. The same is true for the leasehold peasant farms in Turkmenistan. According to Sadler (2006) producers in these various institutional frameworks have little negotiation power and are in a ‘dependency relationship’ with cotton gins and suppliers of inputs and services. This is contrary to the central position in the supply chain of some cotton producers in some Western economies.

In those CEA countries where state intervention is still substantial (Turkmenistan and Uzbekistan), or hidden through a whole range of regional controls (Tajikistan), the producers are strongly dependent on finance through the gins. In Turkmenistan and Uzbekistan the gins are largely state-owned, while in Tajikistan they were privatized, but producers are not free to choose their own gin (*Ibid*). Finance in Turkmenistan and Uzbekistan comes from the gins, and producers are unable to access other financial resources. In the other countries, where production, processing, trade and exports were liberalized (Kazakhstan and

Kyrgyzstan), and production is mostly undertaken by small farms (in South Kazakhstan and South Kyrgyzstan), the power of the gins (and large trading companies) is just as large (see for further discussion on finance, Proposition 10).

Producers' bargaining power remains limited. In Kazakhstan and Kyrgyzstan, producers have benefited from higher prices and reduced market margins brought about by competition between cotton gins. This has also led cotton to be smuggled from Uzbekistan into Kazakhstan and Kyrgyzstan, in search of higher prices. Nevertheless, in the past few years, many private gins have run into financial trouble, which has reduced market competition. It is interesting to note that where the sector was privatized, quality grading systems disappeared, remaining in existence only in the heavily state intervened system of Uzbekistan. Hence, privatization, deregulation, and liberalization have not led to altogether good results (*Ibid*).

8.4 Agro-Industry and Small Producers

A number of CIS countries have exhibited substantial improvements in linkages between agricultural, livestock, and horticultural producers on the one hand and processors and agro-industry on the other. White and Gorton (2006) report in a study on Armenia, Georgia, Moldova, Russia, and the Ukraine, an increase in contracting between suppliers and processing companies in the 1997–2003 period, with the use of more pre-finance and physical input delivery from the side of the processors. There is no clear evidence that this process would marginalize the small producers, while a positive impact was noticed of increased FDI. The main problems are the lack of sufficient financial institutions and weak market institutions for monitoring quality and standards, contract enforcement, and counterfeiting and tax evasion.

Increased use of contracts for supply of services, inputs, and premium prices are reported as having a positive impact on supply quality (White and Gorton, 2006). Nevertheless, as seen in studies on Armenia and Moldova (Spoor, 2007; Spoor and Izman, 2006), there is also monopoly behaviour of agro-industry, in situations where the bargaining power of peasant farms is weak, and no alternative exists for them to sell their primary produce. A good (or 'bad') example was a large sunflower processing company in Moldova that complained of the government's failure to forbid exports of raw produce, which they said they could 'better' process themselves. This company already processed some 90 per cent of the nation's production, but wanted a full monopoly position. In recent years, it had substantially lowered its purchase prices, to lift profits, rather than implementing measures to increase the quality of the produce delivered through, for example, supply of extension services, quality seeds, and credit (*Ibid*). This relates to one of the main recommendations of the White and Gorton (2006) study, namely that with privatization of the processing sector, state monopolies must not be transformed into private monopolies.

9. The Management of Natural Resources (Land, Water, and Forest Resources) has been Highly Unsustainable and Problematic in the CEA Region, Augmenting Poverty in Rural Areas

There are a whole series of environmental problems in the CEA countries, caused by the gross mismanagement of natural resources, such as water, land and forest resources. The latter has led in many places to environmental degradation and the qualitative worsening of rural livelihoods (through air and water pollution or lower yields, and hence incomes). Focusing again on the agricultural sector and its relation to sustainability, we will look at the largest environmental disaster of them all, namely the drying out of the Aral Sea, and all the accompanying feature of land degradation, water problems and diminishing biodiversity in the Aral Sea Basin, formed by its two main rivers, the Amu Darya and the Syr Darya.

9.1 Soil Degradation and its Effects for Production

The environmental problems in the Aral Sea Basin are substantial. Soil degradation can be observed in a relatively large and growing proportion of irrigated land in Central Asia. The main cause should be sought in the lack of crop rotation, since in most places cotton has been a monoculture for many decades. Furthermore, there is 'over-irrigation' and the inadequate and archaic drainage systems cause serious water-logging and upward flow of minerals. Soil salinity is widespread, which reduces agricultural yields and increases water consumption, since farmers get into the habit of water leaching to rinse the soil. This practice consumes large quantities of water at the start of the season.

Salinity is even more severe in the downstream areas of the basin, since often drains flow back in the rivers. The upstream countries, Kyrgyzstan and Tajikistan, have lower rates of salinization, while severe soil salinity is seen in the lower reaches of the Amu Darya (Khorezm, Karakalpakstan, and Kashkadarya in Uzbekistan and Turkmenistan), the Syr Darya (Southern Kazakhstan), and the Zerafshan (Bukhara in Uzbekistan). The regional disparities are quite wide, with 90–94 per cent of land in the Karakalpakstan, Khorezm, and Bukhara provinces of Uzbekistan salinized, compared to 60–70 per cent in Kashkadarya province, and only 5 per cent in Samarkand province. These are partly soil-type differences, and in part caused by irrigation related salinization (Spoor, 2006c).

There was a marked increase in soil salinity in the downstream 'user' countries in the 1990s – the first decade of transition. This increase was estimated at 30 per cent for Uzbekistan, 24 per cent for Turkmenistan, and 18 per cent for Kazakhstan, while in Kyrgyzstan and Tajikistan soil salinity diminished (Spoor and Krutov, 2003). Soil salinity is not merely a technical problem; it has major social and economic consequences. Because salinity reduces crop yields it depresses the incomes of farm households, which forces them to find different survival strategies. Only tolerant

plants grow satisfactorily on soils with moderate salinity. On severely saline soils, only a few highly tolerant plants can flourish. If soil salinity is above a certain threshold value, yield losses can easily range between 10 and 50 per cent.

9.2 Water, Conflicts, and Loss of Biodiversity

Spoor and Krutov (2003) extensively analysed the problems of the upstream versus downstream countries in Central Asia. The upstream countries (primarily Kyrgyzstan and Tajikistan) are using water resources for hydropower generation. The downstream countries need the water for irrigation of agricultural land, in particular in the summer, when the upstream countries tend to hold water in storage and release it through the power turbines, to generate electricity. Azerbaijan has the same problem, as it is a downstream country, and its water streams through Armenia and Georgia. This adds an extra dimension to the political problems among the Caucasus states.

Lack of sufficient drainage has salinized water in rivers downstream. However, water pollution is caused not just by salt but also by nutrients. The intensive use of fertilizers and pesticides in cotton production, which did diminish during the 1990s, though mainly for reasons of finance, severely polluted the rivers in the basin with high concentrations of several toxic chemical substances (Spoor, 1998). Furthermore, the smaller quantities of water that actually flow as far as the deltas of both main rivers and the aforementioned increased water salinity in those areas have had devastating consequences for biodiversity. Part of the rich flora and fauna of these wetlands, the breeding grounds for many birds and fish in the basin system, has disappeared, severely affecting biodiversity. In the Amu Darya delta, the unique *tugai* forests have suffered enormously (Spoor, 1998).

UNESCO has estimated that some 30,000 hectares of lakes and bogs in this delta have almost entirely dried out. Much of the fish population in the Aral Sea itself has died out. This, of course, has had dramatic consequences for the populations of the surrounding towns, which were largely dependent on fish catches. Again, this loss of biodiversity has had very negative impacts in terms of employment, income generation, and health, making it a very concrete and pressing issue in the CEA countries.

9.3 The Shrinking of the Aral Sea and Effects for Regional Climate

There is a rapidly expanding area of exposed seabed in the Aral Sea. This is visible on the shores, but also in the exposed seabed that separates the deep western and shallow eastern sea and consists largely of salt. The desert storms that blow there approximately three months per year dislodge and deposit large quantities of this salt onto the surrounding agricultural lands. Furthermore, because of desertification, windstorms are moving increasing quantities of salt in Central Asia, especially near the Aral Sea. Some 1.5 to 6.5 tons of particles per hectare, of which 260–1,000 kilograms per hectare is toxic salts, is transferred annually from the dried seabed (which itself consists of an estimated 1.5 billion tons of salt covering 3.5 million ha) to an expanding area in its surroundings.

Wind erosion also carries salts in regions such as the Central Ferghana Steppe. Bukhara province in Uzbekistan receives a total of 300–400 kilograms per hectare of salt-laden aerosols annually, of which 40–50 per cent comes from the dried bed of the Aral Sea some 300 kilometres distant. This ‘salt pollution’ not only has a negative effect on agricultural production, it also affects human health. The number of cases of respiratory disease is relatively high, especially in the downstream areas close to the Aral Sea.

The shrinking of the Aral Sea also contributes to climate change in the surrounding areas. Previously, the huge size of the Aral Sea helped to regulate temperatures, and its drying out has reduced this effect. The planting season has shortened, the number of frost-free days has decreased, and summer temperatures (in the desert) are slightly higher.

9.4 Environmental Degradation and Rural Poverty

Using again the example of Uzbekistan, there are many people are negatively affected by environmental factors originating from cotton production. Although no very recent data was available, even data for a year as distant as 1998 shows a devastating picture for the population affected by water and air pollution (see Table 9). ADB (2004) gives estimates from the National Environmental Action Plan (NEAP) of Uzbekistan for that year, which indicates that around one quarter of the total population was affected by water and air pollution, not by surprise living in those areas which are downstream of the Amu Darya (such as Karakalpakstan, Bukhara and Khorezm, in the North), or the densely populated and intensive cotton producing areas such as Ferghana, in the East).

Table 9: Population affected by Water and Air Pollution in Uzbekistan (1998) (x1,000 persons)

	High		Very High		Total	
	Water	Air	Water	Air	Water	Air
Karakalpakstan	82	537	1191	–	1273	537
Andijan	80	–	–	–	80	–
Bukhara	409	–	883	–	1292	–
Djizak	50	–	–	–	50	–
Kashkadarya	106	235	–	–	106	235
Navoiy	112	200	97	–	209	200
Namangan	–	–	132	–	132	–
Samarkand	167	77	589	–	756	77
Surkhandarya	62	–	104	–	166	–
Syrdarya	69	–	105	–	174	–
Tashkent	257	295	–	–	257	295
Ferghana	831	830	298	–	1129	830
Khorezm	331	136	113	–	444	136

Source : ADB (2004: 9), citing the NEAP, Uzbekistan 1998

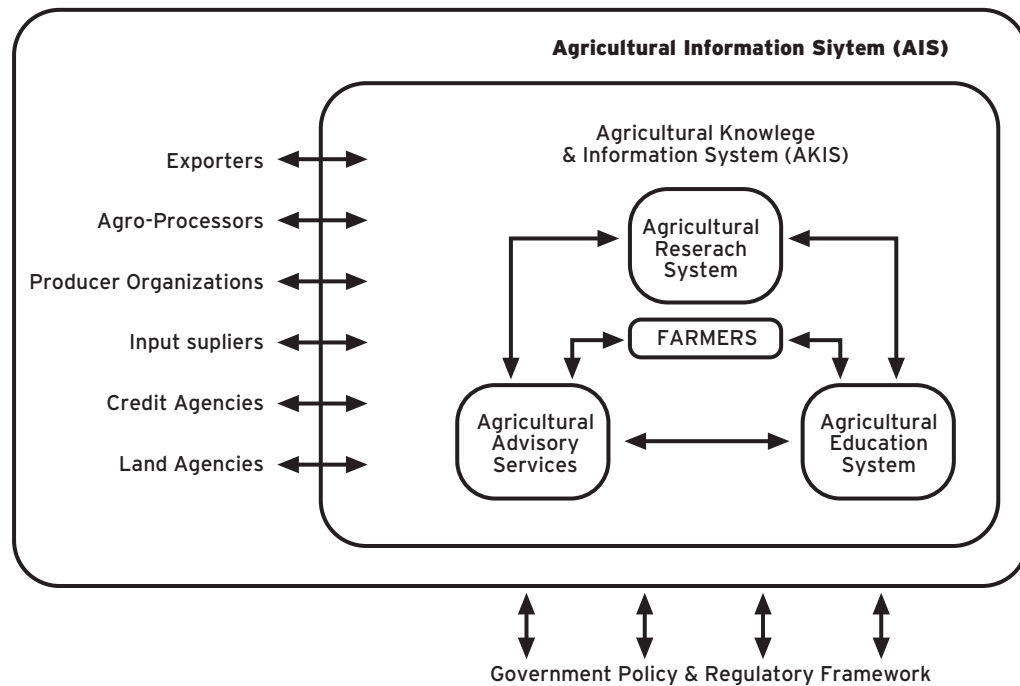
More recent data would be needed to see if this picture has been worsening since the late 1990s, but it can be hypothesized here that this is indeed the case, as soil degradation has worsened, drainage canals got more polluted, and the drying out of the Aral Sea has continued to have negative effects on its environment (close and sometimes faraway, through sand storms).

10. The State has an Important Role to play in Improving the 'Climate' for Economic Development, by Guaranteeing the 'Rule Of Law', Credible Institutions and Public Investment. Agricultural Extension Services are Furthermore Essential for a Market-Oriented Transformation of Peasant Farms

In several of our propositions it was indicated that the development of efficiently working markets were needed, as well as 'credible' institutions (Ho and Spoor, 2006). The 'rule of law' is one of these, already mentioned above as crucial for the business and investment climate (see also the discussion under Proposition 7). When there is still strong, often unwanted and inefficient state interference, the continuing insecurity of property rights, the absence of recourse in case of contract failures, and the lack of implementation and enforcement of often existing laws, or even the dominance of illicit groups which overrule any existing regulatory framework, no agricultural or other sectoral policies will be successful to provide dynamism to the sector. As we have seen above, in all CEA countries several of these problems can be observed, but they are most severe in Tajikistan, Turkmenistan and Uzbekistan (see Cornia et.al, 2005).

Individualization of landholding and agricultural production needs, furthermore, be followed (or even better, be accompanied) by various institutional and organizational reforms that support in particular small-scale farms, which are emerging from the various land reforms in the region.

Figure 11: Supply Chain and the Agricultural Innovation System



Following the approach developed by Birner et al. (2006), dynamic agricultural development, focused on the modernization of individualized farmers, needs an agricultural knowledge and information system, with agricultural advisory services, an agricultural research system and an agricultural education system. Furthermore, apart from the appropriate regulatory framework, and enabling (and in some cases even activist) policy environment, the supply chain needs to work efficiently with backward and forward linkages (Figure 11).

The transformation towards a differentiated farm structure in the CEA countries, with a much higher importance on the individualization of landholdings therefore calls for a full transformation of not only the regulatory framework and institutions, but also the system of agricultural research, extension, education, and financial services, that provide knowledge and the proper incentives for particular peasant farms to really ‘make the transition to the market’. During the Soviet era, these services were directed exclusively to the predominant large collective and state farms.

When small farms emerged, they were largely excluded from such services, simply because they were not available, and when they did exist, they were directed towards the newly emerging corporate sector in agriculture, which present less risk, and lower transaction costs. Below, the importance of land rental markets (to promote efficiency of land use), rural finance, and research & extension services is discussed. These are important elements of a dynamic agricultural innovation system, needed to promote growth, with a much more positive effect on rural poverty than currently is the case.

10.1 Land (rental) Markets

Under the Soviet regime, all agricultural land – except for the subsidiary household plots and *datcha* gardens – was held by state and collective farms, and also owned by the state. Hence, many rural dwellers had access to land, but not as individual producers, and certainly not as ones who could take decisions on crop mix. Lands were not owned by the ‘tiller’. Various land reforms changed this situation fundamentally. Nevertheless, tenure security is not (yet) well developed, except countries in group 1 (with various differences). Throughout the region, institutions are still weak and rural markets work in fragmented and inefficient manners, often with high transaction costs. That last, as evidenced in Armenia’s land rental markets (Spoor, 2007), can be prohibitive for the development of markets and the active participation of producers therein.

Land sale markets are still ‘thin’, partly because of continuing restrictions, but also various other reasons, such as the traditional cultural significance of land, even for households involved in migrant and non-farm labour, and the low market value of land (see Spoor & Izman, 2006, for the case of Moldova). Land rental markets, however, are emerging in the region (Swinnen et al., 2006b; Spoor, 2007), and they are viewed by many as able to improve the equity and efficiency of small farm production, at least under certain conditions. Swinnen et al. (2006b) observe that in countries in Eastern Europe and Central Asia where large corporate farms are dominant, such in Bulgaria, Moldova, Tajikistan, and Kazakhstan, their role in the land rental market is ‘a cause of concern’, as the rents they pay tend to be less (and seldom in cash) than those paid by family farms that rent in land.

These authors contend that this is a likely outcome in situations where land rental markets are not stimulated by working labour, input, output, and finance markets. The higher the share of land in the hands of corporate farms, the more land is rented (and mostly by them). An example of this is found in Moldova, which implemented a massive re-distributive land reform in the late 1990s. Still, most land is now in the hands of large corporate farms, in villages which are often run by the more powerful and influential farmers, known as ‘leaders’ (Spoor and Izman, 2006). These corporate farms tend to perform poorly and their owners are often distrusted by those renting out their land to them. The farms also use more land than really needed, hence contributing neither to equity nor to efficiency.

A similar phenomenon is evidenced in Kazakhstan and Tajikistan (World Bank, 2006b). Surveys carried out in the context of study by Swinnen et al. (2006b) point to different causes of imperfections of land rental markets in various countries. These might be lack of credit, lack of knowledge of the market, little supply of land, high transaction costs, and insufficient trust in authorities (e.g. for contract enforcement). These authors conclude that public (or private) investment in rural infrastructure, off-farm labour opportunities, the improvement of human capital (through education and training), and provisioning of safety networks, could reduce the labour constraints in rural markets, and stimulate land rental markets.

10.2 Rural Finance

Rural financial institutions in the CEA countries under review are still weakly developed, as shown in a recent study on rural finance in five of the six countries (ADB, 2006). Access to formal banking services is still limited for most rural dwellers. This gap seems to be filled by informal financing, and also increasingly by other non-bank institutions, such as microfinance institutions (MFIs).

Despite the growth of the formal banking sector in most countries, rural areas were hardly on the financial map. Banks were highly concentrated in the capitals, and taking into account distance and the poor communication and transport infrastructure, large proportions of the rural population have lacked access to formal credit and savings facilities. In Kyrgyzstan, just three banks operate in rural areas, while in Tajikistan only two banks make a noteworthy contribution to rural financial markets. In Azerbaijan, one-third of the bank branches are in rural areas, but these are run by state-owned banks. In Kazakhstan, there is minimal engagement of banks in rural areas, whereas Uzbekistan scores slightly better, with seven banks active in rural areas, reflecting the still very active role of the state in strategic crops such as cotton and wheat (ADB, 2006). Banks view rural dwellers with low incomes as unprofitable. Also, as rural economies are mostly concentrated on agriculture and livestock activities, with a weakly developed non-farm economy, they seem more risky.

The ADB report contends that the banks have displayed highly 'risk averse' behaviour. Throughout most of the 1990s, they maintained very high interest rates and extended only short-term loans, despite their substantial cash resources (see Weeks et al., 2005, for the case of Moldova). High interest rates were generally prohibitive to farmers, and formal banks tended to be unwilling to deal with peasant farmers because of (observed) high transaction costs. Land was (and very often is) not accepted as collateral, even where property rights are relatively secure. This is due to land's low market value. In Moldova and Armenia, where we were involved in country-wide studies on macro-economic policies and poverty reduction, land values were often no more than 200 USD per hectare. Furthermore, a distrust of banks remains, in particular among the rural population, because of the substantial numbers of negative experiences with emerging banks during the 1990s.

While agriculture is still the most important income generator for much of the rural population of these countries, access to bank loans is limited, especially for the non-cotton sectors. ADB (2006) estimates that of all the bank loans in these CIS countries some 3–12 per cent are for agriculture (not including finance provided for cotton through processors). In Turkmenistan and Uzbekistan, finance for this strategic crop is largely still in the hands of the state agricultural banks, which are not taken into account here, while in Tajikistan formal finance for cotton comes from a monopoly bank and the futures holders. If the finance provided by this bank (and the state banks in Turkmenistan and Uzbekistan) to the very important cotton sector were taken into account, the share of agricultural loans would be substantially higher. This, however, would hide the fact that many small producers are excluded from formal financial services, especially in the small *dehkhans* farms, and basically rely on moneylenders.

The ADB report cites higher deposit mobilization as the main requirement for altering this situation. As mentioned, the cotton sector in Turkmenistan and Uzbekistan, which are very large sectors, receives a considerable percentage of available flows, albeit not directly through the formal banking system. Typically, loans go to (state) retailers and wholesalers. Also, the food processing industry, not classified as agriculture, receives a substantial share of formal lending, with which it pre-finances suppliers.

10.3 Research and Extension Services

One of the serious problems in the transformation towards a market-oriented and individual farm-based system has been the lack of appropriate research and extension services adapted to their emerging needs. As mentioned before, research during the Soviet system was to serve the needs of the large collective and state farms, and extension services were also integrated in the same system. Each collective and state farm has its own technicians and specialists. When they broke apart, and individualized farms were formed, there was no ready alternative. Since the mid-1990s, however, in several countries, while some of the 'old' organizations continued to function in a different setting, new types of organizations have sprung up, that cater more to the needs of small farmers, both public as well as private (Childress, 2004). This development is of crucial importance, in particular to provide new technologies, whether for production, irrigation, or sustainable land management, essential ingredients for a dynamic development of these emerging farms, in particular to promote a transition towards the HVA crops, and export orientation.

11. Conclusions

a) An agricultural-led and rural-based growth strategy, in particular that one which is focused on improving the livelihoods on the small individualized farmers that have emerged from the era of land and agricultural policy reforms, will be 'pro-poor' as it will positively affect rural poverty. Rural poverty is closely linked with agricultural household incomes, growth in the sector's output and productivity, and agriculture's linkages with other sectors. In essence, more growth needs to take place in the rural areas, where many of the poor reside and work, in particular in the agricultural sector, as until now there is a relatively weak rural non-farm economy. Waiting until national economic growth sufficiently trickles down to the rural areas relegates the phenomenon of rural poverty to a 'Cinderella of growth' status. In order to meet the MDGs on poverty (amongst others), a priority focus is needed on the agricultural and rural sector in Central Eurasia.

b) With the transformation from large farm enterprises towards individualized agriculture the 'within company' social services have largely disappeared, while local administrations have not filled this gap. Public expenditure on health and education are low in the CEA countries, relative to GDP and in absolute terms.

Therefore an important part of a strategy of rural poverty reduction would be to invest in rural health and education. Access to piped water and other public services is highly unequal, comparing rural with urban areas. Public expenditure needs to be refocused towards public investment in rural infrastructure and agricultural services, which will also contribute to improve the quality of rural livelihoods, in particular of small farmers, and furthermore promote agricultural (and rural) growth.

c) As child poverty is still severe in the CEA countries and stunting widespread (signalling malnutrition), in poverty reduction strategies specific emphasis is required to these serious problems. This also means that particular programs need to be developed to reduce child and food poverty, focusing on households with more children, reduce or eliminate child labour, and introduce or expand the access to nutritious school meals.

d) Despite robust overall GDP growth in Central Asia, poverty in rural areas has not declined as rapidly as in urban areas. Major reasons for this distinction are continued extensive state intervention in agricultural production, marketing and processing, as well as a lack of palpable support for individual agriculture. Poverty alleviation programmes need to address this imbalance as part of the overall poverty reduction efforts.

e) Although land reform and reform in agricultural policies have substantially progressed in a number of countries (such as Azerbaijan, Kazakhstan and Kyrgyzstan), there is a clear need for further reform, in particular in Turkmenistan, Uzbekistan and Turkmenistan, promoting wide-scale individualization of agricultural production, and the creation of an appropriate enabling (and stimulating) institutional and policy environment, in which agricultural growth will increase, with a positive effect on rural poverty reduction.

f) Land individualization is a necessary factor for agricultural intensification and market-led growth, but needs to be complemented with additional policies (capital, credit, land rental, and services) and institutions, otherwise market-orientation will remain minimal, and 'risk aversion' strategies of emerging small farms might well remain pre-dominant, to the detriment of agricultural growth.

g) Cotton could (and should) have been a fast-growing high income sector for farmers (and as a result for farm workers), but it seems to be particularly profitable for the processing and trading sector in the supply chain, and state officials involved in the regulatory framework, rather than for the producers. This is particularly the case in the countries of Group 2, which is formed by the region's mean cotton producers. Further reforms in taxation, elimination of state procurement, and state interference in production decisions are needed to promote growth. Poverty rates remain high in rural areas raising cotton, and cotton workers are considered the poorest in rural areas. It is therefore of crucial importance to promote growth (higher yields and better farm incomes) in this sector. No resolution for this problem can cause migration, while other sectors cannot absorb this incoming labour.

h) Growth strategies need to be more focused on contributing to efficient supply chains and the linkages between small farmers and emerging agro-industry. Priority to in particular infrastructural and productive investments necessary. Input markets are still fragmented and the current level of fixed agricultural investment is too low to achieve such goal. Well-working input markets, and improved access for small farmers will also enhance growth, in particular in export related niche markets (fruit, vegetables and livestock).

i) Sustainable management of these natural (land, water and forest) resources has not been a real priority for the CEA governments, in spite of much discourse. To reduce rural poverty and improve the quality of rural livelihoods this is however of crucial importance. There are inadequate irrigation and drainage practices and a decaying infrastructure, which contributes to environmental degradation. There is an urgent need to modernize both the institutional set up and the infrastructure of the irrigation and drainage sector. Moreover, economic incentives through prices and taxation would also contribute to its improvement.

j) Governments should provide a facilitative environment, an appropriate regulatory framework, and public investments, that enable and support farmers to modernize production, increase efficiency and improve incomes. Establishing and implementing the 'rule of law', making property rights secure and establishing trust in public institutions is crucial, even more important than any sectoral policy as such. In addition, great importance needs to be given to the establishment of an agricultural innovation system (with research, extension and education), apart from well-linked supply chains, with linkages provided land rental markets (to promote more efficient and even equitable land use), and rural financial services, accessible to small farmers.

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Selected data sets used:

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FAOSTAT: Agricultural production, food security, trade data: www.faostat.fao.org

UNDP: Human development data: www.hdr.undp.org/statistics

UNICEF/ICDC: Child poverty, income inequality, population data:
www.unicef-icdc.org/research

World Bank: World development indicators: www.worldbank.org/data