The Cotton Sector in Central Asia

Economic Policy and Development Challenges

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Introduction

Deniz Kandiyoti

After the break-up of the Soviet Union, the newly independent states of Central Asia embarked on markedly different paths of market and governance reforms.[1] As independent countries, they fell back on their natural resource endowments and entered into diverse relations with global markets. As primary commodities, oil and gas have received disproportionate attention in studies of the political economy of Central Asia and the Caucasus, reflecting geopolitical and corporate interest in this sector. However, Central Asian economies continue to rely on large agricultural sectors – undergoing difficult processes of restructuring and reform – that are central to the livelihoods and welfare of their populations. The lead agricultural commodity that has shaped the fortunes of the region is, undoubtedly, cotton.

Since the Tsarist conquest, cotton cultivation has played a pivotal role in the political economy of Central Asia in the irrigated valleys, which in contrast to the steppes dominated by nomadism, had a long history of sedentary settlement. By the time collectivization took place under the Soviet regime, the Ferghana Valley had already been producing cotton for Russian textile mills. Under Stalin, the twin goals of collectivization and "cotton independence" were pursued. The rural economy was geared to the extraction of maximum amounts of cotton for domestic processing by Moscow and for export on the world market as an important source of hard currency. Uzbek cotton alone accounted for two-thirds of all cotton produced in the Soviet Union.

Cotton monoculture involved important elements of coercion. "Cotton campaigns" enlisted large sections of the population (including schoolchildren) to work at harvests, setting up "socialist competition" among production units to force up labour norms. Commenting on this historical context, Pohl (Chapter 1) also reminds us that cotton cultivation utilized forced labour drawn from groups of special settlers (Karachais, Crimean Tatars, Meskhetian Turks and Russian-Germans) who had been deported to Central Asia under Stalin and whose freedom was granted as late as 1956. The historical legacy of coerced labour still looms large in this sector.

Nonetheless, Khan argued that during the Soviet period the shift in cropping patterns and the retention of a large labour force in agriculture was, in fact, the result of the systematic use of price incentives rather than just administrative coercion.[2] The terms of trade were, for a long time, favourable to cotton cultivation. The extent of surplus transfer to the centre from Central Asia also became

a matter of debate since these transfers were offset by substantial subsidies to the Soviet periphery from the All-Union Budget. What is uncontested is that the acreage devoted to cotton was expanded continually until it reached a peak in the 1980s. Yields were forced up through the massive use of chemical fertilizers and pesticides, although they had levelled off by the 1970s and had started declining in the 1980s. By the late 1980s, the water resources of the Amu-Darya and Syr-Darya rivers basins were over-utilized, leading to the much-publicized desiccation of the Aral Sea. The command economy in Central Asia's cotton sector left an enduring legacy both in terms of its economic, social and ecological consequences and the types of vested interests it created among elites who control the distribution of resources and revenues.[3]

Cotton production in Central Asia currently accounts for about seven per cent of global cotton output. Uzbekistan continues to be the dominant producer, with just under five per cent of global output, followed by Turkmenistan, Tajikistan, Kazakhstan and Kyrgyzstan. The policies adopted by these countries after independence have differed significantly with Uzbekistan and Turkmenistan retaining government control throughout the entire cotton supply chain, Tajikistan imposing fluctuating degrees of control and Kazakhstan and Kyrgyzstan removing government control.

The aim of the conference on *"The Cotton Sector in Central Asia: Economic Policy and Development Challenges"* held at the School of Oriental and African Studies on 3–4 November 2005, was to explore the post-independence trajectories and policy choices of Central Asian states with a view to stimulating policy dialogue and greater public awareness, as well as contributing to capacity building for policy evaluation and formulation. The topics explored by local and international experts, representing diverse disciplines from economics and agronomy to investigative journalism and history, covered the multiplicity of factors that act upon the cotton commodity chain and its developmental potential, from domestic procurement systems and labour regimes to the role of global markets.

John Baffes (Chapter 2) highlighted the market and institutional constraints under which cotton-dependent countries operate. Three dominant exporters – the United States, Central Asia and Francophone Africa – account for more than two-thirds of global trade exports. Cotton markets, in common with other primary commodity markets, have experienced a long-term decline in prices, price variability and competition from synthetic products. In addition, major players, notably the United States, the European Union and China, give considerable domestic support to their cotton sectors and thus depress world prices. In contrast, less developed cotton producing countries – including Central Asian states – tax their cotton sector. Cotton production in Central Asia is further affected by factors such as inefficient use of water (according to a World Bank estimate 60 per cent of the water diverted from the rivers that feed into the Aral Sea fails to reach

the cotton fields), deteriorating soil quality due to salinity and water logging, extensive use of chemicals, reliance on child labour, and new patterns of cross-border movement of seed cotton and migrant workers. The implicit assumption that the development of down-stream industries in the textile or garment sectors – that might benefit the economy as a whole – will automatically improve the conditions of cotton growers must be evaluated in light of the fact that their sales will continue to be influenced by global cotton prices regardless of the domestic or international destination of their crop. This background introduces a note of caution with respect to the policy choices available to Central Asian countries.

Max Spoor (Chapter 3) takes issue with the conventional wisdom that cotton has been the "curse" of Central Asia.[4] Whilst acknowledging the social and environmental costs and institutional shortcomings of the cotton sector, he argues that it would be unrealistic to anticipate a path of development that does not build on this important export crop. Despite lower real prices in international markets, cotton is still cost effective and therefore priority must be given to policies that provide the right incentives to producers in order to improve yields and quality (including a shift towards organic cotton) with a view to supporting rural incomes. This is a crucial consideration- with serious implications for social welfare- given the size of the rural population in Uzbekistan that depends on wage labour in the cotton sector. Investment in the textile industry presents a way forward for a stronger cotton-based agro-industrial development, which – in the absence of other competitive industrial sectors – could become an engine of growth. The challenge, therefore, is to identify a policy mix that could best convert a potential "curse" into a foundation of development.

The chapters by Kulikova (Chapter 4), Djalalov (Chapter 5) and Abdullaev (Chapter 6) examine different facets of the policy mix in Uzbekistan, where agriculture is the largest sector of the economy, accounting for more than 30 per cent of GDP, 40 per cent of employment and 25 per cent of foreign exchange earnings. Kulikova, who focuses on the legal framework of cotton procurement and export, notes three distinct stages in the evolution of legal and institutional reforms between 1991–95, 1995–97 and 1997 onwards. Although significant changes have taken place- in compliance with international requirements for quality control, trade and currency liberalization- the reform process is far from complete. In particular, the persistence of the state-order system of raw cotton procurement, the lack of competition in the cotton industry, the system of trading contract registration, restrictions on exports and the lack of targeted credit support (in lieu of advance payments and commodity credits) create disincentives for this sector.

Djalalov examines the crucial issue of indirect taxation of the agricultural sector. The two main pillars of the path of gradual reform in Uzbekistan have been import substitution industrial development and a quest for wheat self-suf-

ficiency. The instruments of state planning inherited from the Soviet period (such as foreign exchange restrictions, monopolies in domestic and foreign trade, directed credits and large public investments) were successful in averting the extremes of post-Soviet economic collapse in the shorter term, but at the cost of macroeconomic distortions that increased throughout the 1990s until the present. The indirect taxation of agriculture remains an important source of budgetary income in Uzbekistan. The size of indirect taxation was estimated by the Asian Development Bank (ADB) at around 10 per cent on average of the gross national product of Uzbekistan for 2002–2004. Although this taxation is justified with reference to indirect subsidies for irrigation, fertiliser, maintenance of machinery and other inputs, there is strong evidence that the rigid controls introduced by the state-order system are leading to a decline in productivity. This decline has prompted the state to take measures to preserve the existing system of agricultural "taxation" by using law enforcement bodies in monitoring the use of resources and combating corruption and cross-border smuggling, thus increasing the costs of the system. The removal of indirect taxation and its replacement with a non-distortive land tax and export duties could both compensate for lost revenues and create necessary incentives for producers, thus eliminating the necessity (and cost) of involving law enforcement bodies in the fulfilment of state orders.

Abdullaev (Chapter 6) complements and extends this analysis by examining the range of factors leading to the decline in Uzbek cotton production. The expansion of household plots since independence (with over 0.5 million hectares of irrigated land, more than 10 per cent of the total irrigated area, allocated for small scale production) and the drive for self-sufficiency in wheat production (which was successful) were realized at the expense of land allocated to cotton. In addition, the paradox of the quota and procurement system meant that, on the one hand, cotton production was forced up through compulsory quotas while, on the other, there was a clear disincentive to produce cotton due to its procurement pricing. Although the slow transformation of the collective farming system into individual farming units produced a relative recovery in cotton production, the uncertainty of tenure of private farmers' leaseholds, that can be administratively revoked, makes strategic investment in land conservation and water management risky, thereby reducing resource productivity. The shift from collective farms to family enterprises has also created a vacuum of responsibility and organization for the operation and maintenance of irrigation and drainage systems. This vacuum exacerbated problems that were already emerging by the end of the Soviet period, contributing to land degradation, primarily in the form of water logging and salinity.

A comparison between cotton production and Uzbekistan's other major crop, wheat, provides important insights concerning the causes of the decline of the former. Typically grown in the same irrigated fields as cotton, wheat yields

have more than tripled since independence despite the fact that wheat is more susceptible to the effects of salinization than cotton. This strongly suggests that it is not the natural environment which has held cotton productivity down but rather the policies which regulate its production. The stagnation in yields appears to be largely a response to the government quota system for cotton which provides little, if any, incentive to increase productivity beyond the levels required to meet production quotas. If water scarcity is to become a factor in Uzbek cotton production, this is likely to be due to tradeoffs between agriculture (in downstream Uzbekistan) and energy production (in upstream Kyrgyzstan and Tajikistan), not between agriculture and the environment. The unproductive use of water, due to inadequate land and water management institutions, is the major problem, not the cultivation of cotton per se.

It seems clear from the discussions in chapters 4 to 6 that the legal/administrative framework of cotton production, the indirect taxation of agriculture, the inadequacy of land and water management institutions and the price disincentives to producers have combined to limit the development potential of this sector in Uzbekistan. Unlike Uzbekistan, which maintained a centrally managed cotton economy, in Kazakhstan and Kyrgyzstan, where there was no involvement of the state in the production process, other actors have filled the gap, with differing consequences.

Kim's analysis of Southern Kyrgyzstan (Chapter 7) shows that the cotton sector has expanded in the post-Soviet period: land under cotton cultivation increased by 78.8 per cent, yields for raw cotton by 92 per cent, and production of cotton fibres by 151.3 per cent. However, the lion's share of the profit has gone to the cotton gins controlled by a narrow group of private businesses. The methods used by the gin owners to procure raw cotton risk hampering further development by reducing farm productivity. Farmers who are pressed for financial resources at the time of spring sowing turn to cotton gins for cash advances, payable with the proceeds of cotton harvests. These advances are transacted at low prices, leaving producers little profit. Cash strapped farmers are, then, forced to save on necessary agro-technological inputs, such as machinery, fertilizers, herbicides and pesticides. This effectively puts a brake on the development potential of this sector. Local authorities are indifferent to the farmers' plight and have no resources to assist them. The cotton sector therefore needs the targeted support of the government for the regulation of purchase prices for raw cotton or subsidies for cotton production. The necessary resources could be generated, Kim suggests, by allocating extra tax revenues raised from the cotton gins to supporting cotton farmers. The case of Kyrgyzstan, therefore, illustrates the limits of a total lack of regulation which can backfire and affect the long-term sustainability of cotton farming.

The cotton sector in southern Kazakhstan has also been expanding (from

323.6 thousand tons in 1990 to 466.1 thousand tons in 2004) and proved to be profitable for both farmers and cotton gins. Dosybieva argues, in Chapter 8, that relations between cotton producers and gin owners had generally been mutually beneficial. The owners of cotton gins served as loan providers not only for production-related purposes (through cash advances) but also more informally for emergency occasions, like weddings and funeral ceremonies. After years of neglect, when it became apparent that the cotton sector presented good prospects for growth, the state started taking an interest in it. The initiative of creating a "cotton cluster" was put forward to integrate the full production cycle from the cultivation of cotton to the manufacture of textile goods. In order to stimulate the development of textile and garment industries, the *akimat* administration of the Southern Kazakh Oblast (SKO) proposed the establishment of a Special Economic Zone (SEZ). However, the members of the Kazakh Cotton Association representing 12 cotton-processing companies and one cotton farm resisted these changes which they perceived as an attempt to restrict their activities and redistribute the profits in the cotton sector in favour of stronger players. New interests are coming in, with legal dispensations to back them, marginalizing the cotton processing plants that, through their investments, helped the cotton sector to recover from the post-perestroika slump. They now face an uncertain future. The decision to increase the size of cotton farms and consolidate them into larger units is also causing concern among producers. There are complicated trade-offs involved in the policy options that are taking shape in Kazakhstan and managing the tensions between potential winners and losers are now on the agenda.

The policies adopted by individual states clearly have implications beyond their borders and create a new regional dynamics. The proximity of an expanding cotton sector in Southern Kazakhstan to an impoverished rural sector in Uzbekistan has stimulated a wave of migration in the direction of Kazakh cotton farms. It is difficult to judge the actual size of this flow. Experts estimate that the total number of labour migrants (legal and illegal) from Uzbekistan to varied destinations such as Russia, Kazakhstan, South Korea, Turkey, the United Arab Emirates and others may reach 1–1.5 million and account for up to 8 per cent of the GDP in remittances. Dosybiev notes, in Chapter 9, that farmers in Kazakhstan gladly hire casual workers from Uzbekistan since they are paid up to three times less than local workers. Illegal workers receive US$0.03 per kg of harvested cotton in comparison to Kazakhstani workers who are paid US$0.06 per kg as a minimum wage. Nonetheless, an experienced Uzbek worker may earn up to US$200 a month, a vastly superior sum to the wages he can expect to receive at home. However, illegality exposes migrant workers to forms of exploitation akin to slavery. It is not unusual, for instance, for an employer to report his workers to the police at the end of the agricultural season if he knows that they have entered Kazakhstan illegally, thus avoiding having to pay for their work. Representatives

of law-enforcement agencies do little to combat these abuses, accepting bribes from farmers instead. The employment of illegal migrants is unrecorded and the process of recruitment is based on a verbal agreement between workers and employers. As a result, the rights of Uzbek citizens working on the cotton fields of Kazakhstan remain unprotected.[5]

A more thorough understanding of the operations of the cotton sector in Central Asia must necessarily look beyond macro-economic policies to the micro-level trajectories of farm restructuring and the workings of agricultural enterprises in concrete contexts. This is what the fieldwork-based studies of Trevisani (Chapter 10) and Jozan *et. al.* (Chapter 11) aim to achieve. The trends noted earlier by Djalalov (Chapter 5) and Abdullaev (Chapter 6) acquire greater precision when the coping strategies of farmers- trying to maximize their profits whilst contending with legal/administrative constraints- are examined in detail. Trevisani's work in the Khorezm region of Uzbekistan charts the emergence of a new class of farmers as a result of the expansion of private farming, which he qualifies as "decollectivization" rather than "privatization." Private farmers operate under a leasehold system that continues to tie them into the quota system for cotton deliveries and they continue to operate within the state-order system. However, the low profitability of cotton for farmers can be offset if matched with other, more lucrative crops such as rice. Therefore, the ability to transact favourable usufruct deals with respect to soil quality and the proportion of land allocated to more advantageous crops is a crucial determinant of profitability. However, the expansion of the private farming sector has been achieved at the expense of small-holders, exacerbating inequality in land distribution and excluding the majority of the rural population from access to farmland. In the district of Yangibozor large *fermers* are agricultural notables with high-ranking administrative positions, former managerial cadres of the *shirkat* or urban newcomers interested in investing their capital in agriculture. The decisive asset of these big *fermers* is that they can utilize their connections or "bureaucratic capital" to transact good terms for their leasing agreements. Therefore, the opportunities and costs of decollectivization are very unequally distributed and lead to new forms of rural stratification. The processes of rural out-migration, analysed by Dosybiev in Chapter 9, are fuelled by the growth of a surplus rural population aggravated by changing stratification and inequalities in access to land identified by this study.

Jozan, Florent, Martin, Munos and Panarin discuss, in Chapter 11, the findings of a rural survey carried out in the provinces of Ferghana, Andijan and Namangan between 2003–2005 where they examined both the formal and informal dimensions of agriculture and land tenure in Uzbekistan. They highlight the dual nature of agriculture, involving both administered production systems (*shirkats* and independent *fermers*) which are tied into the state procurement

system, and non-administered production systems (orchards and small holdings, which account for 5 per cent and 25 per cent of land tenure respectively) which leave producers free to select their activities and market their crops. Access to land in order to grow a "second crop" – either after the wheat harvest or on other land – is crucial to household welfare. The levels of profit of the smallholding sector are quite variable depending on their activities (crops cultivation, horticulture and animal husbandry) and available labour force. Specialised agriculture involving greenhouse production, for instance, can yield good profits even on small plots. The two systems – administered and non-administered – are dependent on one another and the gradual shift from collective to private production is influencing their balance, as also noted in Trevisani's account of Khorezm. The "second crop" economy is very important because it also serves to absorb surplus household labour. In those cases where collectives were dismantled with few local alternatives a large unemployed excess population had to seek livelihoods through labour migration.

Given that the move from a system of *shirkat* farms to a system of private farmers has not led to the desired improvement in physical and financial performance of the agricultural sector in Uzbekistan, the state has encouraged the development of rural business advisory centres (RBAC) to assist farmers in adapting to new conditions of production. Houseman presents the case of Ak Altin RBAC as a case study in Chapter 12. In Ak Altin the closure of the *shirkats* led to the formation of around 90 new private farms with an average irrigated land area of about 40 ha. The RBAC was part of a US$7 million project funded jointly by the Government of Uzbekistan and the Asian Development Bank (ADB). Houseman notes that attempts to assist farmers through extension services and demonstration plots notwithstanding, overall conditions were such that the interests of farmers were often in conflict with those of the state. Despite the adoption of resolution 153 regarding extra payments for over-quota production, intended to stimulate higher yields, the farmers still remain restricted in their choice of marketing outlets and continue to experience low and delayed payments.

Patterns of agricultural labour have also been significantly affected by processes of enterprise restructuring and land tenure reform. The "feminization" of the cotton sector – especially in labour intensive operations of cotton picking and weeding-and the use of child labour are not new. However, as Halimova points out, in Chapter 13, in the case of Tajikistan these trends have become intensified due to new patterns of out-migration. A major part of the male labour force are immigrants, at about 620,000, according to the International Office on Migration (IOM). As a result, about 90 per cent of the agricultural labour force is female. At the same time, out of 7173 private farms in Khatlon Oblast, women head only 240 or four per cent. In Sugd Oblast, the respective figures are 239 or five per cent. Similar trends were apparent in Uzbekistan where pressures

on women's labour time appear to have multiplied. Women-and their children-work as unpaid family labourers on household plots, at the cotton harvest as members of *shirkat* and as casual workers (*mardikor*) on the plots of private farmers. Women are marginalized in the allocation of farmland and the number who manage their own farms is low (figures are often inflated by independent farmers who hold administrative posts and register their wives as proxies).[6]

In Tajikistan, despite the fact that cotton and aluminum are the country's two main exports and account for 70 per cent of GDP and over 70 per cent of total export earnings, studies indicate a link between cotton and poverty. The poverty rate is 78 per cent and 64 per cent in cotton cultivating Khatlon and Sugd compared to 49 per cent and 45 per cent in Dushanbe and the Districts of Republican Subordination (to the east of Dushanbe) respectively. What partly contributes to this state of affairs is high levels of indebtedness in the farming sector. The impoverishment of this sector also has environmental consequences. Cotton as a monoculture without adequate crop rotation has resulted in soil degradation which has affected about 97.9 per cent of the territory of the republic. Annually, about 50 thousand hectares of cultivated land are exposed to various degrees of desertification. The current inadequate functioning of irrigation and drainage systems also results in soil salinization and water logging. Despite all these problems Tajikistan cannot convert its economy away from cotton in the foreseeable future since it provides a stable source of foreign currency.

One of the negative social consequences of the search for cheap labour in cotton production has been the widespread use of child labour. In Chapter 14, Cannell reviews information published by various organizations and evidence collected during interviews conducted by the Environmental Justice Foundation (EJF) in October 2004 to evaluate the effects of the mass mobilization of children for cotton harvests in Uzbekistan. According to UNICEF 22.6 per cent of 5–14 year olds (or 1.4 million children) are annually sent to cotton fields at the expense of their education and personal development. Although Uzbekistan is a signatory to the UN Convention on the Rights of the Child, and denies the use of child labour, there is an institutionalized system of yearly mobilization of school-age children. Children are often housed in badly equipped barracks during the harvest season, with inadequate sanitation and poor nutrition and are generally underpaid. The payments they receive are further depreciated by the fact that many children are expected to defray the costs of the food supplies they consume. Children may also be vulnerable to health risks due to exposure to hazardous chemicals, unsafe water supplies and inadequate clothing. The policy challenge of ensuring compliance with international standards for child protection must be evaluated in the context of reform and regeneration of this sector as a whole.

It is difficult to envisage a unified framework for comprehensive reform in the cotton sector in Central Asia since the paths adopted by individual countries

present different types of policy dilemma. Although the agrarian reform package of international donor and lending agencies has revolved around a common agenda (namely macroeconomic stability, privatization, secure and tradable property rights and market-determined exchange and interest rates), the modalities of application of these reforms have varied a great deal. These variations reflect both the relative importance of this sector as a source of national revenue and the extent to which national and regional elites have utilized cotton revenues as a source of rent.

In Kazakhstan, where the oil and gas sector has been the major focus of corporate investment and source of elite rents, the elimination of state control in the cotton sector has proceeded speedily, setting the scene for increased growth and competition for market advantage among diverse players in the cotton sector. In Kyrgyzstan, a relatively small player in terms of output where cotton cultivation is concentrated in the south, rapid liberalization has resulted in unfavourable credit terms for cultivators that might prejudice long-term productivity. In Uzbekistan, the major exporter of cotton in the region, the attempt to preserve the state procurement system has, in combination with transformations in the structure of farming enterprises, exacerbated inequalities in access to land, entrenched a stagnant system of cotton production that relies heavily on law enforcement rather than on economic incentives and aggravated rural unemployment, stimulating the growth of labour migration. Micro-level studies suggest that continued reliance on command/administrative methods of resource allocation paradoxically creates conditions that further erode the growth potential of the cotton economy. Local notables involved in independent farming, for instance, convert their connections and political capital into achieving more profitable crop mixes. If profitability becomes contingent upon the evasion of state delivery requirements, the main instruments of securing compliance remain surveillance and coercion. This introduces high social and economic costs that also have serious implications in terms of governance. Breaking this vicious cycle requires a fundamental rethinking of existing policy tools and priorities along the lines suggested by many contributors to this volume. Finally, despite the positive contributions of workers' remittances to household welfare, new patterns of labour mobility out of impoverished rural economies, such as those of Tajikistan and Uzbekistan, pose problems such as the continuing feminization of agricultural labour, continued reliance on child labour and the lack of protection of migrants' labour and human rights.

The agrarian reform packages promoted by the International Financial Institutions (IFIs) appear to have had a relatively negligible impact on the political dynamics of elite interests in the cotton sectors of Central Asian countries. However, even partial compliance with conditionalities, such as privatization of access to land has, as we saw in the case of the independent farming sector in

Uzbekistan, produced a reconfiguration of interests giving rise to a new dynamics with unpredictable consequences. The absence of organized constituencies representing the rights and interests of those who stand to lose most from these transformations – such as illegal migrants, casual workers, smallholders squeezed as a result of enterprise restructuring, ecological "refugees" from depleted agricultural areas and women and child labourers – mean that the human costs of transition are likely to remain high. This calls for greater public awareness, more contextually-sensitive policy interventions, greater vigilance regarding the governance contexts and consequences of policies and continuing international advocacy for the protection of the rights of the most vulnerable.

Notes

1 See Richard Pomfret, *The Central Asian Economies since Independence*, New Jersey, Princeton University Press, 2006; Gregory Gleason, *Markets and Politics in Central Asia: Structural Reform and Political Change,* London and New York, Routledge, 2003.

2 Azizur Rahman Khan, "The Transition to a Market Economy in Agriculture," in Keith Griffin (ed.), *Social Policy and Economic Transformation in Uzbekistan,* International Labour Office, Geneva and United Nations Development Programme, New York, 1996.

3 J. Michael Thurman, "The 'Command-Administrative' System in Cotton Farming in Uzbekistan 1920s to Present", *Indiana University Papers on Inner Asia*, No. 32, Bloomington, Indiana University, 1999; Gregory Gleason, "The Political Economy of Dependency under Socialism: The Asian Republics in the USSR," *Studies in Comparative Communism*, 24 (4), 1991, pp. 335–53; Max Spoor "Transition to Market Economies in Former Soviet Central Asia: Dependency, Cotton and Water," *The European Journal of Development Research*, 5 (2), 1993, pp. 142–58; Alisher Ilkhamov, "The Limits of Centralization: Regional Challenges in Uzbekistan" in Pauline Jones Luong (ed.), *The Transformation of Central Asia: State and Societies from Soviet Rule to Independence,* Ithaca, New York, Cornell University Press, 2004.

4 See International Crisis Group (ICG), "The Curse of Cotton: Central Asia's Destructive Monoculture," *Asia Report* No. 9, 8 February 2000, Brussels.

5 Uzbekistan has started entering into bi-lateral agreements concerning the status of migrants in neighbouring countries, whilst attempting to tighten its own emigration regime by imposing registration requirements on citizens seeking employment abroad. See decree of 29 May 2007 "On registration of citizens seeking employment abroad."

6 Deniz Kandiyoti, *Agrarian Reform, Gender and Land Rights in Uzbekistan* , Geneva, UNRISD, 2002; "The Cry for Land: Agrarian Reform, Gender and Land Rights in Uzbekistan," *Journal of Agrarian Change* , 3 (1–2), 2003, pp. 225–56.

1

A Caste of Helot Labourers: Special Settlers and the Cultivation of Cotton in Soviet Central Asia: 1944–1956

J. Otto Pohl

Soviet-directed economic development in Central Asia focused on the cultivation of cotton to meet the needs of the entire Soviet Union. Cotton became the most important crop in southern Kazakhstan, Uzbekistan and Tajikistan during the Soviet era. It dominated the political economy of the region. Cotton cultivation took precedence over all other economic activities in this region. Not since the defeat of the Confederate States of America had any other region in the world been so dependent upon cotton.

The harvesting of cotton has always been dirty and arduous work. Thus the owners of cotton farms have often resorted to forced labour to perform this work. In the American South, chattel slaves descended from people forcibly transported to the US from Africa harvested most cotton. On a smaller scale the Soviet state also used forced labourers to cultivate cotton fields in Central Asia. During the 1930s, the Stalin regime assigned tens of thousands of prisoners to work on cotton plantations. The Sazlag complex of corrective labour camps in Chirchik Uzbekistan guarded 20,100 prisoners working on cotton fields by October 1934.[1] A decade later, the Stalin regime greatly expanded the number of forced labourers toiling on the cotton farms of Central Asia.

In the 1940s, the Stalin regime engaged in the mass forced relocation of people from western to eastern regions of the USSR. From 1941 to 1948, the Soviet security organs deported a recorded total of 3,266,340 individuals from their homes in western parts of the USSR to the Urals, Siberia, Kazakhstan and Central Asia.[2] The Soviet government also sent another 132,851 people to these regions of exile after discharging them from the military, releasing them from prisons and labour camps and capturing them in mop up operations. The bulk of these exiles came from eight nationalities deported in their entirety from 1941 to 1944. In a series of militarized operations the People's Commissariat for Internal Affairs (NKVD) forcibly removed a combined total of 2,303,279 Russian-Germans, Karachais, Kalmyks, Chechens, Ingush, Balkars, Crimean Tatars and

Meskhetian Turks from their homelands to areas of banishment east of the Urals.[3] The Soviet government classified these men, women and children as special settlers and placed them under harsh legal restrictions and police surveillance. Most notably the NKVD confined them to specific locations and types of work. After 1943, many of these deportees ended up in cotton growing regions of the USSR. By October 1945, Uzbekistan had 181,800 such exiles.[4] The local authorities employed many of these special settlers on cotton kolkhozes and sovkhozes. The deportees had no choice in this matter. The Soviet state legally obligated them to perform this labour or face criminal penalties.

The Stalin regime sought to accomplish several goals through the mass deportation of nationalities. First and foremost, it sought to permanently remove these people from their historical homelands and neutralize them as possible autonomist or even secessionist threats. Second, it sought to punish these people collectively for previous resistance to Soviet and Russian policies. Finally, it sought to use the deportees as a caste of helot labourers to provide a captive workforce to develop the economy of Kazakhstan, Central Asia, Siberia and other remote areas of the USSR. To these ends it imposed a special legal status upon the exiles aimed at excluding them from mainstream Soviet society while at the same time integrating them into the local economy as a source of menial labour.

Cotton cultivation in Soviet Central Asia during the 1940s remained unhealthy work. The cotton growing regions of the USSR suffered a major malaria epidemic during the mid-1940s. The Soviet medical system had no extra stores of anti-malarial drugs to administer to the hundreds of thousands of deportees that arrived in the region from 1943 to 1946. As a result tens of thousands of special settlers perished from this agonizing disease. The cotton pollen and dust of the region caused numerous respiratory, eye and skin ailments among the newly arriving deportees. Rudolf Futterer recalls this aspect of his adolescence as a special settler in Tajikistan where his mother worked as a nurse:

> When the cotton plants blossomed the entire area was clouded over with dust and pollen. That caused severe allergic reactions among many people. In addition, the pollen and blowing dust caused serious eye problems, especially among children … My mother often had to cleanse children's encrusted eyes. The oppressive heat, the brutal sunlight, and the perpetual fine dust of the streets resulted in cataracts and trachoma, which had to be excised … Mother had to treat wounded knees which often showed signs of serious sepsis, ulcers, running sores, and many other ailments.[5]

Severe shortages of medical personnel and drugs greatly exacerbated these health problems among the national deportees under special settlement restrictions working on cotton kolkhozes and sovkhozes.

Origins of the Special Settlement Regime

The Stalin regime developed a special administration run by the NKVD with its own set of laws to rule over the special settlers. The system of special settlements had originated in the mass uprooting of peasants branded as *kulaks* during 1930-1931. During these years the predecessor to the NKVD, the Unified State Political Administration (OGPU) exiled 1,803,392 people to isolated settlements in the Far North and Urals.[6] These villages came under the control of the OGPU, which established a series of special commandants to administer the exile population.[7] The special settlers could not leave their assigned villages without special permission from these commandants. The OGPU and later NKVD employed this captive labour force in agriculture, forestry and industry. Frequently, they leased out the exiles to other commissariats for these purposes. The legal status of the special settlers resembled that of state serfs.[8] The special settlement regime imposed by the Soviet government on the national deportees of the 1940s built upon the administrative infrastructure created in the 1930s to deal with exiled *kulaks*.

Special commandants of the NKVD enforced a special set of legal restrictions upon the nationalities deported as special settlers. By virtue of their birth into national categories defined purely by biological descent, virtually every member of these stigmatized nationalities suffered under this discriminatory system. The Stalin regime made no exemptions for political loyalty, sending even Communist Party members, military veterans and NKVD workers into exile.[9] Children born to special settlers automatically inherited the status of their parents and had to be registered as such with the local NKVD special commandant.[10] Like the *kulaks* exiled in the 1930s the special settlers deported because of their nationality could not voluntarily leave their assigned residence without explicit permission from their local NKVD commandant. They became wards of the NKVD subject to a legal and administrative system separate from other Soviet citizens and enjoyed far fewer rights.

The Development of the Special Settlement Regime

The codification of the special settlement regime developed in stages over the course of several national deportations. Already on 28 August 1941, Beria issued *Prikaz* 00160 "On Organizing the Special Settlement Section of the NKVD USSR," in order to deal with the Volga Germans ordered deported on the same day.[11] This decree made preventing the deportees from escaping their assigned areas of exile the primary task of the special settlement section of the NKVD. The next restructuring of the special settler administration took place in December 1943 in relation to the deportation of the Kalmyks to Siberia. On 22 December 1943, the NKVD significantly increased the staff of the special commandants responsible for the Russian-German special settlers in Siberia in preparation for

the influx of 92,983 Kalmyks.[12] Not until the mass deportation of the Muslim nationalities from the Caucasus and Crimea during 1944, however, did the Soviet government reform the administration of the special settlements and the specific duties of the special commandants. The flood of nearly another million deportees into Kazakhstan and Central Asia made this task imperative.

During the course of 1944, the Stalin regime issued a whole series of decrees to deal with the multiple waves of national deportees condemned to special settler status. The first one came on 7 February 1944 when the NKVD issued *Prikaz* 00127 "On Introducing Effective Regulations for Raion and Special Commandants of the NKVD."[13] This order enumerated the basic responsibilities of the special commandants and specified the mobility restrictions placed upon the special settlers. Special commandants received the following assigned duties from this decree: preventing escapes by special settlers, searching for escaped special settlers and rooting out anti-Soviet and criminal elements among the special settlers. Special settlers could not leave their assigned settlements without special permission from the local commandants. This permission took the form of special passes good for specified days and itineraries of travel. They required an NKVD stamp and signature both from the deportee's local commandant and an officer at the specified destination.[14] Criminal penalties applied to those special settlers absent for longer than a day without NKVD approval. Other decrees soon followed to create a complex legal infrastructure controlling the lives of the special settlers.

The NKVD followed up these basic instructions with a decree on issuing passports to special settlers. Promulgated on 26 February 1944 this *prikaz* mandated that any internal passports issued to special settlers have a specific notation restricting their residency to a single assigned raion.[15] The vast majority of special settlers, however, lived and worked on kolkhozes and like other kolkhoz workers did not receive passports. Only the small minority of special settlers in cities and those with special requests from the office of their local NKVD special commandant could apply for internal passports. Urban free citizens with internal passports could travel and live in most regions of the USSR. The version issued to special settlers differed considerably. It restricted their movement and residency on the basis of being a deported nationality.

Special settler passports clearly marked the deported nationalities as being legally inferior to other Soviet citizens. They contained a great deal of information emphasizing this point.[16] Among other information these documents specified the decree ordering the individual's deportation, his assigned location down to the specific raion and the date of his exile. These restricted passports thus identified the bearers as members of suspect and stigmatized groups as well as limited their freedom of movement and residency.

The Soviet government also issued special regulations governing the use of

special settlers as a labour force. On 8 March 1944, the regime issued the "Regulations on Economic and Labour Arrangements of Special Settlers –Kalmyks, Karachais, Chechens, Ingush, Balkars and Germans established by Gulag NKVD USSR."[17] These regulations required the NKVD to divide the special settlers into socially dangerous and socially safe groups before assigning them to work in various kolkhozes, sovkhozes, industrial enterprises and handicraft artels. The Stalin regime sought to exclude those deemed socially dangerous from working in industries related to the defense of the USSR. Socially dangerous special settlers included all those that had served in German organized police units, village councils or military units. The regulations obligated the NKVD to keep this group under strict surveillance. They could only live and work in their assigned raion of resettlement and needed permission from their local commandant to change work assignments. They also could only be used for general physical labour even if they had specialized skills. The Stalin regime condemned this group of people to the lowest rung of Soviet society outside the inmates of prisons, corrective labour camps and corrective labour colonies.

In contrast those deemed socially safe could be assigned work matching their educational, professional and skill profiles. To facilitate the best use of these workers the regulations suggested that these special settlers be allowed a degree of independence in picking work assignments. They recommended that these workers be allowed with NKVD permission to independently arrange their employment with collective, co-operative or state enterprises existing in their assigned oblast or krai. These regulations ironically undercut the entire rationale for the deportation of entire nationalities. If it was possible to separate the socially dangerous elements from the rest of the population then there was no need to deport these nationalities in their entirety.

After the Balkars had been deported in March 1944, the Stalin regime viewed the existing special settler administration as inadequate. On 17 March 1944, it reorganized the section of the NKVD responsible for the deportees.[18] This reform aimed to ensure that the NKVD could fulfill its obligation of administrating the special settlement regime. This task entailed overseeing the housing and labour arrangements of special settlers, maintaining them under surveillance in order to neutralize any subversive or criminal elements among them and keeping proper statistical reports on them. The existing infrastructure and manpower devoted to these tasks remained insufficient.

The March 1944 reforms expanded the number of special commandant offices in Kazakhstan and Central Asia. By 20 July 1944, Kazakhstan had 488 such offices, Uzbekistan 95 and Kyrgyzstan 96.[19] Each of these offices had an NKVD commandant and five to seven NKVD internal troops. These commandants often each had responsibility for thousands of special setters. The special settler population of Kazakhstan had reached 930,000 by this time, Uzbekistan

160,000 and Kyrgyzstan 131,000. To keep this population under surveillance the NKVD organized several networks of informants among the special settlers and the surrounding local population. Among the special settlers, the NKVD selected a representative from every ten households to report to the local commandant every ten days.[20] These representatives received the title *deisiatidvornik* (tenth householder). In return for their co-operation these representatives received extra travel permits, food rations and other goods. Their efficiency as informers to the special commandants, however, varied. Some provided little or no useable information while others proved to be valuable intelligence assets to the NKVD.[21] These men served as only one of the instruments used by the NKVD special commandants to maintain discipline over the special settlers and prevent them from escaping.

In addition to this overt surveillance, the NKVD also organized clandestine informant networks among the special settlers. They had recruited 19,096 informants, 378 agents and 245 agent residents out of 2,225,000 special settlers as of 1 July 1944.[22] The Russian-Germans, Karachais, Kalmyks, Chechens, Ingush, Balkars and Crimean Tatars constituted 1,514,000 of these exiles. Finally, the NKVD established anti-escape networks among the local native populations of Kazakhstan and Central Asia to report on the flight of special settlers. Kazakhstan alone had 3,265 such networks with 15,966 participants by 20 July 1944. This surveillance led to the capture and return of 1,173 out of 2,076 escaped special settlers from 17 March to 1 June 1944. The NKVD kept the special settlers under constant watch both openly and covertly.

The NKVD also established an elaborate system of identification documents and statistical records for the special settlers. New instructions on the counting and registering of special settlers came from the NKVD leadership on 16 August 1944.[23] These instructions issued new identification cards to those under special settlement restrictions and required them to register regularly with their local special commandant. The head of each family received a passbook with information on his entire family. Each special settler over 16 also received a new individual identification card marking their inferior legal status. Finally, a third document contained information on all children under 16 in each family. These personnel files formed the basis of the numerous statistics and other information compiled by the NKVD on the special settlers. The NKVD used this information to control the movement and labour of the deportees.

In order to keep this data current, the NKVD required each special settler over 16 to report and register regularly with his local special commandant. Each month the special settlers had to present themselves before their local commandant for this purpose.[24] Here the commandants interrogated them and added any new data gathered into the NKVD Special Settlement Section's already voluminous files. Often the commandants verbally abused and humiliated the deportees. They fol-

lowed many of the same procedures including photography and fingerprinting used by police in questioning and booking criminal suspects.[25] This process collected information vital for running the system, further regimented the special settlers and reinforced their stigmatized status as treasonous nationalities.

In 1945, the Soviet government finally took the step of consolidating the ad hoc decrees that ruled the life of the special settlers. Unbelievably, prior to this time the regulations on administering the special settlers remained a chaotic collection of various decrees issued piecemeal.[26] The Stalin regime codified the legal restrictions on the special settlers and the legal authority of the special commandants in two decrees. The Council of People's Commissariats (SNK) passed both pieces of legislation on 8 January 1945. One decree defined the legal status of special settlers and the other the special commandants. Together they formed the main legal pillars governing the special settlement regime.

"On the Legal Status of Special Settlers," defined the legal regulations pertaining to special settlers. This decree imposed three main restrictions upon the special settlers that distinguished them from other citizens of the USSR.[27] First, they could not leave their assigned settlements without special permission from the local special commandant. Leaving the confines of one's assigned settlement carried a sentence of up to eight years imprisonment. Next, the head of each special settler household had to report all births, deaths, escapes and other changes in the composition of his family to the commandant within three days. Finally, the decree required the special settlers to obey all orders given by the special commandant. The special authority of the special commandants over the special settlers and their restricted mobility gave the deportees distinct legal disabilities that separated them from other Soviet citizens.

The decree defining the legal status of the special commandants succinctly set forth their obligations and powers. The SNK entrusted them to count, watch, confine, police, house and productively utilize the special settlers as a captive labour force.[28] The special commandants had the power to issue the temporary passes needed by special settlers to travel even short distances. They also could punish minor infractions of the established social order by the special settlers with up to five days incarceration or a fine up to 100 rubles. More serious violations came under the review of special NKVD tribunals. These boards formed part of the separate legal and administrative system established for special settlers. They tried all cases of escapes, suspected political opposition and violent breeches in the security and order of the special settlement regime.[29] The NKVD commandants and tribunals rather than the civilian commissariats of the Soviet government controlled the affairs of the special settlers.

The Soviet government strengthened the special settlement regime again in November 1948 due to the growing problems of poor labour discipline and escapes. Refusals to work and escapes persisted despite the incarceration of 68,322,

over three percent, of all special settlers in labour camps by October 1948 as a result of trials by special boards of the NKVD and MVD.[30] In contrast the total labor camp population of the USSR on 1 January 1949 only reached 1,216,361, considerably less than one percent of the population.[31] A total of 77,541 special settlers had escaped by 1 October 1948 according to MVD records.[32] The Soviet security organs had only been able to track down 20,955 of these fugitives. In typical Stalinist fashion, the regime again decreed stricter laws to govern the administration of the special settlers.

To combat these problems the Stalin regime issued two decrees establishing harsher punishments for refusal to carry out work assignments and attempting to escape. On 24 November 1948, the Council of Ministers classified refusal to carry out work assignments as a particularly serious crime and thus under the jurisdiction of the special MVD tribunals that tried escapes and political crimes.[33] The new sentence for this crime was eight years in a labour camp. The Presidium of the Supreme Soviet followed suit to combat escapes on 26 November 1948. This body issued a decree proclaiming the exile of the deported nationalities and their descendents to be "for eternity."[34] This decree also established a 20-year sentence of hard labour for special settlers attempting to escape and five years for any free citizens caught helping such fugitives. The Stalin regime reinforced its intentions to permanently confine the deported nationalities to restricted areas in remote regions of the USSR in 1948. The sentence of exile for belonging to the wrong nationality had now been extended to forever.

These measures greatly reduced escapes during the following year. The number of escapes decreased by a factor of 4.5 between 1948 and 1949.[35] During 1949, the MVD arrested and detained 1,430 out of 1,675 escaped special settlers. Special boards of the MVD tried and sentenced to 20 years of hard labour a total of 1,932 special settlers for escapes and attempted escapes. By 1 January 1950, the administrative structure of the special settlement regime consisted of 3,069 special commandants. They supervised a total of 2,572,829 special settlers including 2,102,174 members of permanently deported nationalities. Despite the huge ratio of deportees to NKVD commandants, the special settlement regime greatly reduced escapes and effectively confined these exiles to restricted villages and towns. This vast punitive system existed intact until July 1954, a year after the death of Stalin.

Karachais

The Karachais deported on 2 November 1943 became the first special settlers assigned to cultivate cotton in Central Asia. In a single day the Stalin regime forcibly removed 68,938 Karachais from their homeland in the Karachai Autonomous Oblast and another 329 from Stavropol' (Ordzhonikidze) Krai.[36] The NKVD exiled most of the Karachais to the southern cotton growing regions of

Kazakhstan. By 26 January 1944, they had settled 25,216 (6,643 families) in South Kazakhstan Oblast and 20,285 (5,699 families) in Jambul Oblast.[37] A total of 5,143 families became further separated during this resettlement in addition to the large number already deprived of men serving in the Red Army. Soviet military ranks contained a total of 7,335 Karachai men at the start of the deportation.[38] In many of the deported families only elderly and invalided men had avoided conscription into the army leaving them with no able-bodied adult male workers or protectors. The NKVD placed the Karachais in Kazakhstan under the control of 24 special commandant offices, 13 in South Kazakhstan Oblast and 11 in Jambul Oblast.[39] The food situation in these two oblasts soon turned desperate for the Karachais. Already in December 1943, the NKVD reported severe food shortage among the Karachai deportees.[40] Near famine conditions prevailed for many of the Karachai special settlers in parts of South Kazakhstan Oblast. Here the Stalin regime employed many of them on cotton farms.

A number of the Karachai special settlers exiled to South Kazakhstan Oblast ended up in the region of Pakhta-Aral or "Hungry Steppe' region in the Kyzyl Kum Desert.[41] Here the Stalin regime employed them on the Pakhta-Aral sovkhoz and surrounding kolkhozes dedicated to growing cotton. The material conditions of the Pakhta-Aral region proved to be deadly to the newly arrived Karachai special settlers. The NKVD forced them to work on the Pakhta-Aral sovkhoz and the nearby cotton kolkhozes long hours with almost no compensation. One Karachai survivor of Pakhta-Aral, Fatima Botasheva has described her experience as a special settler in this region in the following stark terms.

> The Karachai were distributed over the various regions of Kazakhstan and Kirghizia. They were brought to the various kolkhozes and sovkhozes, with absolutely nothing: without bed, food, utensils or a single penny. They were forced to work on the kolkhoz from dawn to dusk, and weren't given even a single gram of bread, a single penny in wages…Then the starvation began: people withered away to skeletons, and began to fall.[42]

Deportation to the barren region of Pakhta-Aral proved to be a death sentence for many of the Karachais assigned to work on cotton kolkhozes. The Stalin regime used them as a source of uncompensated forced labour until they died from a lack of nourishment.

Conditions on the Pakhta-Aral and other sovkhozes were slightly better than those on the kolkhozes surrounding it. Special settlers that worked on sovkhozes received 200 to 300 grams of bread a day.[43] On the kolkhozes they received no pay and often no food.[44] This lack of food forced the Karachais to barter away their meager possessions for bits of food.[45] Others bribed the NKVD commandants with valuables brought from the Caucasus to allow them to leave the Pak-

hta-Aral region for more hospitable environments.[46] Others received the good fortune to be transferred to sovkhozes and industrial enterprises where better conditions prevailed.[47] Despite these measures, hunger and malnutrition took a heavy toll among the Karachai special settlers on these cotton farms and thousands perished in the first years of exile. Botasheva recalls that her fellow Karachais died in droves in the Pakhta-Aral region working on cotton farms.

> Entire families perished together. The death rate was so high, that there wasn't enough time to bury the dead. The mortality rate was exceptionally high in the southern-Kazakhstan region, on kolkhozes in the areas surrounding the sovkhoz "Pakhta-Aral," and in the "3rd Tugai' area for that region. Here, around 80% of the population perished.[48]

According to one demographer in the decade following the deportations, the Karachais suffered over 13,000 excess deaths, 19 per cent of their population in November 1943.[49] The famine like conditions at Pakhta-Aral accounted for a large part of these fatalities.

Chechens, Ingush and Balkars

The NKVD deported almost all of the Chechens, Ingush and Balkars during February and March 1944 from their Caucasian homelands to special settlements in northern Kazakhstan and Kygyzstan. Between 23 and 29 February 1944, the NKVD loaded 387,229 Chechens and 91,250 Ingush onto 180 train echelons bound towards these areas of exile.[50] On 11 March 1944, Beria reported to Stalin that the NKVD had rounded up 37,103 Balkars in the Karbardino-Balkar ASSR during 8-9 March and placed them on trains headed towards Kazakhstan and Kyrgyzstan.[51] These deportees remained considerably north of the cotton belt. Instead the Soviet government assigned these exiles mostly to kolkhozes dedicated to grain and livestock. Often material conditions on these farms were only a little better than those on the cotton kolkhozes at Pakhta-Aral. The special settlers in these regions also died in droves. Typhus in particular ravaged the North Caucasian special settlers in northern Kazakhstan and Kyrgyzstan. Yet, the presence of food crops and animals with milk in these regions did slightly ease the severe food shortages suffered by the deportees. The exiles could at least occasionally steal a handful of grain or a few vegetables, perhaps even some milk from their place at work. This option did not exist in the cotton fields of Pakhta-Aral.

Crimean Tatars

The next group of special settlers assigned to work on cotton farms in Kazakhstan and Central Asia came from the Crimean Tatars. The Stalin regime deported

the majority of the Crimean Tatars to Uzbekistan. During 18–20 May 1944, the NKVD deported 188,626 Crimean Tatars to special settlements in eastern regions of the USSR.[52] A total of 151,424 Crimean Tatar deportees arrived alive in Uzbekistan by 1 July 1944.[53] Most of the other Crimean Tatars expelled from their homeland either ended up in the Urals or died on the way to their destinations from dehydration, disease or malnutrition in the overcrowded train echelons. Upon arriving in Uzbekistan the local authorities assigned a number of Crimean Tatars to work on cotton kolkhozes and sovkhozes. Here they encountered conditions reminiscent of those experienced by the Karachai special settlers working on cotton farms in southern Kazakhstan.

The Uzbek leadership had originally planned to employ most of the Crimean Tatars in the agricultural sector of the economy. On 20 May 1944, they submitted a plan to the central authorities assigning 154,100 incoming Crimean Tatar special settlers to 350 separate settlements.[54] The plan called for settling 94,500 (61 per cent) of the deportees to kolkhozes, 36,300 to sovkhozes (24 per cent) and only 23,300 (15 per cent) to industrial zones. This plan, however, quickly became abandoned. Severe food shortages awaited the Crimean Tatars on the farms of Uzbekistan. The Crimean Tatar exiles found themselves forced to take work in the factories, mines and construction sites of Uzbekistan in order to survive.

Private garden plots assigned to families to grow food for their own consumption represented a vital source of food for kolkhoz workers in the USSR during the 1940s. Absent the vegetables grown on these small patches of land, most of the rural population of the Soviet Union would have perished from hunger during this decade. The local authorities did not provide the Crimean Tatar deportees assigned to kolkhozes in Uzbekistan with individual family plots in a timely manner. The majority of Crimean Tatar exiles living on kolkhozes had no kitchen gardens for the first several months of their exile. Four months after the deportations less than half of the Crimean Tatars on kolkhozes in Uzbekistan had received private plots of land. On 15 August 1944, only 18,180 out of 38,168 (47.6 per cent) Crimean Tatar families had access to these individual gardens.[55] A year later 12 per cent of Crimean Tatars, 4,310 people, living on Uzbek kolkhozes still lacked private plots.[56] Deprived of this important source of food, many Crimean Tatars perished from malnutrition related causes. NKVD records show 26,775 deaths, a full 17.8 per cent of the population, among the Crimean Tatar special settlers in Uzbekistan from May 1944 to 1 January 1946.[57] This situation caused a mass migration of Crimean Tatar special settlers to industrial settlements. Here they took jobs as miners, builders and factory workers in exchange for meager wages. These small wages, however, could purchase a subsistence level of nutrition for most of the deportees.

The percentage of Crimean Tatars living on kolkhozes rapidly dropped as an

increasing numbers took employment outside the agricultural sector. On 1 July 1944, the number of Crimean Tatars living in industrial zones in Uzbekistan had reached 42,676 (28 per cent) compared to 78,754 (52 per cent) on kolkhozes and 29,474 (23 per cent) on sovkhozes.[58] By 1 July 1948, only 39,704 (30 per cent) Crimean Tatars in the Soviet Union as a whole worked in agriculture.[59] The majority of Crimean Tatars in Uzbekistan worked in mining, construction and the manufacture of textiles and silks. Nevertheless, the Stalin regime employed a significant minority of Crimean Tatars in the cultivation of cotton. These men and women numbered in the thousands and toiled under wretched conditions. In particular, Crimean Tatar cotton farmers worked on large sovkhozes such as Narpay.

Material conditions for the Crimean Tatars assigned to work on the Narpay cotton sovkhoz in Bukhara Oblast resembled those endured by the Karacahis on the Pakhta-Aral sovkhoz. The sovkhoz had ceased paying its workers salaries already in April 1944 before the arrival of the Crimean Tatar exiles. This state of affairs continued after the arrival of the deportees and none of the farm's 4,095 Crimean Tatar workers received any compensation during May and June 1944.[60] Tropical illnesses took a heavy toll among the Crimean Tatars assigned to Narpay. By 8 August 1944, NKVD reports confirmed 629 cases of malaria and gastro-intestinal disease among the farm's 4,047 Crimean Tatars and 126 deaths from these causes.[61] The persistence of extremely poor material conditions and high mortality rates on Narpay persuaded the NKVD leadership to take extraordinary measures in relationship to this sovkhoz. The provision of emergency food had proven insufficient to stem the severe loss of labour strength due to illness and death. Deputy Chief of the NKVD, Chernyshov ordered the head of the Uzbek NKVD, Babadzhinov to resettle 2,639 Crimean Tatars (329 families) from Narpay to work on a cotton sovkhoz in Tajikistan.[62] Much healthier conditions prevailed in neighboring Tajikistan. Here malaria was less prevalent and food more available for the special settlers. The unhealthy conditions for Crimean Tatars on Narpay reached the point where it seriously jeopardized the economic interests of the NKVD and other organs of the Soviet state.

The practice of transferring workers from Uzbekistan to cotton farms in Tajikistan resulted in the creation of a sizable Crimean Tatar population in the latter republic. On 30 September 1944 Uzbek authorities decided to again transfer Crimean Tatar special settlers to Tajikistan to prevent their death in Uzbekistan due to poor material conditions.[63] They resettled 1,159 Crimean Tatars working on the construction of the Farkhad hydro-electric power plant and their families for a total of 2,472 people to cotton kolkhozes in Tajikistan. By 1 January 1953, the number of Crimean Tatar special settlers living in Tajikistan had grown to 6,711.[64] The large number of Crimean Tatars cultivating cotton in Tajikistan originated with these two transfers from Uzbekistan.

Meskhetian Turks

After the Crimean Tatars the next wave of deportees to tend to the cotton farms of Central Asia came from Georgia. From 15 to 18 November and again from 25 and 28 November 1944, the NKVD deported a total of 94,955 Turks, Kurds and Hemshins from Meskheti-Javakheti and Ajaria to Kazakhstan, Uzbekistan and Kygryzstan.[65] Generally known as Meskhetian Turks or Ahiska Turks the Soviet government assigned almost all of them to agricultural labor. Initially, the authorities only settled 1,395 of the 92,307 (1.51 per cent) exiles surviving the journey to Kazakhstan and Central Asia in industrial towns.[66] The Meskhetian Turks remained predominantly rural throughout the 1940s and early 1950s. By 1949, the total population had shrunk to 81,026 due to deaths from malnutrition and disease of which the NKVD considered 36,748 still physically able to work. The actual number employed in work, however, numbered 42,294 of which only 2,758 (6.52 per cent) worked outside of agriculture.[67] By the time of Stalin's death in 1953, agricultural labourers still constituted 93.4 per cent of all those working.[68] Unlike the Crimean Tatars the Meskhetian Turks remained tied to their initial agricultural settlements on kolkhozes and sovkhozes and did not drift into industrial work. Instead they formed an important component of the agricultural economy of Central Asia.

The Stalin regime sent the majority of the Meskhetian Turk special settlers to Uzbekistan. A total of 53,163 deportees arrived alive in this republic from Georgia.[69] The local authorities assigned a large number of these exiles to work on cotton farms. On 1 August 1950, the NKVD reported that 13,360 or 31 per cent of Meskhetian Turks worked in the cultivation of cotton out of a total workforce of 43,042.[70] A very significant portion of the Meskhetian Turks in Uzbekistan thus worked on cotton farms. They became highly valued for their strong work ethic and high level of productivity throughout Kazakhstan and Central Asia.[71] Their labour made an important contribution to the region's cotton economy during the 1940s.

Russian-Germans

The last wave of special settlers sent to work in the cotton fields of Central Asia came from the Russian-Germans forcibly repatriated from formerly Nazi ruled areas to the USSR. The MVD (Ministry of Internal Affairs) recorded receiving a total of 203,796 repatriated Russian-Germans in 1945 and 1946, many of them forcibly returned to the USSR by American and British soldiers.[72] Those capable of physical heavy labor ended up in lumber, mining and factory work in the Urals, Siberia and Soviet Far East under special settlement restrictions. The regime settled the physically weaker remainder on cotton kolkhozes in Tajikistan.[73] This latter group included 854 Russian-Germans captured by the MVD in Lithuania. These repatriates formed the largest contingent of special settlers sent to

Tajikistan. They provided both physical and skilled labour on the remote cotton farms of Kurgan-Tyube far from Ukraine where most of them had been born.

The MVD deported the Russian-German repatriates from Germany to Stalinabad (Dushanbe) in the same freight wagons used to transport other contingents of exiles. Upon reaching the capitol, the MVD transferred them to other trains and moved them to Kurgan-Tyube. Here they waited for local kolkhoz officials to fetch them. While they waited, local thieves took advantage of their exhausted state to rob them. Rudolf Futterer was 16 years old when British forces turned him and his family in Hannover over to Soviet officials for deportation to Tajikistan. Their only crime was being born in Ukraine. He recalls being sent to a collective cotton farm in Kurgan-Tyube in the following manner.

> We waited at the train station of Kurgan-Tyube until late at night for the horse-drawn wagons from the kolkhoz that would take us to the assigned places of involuntary settlement. In the darkness, these dead-tired exiles were robbed of their few pathetic possessions.[74]

Tens of thousands of Russian-Germans forcibly returned to the USSR by American and British soldiers against their will experienced this same trauma.

During the late 1940s and early 1950s, the Russian-German population in Tajikistan grew due to secondary forced migration and births. Near the end of 1948, the Soviet government counted 18,184 Russian-German special settlers in Tajikistan.[75] They thus constituted well over half the 30,630 special settlers in Tajikistan at this time.[76] The Russian-German deportees consisted of 4,924 adult men, 7,319 women and 5,941 children younger than 16. A total of 12,170 worked of which the authorities judged only 11,207 to be physically fit for labour.[77] By 1 July 1950, Russian-Germans in Tajikistan numbered 20,028 (60.3 per cent) out of a total of 33,192 special settlers.[78] Finally, by 1 January 1953, Russian-Germans constituted 28,164 (60.7 per cent) out of the 46,392 special settlers in Tajikistan.[79] Most of these deportees lived on cotton kolkhozes.

Conclusion

The Soviet government gradually dismantled the special settlement regime from 1954 to 1956. On 5 July 1954, they released all children under 16 from the special settlement restrictions.[80] They also removed children 16 and over pursuing higher education from the special settlement register at this time. These releases reduced the special settler population by 875,795.[81] In late 1955 through mid 1956, the Soviet government lifted the special settlement disabilities from the vast majority of deportees, one national contingent at a time. First, they released the Russian-Germans on 13 December 1955.[82] During the next year they removed the Kalmyks from the special settlement restrictions on 17 March 1956,

the Crimean Tatars, Balkars and Meskhetian Turks on 28 April 1956 and finally the Chechens, Ingush and Karachais on 16 July 1956.[83] These nationalities now had a greater freedom to choose their place of residency and occupation within Siberia, Kazakhstan and Central Asia. They no longer formed a caste of forced labourers. On 24 November 1956, the Soviet leadership decided to restore the national territories of the Karachais, Kalmyks, Chechens, Ingush and Balkars and allow the exiles to return to their homelands.[84] Only the Russian-Germans, Crimean Tatars and Meskhetian Turks remained involuntarily confined to the eastern regions of the USSR. A number of them remained working on cotton farms in Uzbekistan and Tajikistan as ordinary kolkhoz and sovkhoz workers.

These reforms constituted one of the many moves towards a less repressive society implemented in the USSR during the years following Stalin's death on 5 March 1953. Forced labour ceased to play a significant role in the Soviet economy in the post-Stalin years. Native labour replaced many of the deportees working on the cotton kolkhozes and sovkhozes of Kazakhstan, Uzbekistan and Tajikistan. Only a long suppressed memory remained of the peculiar institution of the special settlement regime.

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2

Cotton-Dependent Countries in the Global Context

John Baffes

Cotton is an important cash crop to a number of developing countries at both household and national levels. It accounts for more than one-quarter of total merchandise exports in many low-income countries, especially in West Africa and Central Asia. Cotton's contribution to the GDP of these countries is considerable, reaching as much as 4.4 and 7.7 per cent in Uzbekistan and Tajikistan, respectively. Moreover, the per capita GDP in many "cotton-dependent" countries is well below US$500 (see Table 1).

The United Nations Food and Agriculture Organization (FAO) estimated that about 100 million rural households were involved in cotton production worldwide in 2001.[1] Among the countries in which cotton is an important contributor to rural livelihoods are China, India and Pakistan – where 45, 10 and 7 million rural households respectively were engaged in cotton production. In African cotton-producing countries, including Nigeria, Benin, Togo, Mali and Zimbabwe, the number of rural households depending on cotton totalled six million. The high dependence on cotton in these countries has important poverty ramifications, especially when large price changes take place.

The cotton market has been subject to considerable market interventions, subsidization in the USA, the European Union (EU) and China, and taxation in Africa and Central Asia. During 2002 support by major players reached almost US$6 billion, more than one-quarter of the global value of production. This support, which coincided with the lowest nominal prices since 1972, brought numerous reactions. Brazil initiated a World Trade Organization (WTO) consultation process claiming losses due to subsidies by the United States.[2] Four West African cotton-producing countries – Benin, Burkina Faso, Chad and Mali – pressed for removal of support to the cotton sector through the WTO and asked for financial compensation for cotton-producing low income countries to offset the injury caused by support.[3]

The objective of this article is to examine the market setting and trade policies of the global cotton market as they relate to developing countries. Specifically, the next section discusses the market setting of the cotton market, including the global balance, price trends and variability, and market structure. The two sub-

Table 1. **Cotton's Importance to West African and Central Economies (2001–2003 averages)**

	Cotton Exports				
	Value (US$ millions)	Share of merchandize exports (%)	Share of GDP (%)	Merchandise exports (US$ millions)	Per capita GDP (2000 US$)
WEST AND CENTRAL AFRICA					
Burkina Faso	105	44.6	3.3	235	245
Chad	53	29.4	2.4	182	381
Benin	126	27.7	4.5	455	289
Mali	193	22.7	6.1	849	203
Togo	42	8.9	2.7	467	251
CENTRAL ASIA					
Uzbekistan	727	22.1	4.4	3,295	591
Tajikistan	103	14.1	7.7	729	190
Kyrgyzstan	36	7.0	2.2	524	295
Turkmenistan	139	4.5	3.0	3,065	859
Azerbaijan	22	1.2	0.3	1,906	788
Kazakhstan	86	0.8	0.3	10,412	1,533

Source: Food and Agriculture Organization (FAOSTAT) and The World Bank (World Development Indicators).

sequent sections examine the policies of three major players in the global cotton market – the USA, the EU and China – and the impact of these policies on the global cotton market. These countries were selected for their large share in global output and/or their high degree of policy intervention, so that any change in their policies significantly affects the global cotton market. The fifth and sixth sections look at the cotton sectors of sub-Saharan African and Central Asia countries. These two regions were selected on the basis of their dependence on cotton. The last section concludes.

The Global Market Structure

About three-quarters of cotton is produced by developing countries. During the last four decades cotton production has grown at an annual rate of 1.8 per cent to reach 24 million tons in 2005 from 10.2 million tons in 1960.[4] Most of this growth came from China and India, which respectively tripled and doubled their production. Other countries that significantly increased their shares were Greece, Pakistan and Turkey (see Table 2). Some "new entrants" also contributed to this growth. Australia, for example, which produced only 2,000 tons of cotton in 1960, currently averages 0.5 million tons. Francophone Africa produced less than 100,000 tons in the 1960s and now produces ten times as much. The USA and the Central Asian republics, two of the four dominant cotton producers during the 1960s, have maintained their output levels at about the same levels, effectively halving their market shares. A number of Central American countries that accounted for 250,000 tons during the 1970s now produce virtually no cotton at all.

More than one-quarter of the area allocated to global cotton is currently under genetically modified (GM) varieties, accounting for almost 40 per cent of world production.[5] GM cotton in the USA – where it was first introduced in 1996 – currently accounts for about 80 per cent of the area allocated to cotton. Other major GM cotton producers are Argentina (70 per cent of cotton area), Australia (80 per cent), China (60 per cent), Colombia (35 per cent), India (10 per cent), Mexico (40 per cent) and South Africa (90 per cent). Countries that are at a trial stage include Brazil, Burkina Faso (the only sub-Saharan Africa country), Israel, Pakistan and Turkey.[6]

The consumption pattern of cotton is determined by the size of the textile industries of the dominant cotton consumers. China, the leading textile producer, currently consumes more than one-third of global cotton output. Other major textile producers are India, Pakistan, Turkey and the USA, which together with China account for more than three-quarters of global cotton consumption. Several East Asian countries have emerged as important cotton consumers. For example, Indonesia, Korea, Taiwan and Thailand, which together consumed 130,000 tons in 1960 (1.2 per cent of world consumption), absorbed more than 1.5 million tons

Table 2. **Global Balance of the Cotton Market (Thousand tons)**

	1960	1970	1980	1990	2000	2002	2004	2005
PRODUCTION								
China	1,372	1,995	2,707	4,508	4,417	4,916	6,320	5,769
US	3,147	2,219	2,422	3,376	3,818	3,747	5,062	4,946
India	1,012	909	1,322	1,989	2,380	2,312	4,080	4,250
Pakistan	306	543	714	1,638	1,816	1,736	2,482	2,309
Central Asia	1,491	2,342	2,661	2,593	1,412	1,509	1,737	1,724
Brazil	425	549	623	717	939	848	1,318	1,207
Franc Zone	63	140	224	562	728	952	1,135	1,071
Turkey	192	400	500	655	880	900	900	805
Australia	2	19	99	433	804	386	624	497
Greece	63	110	115	213	421	375	390	380
World	**10,201**	**11,740**	**13,831**	**18,970**	**19,437**	**19,437**	**26,193**	**24,958**
CONSUMPTION								
China	1,481	2,016	3,300	4,225	5,200	6,500	8,200	8,600
India	1,006	1,076	1,371	1,958	2,924	2,927	3,300	3,640
Pakistan	245	429	461	1,343	1,764	2,042	2,300	2,415
Turkey	109	184	293	557	1,150	1,310	1,555	1,550
US	1,803	1,786	1,083	1,885	1,929	1,583	1,350	1,339
Brazil	272	296	566	723	873	760	935	900
Thailand	15	65	127	328	360	415	450	459
Indonesia	10	43	104	336	530	500	490	450
Mexico	109	146	165	170	435	460	450	428
Bangladesh	—	—	45	98	196	300	375	400
World	**10,231**	**12,173**	**14,215**	**18,585**	**19,844**	**21,119**	**23,384**	**24,141**

Note: Bangladesh is included in Pakistan prior to (and including) 1970. Franc Zone includes Benin, Burkina Faso, Cameroon, Central Africa Republic, Chad, Côte d'Ivoire, Guinea, Madagascar, Mali, Niger, Senegal and Togo. Central Asia includes Uzbekistan, Turkmenistan, Tajikistan, Kazakhstan, Azerbaijan and Kyrgyzstan. Figures for 2005 are preliminary estimates as of August 2005.
Source: International Cotton Advisory Committee, Cotton: *Review of the World Situation*, various issues.

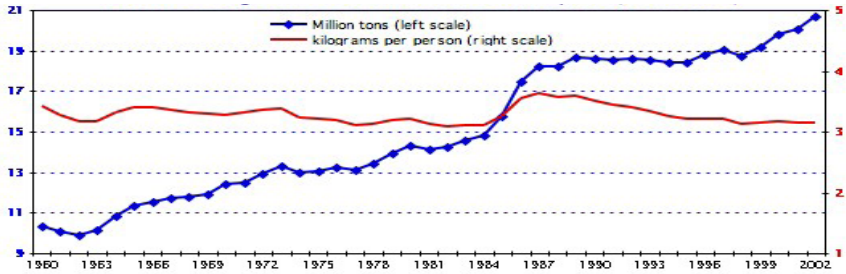
in 2005 (6.5 per cent of world consumption).

Between 1960 and 2005, cotton demand has grown at the same rate as population (about 1.8 per cent per annum) implying that per capita cotton consumption has remained almost stagnant at about 3.5 kilograms (see Figure 1). By contrast, consumption of chemical fibres, which compete closely with cotton, has increased consistently over the last 50 years by 2.2 per cent per annum, causing cotton's share in total fibre consumption to decline from 60 per cent in 1960 to 40 per cent in 2002 (see Figure 2).[7] Apart from the substantial reduction in the costs of producing chemical fibres, their increasing share reflects new uses, quality improvements which made their properties very similar to those of cotton, increased use for clothing suitable to extreme weather conditions (e.g. rain, cold) and other uses such as sportswear. Active promotion programmes by the chemical fibre industry have also contributed to their increased share.

One-third of cotton production is traded internationally. The three dominant exporters – the USA, Central Asia and Francophone Africa – account for more than two-thirds of global trade exports. Currently, the 10 largest importers account for more than 70 per cent of global cotton trade. Three major producers – China, Turkey and Pakistan – also import cotton to supply their textile industries (see Table 3). The four East Asian textile producers – Indonesia, Thailand, Taiwan and Korea – accounted for 22 per cent of world cotton imports in 2002, compared to just 3 per cent in 1960. To summarize, there has been an increased concentration of cotton use in (and hence trade flows to) Asian countries, not surprisingly since this is the region with the highest concentration of chemical fibre and garment industries.

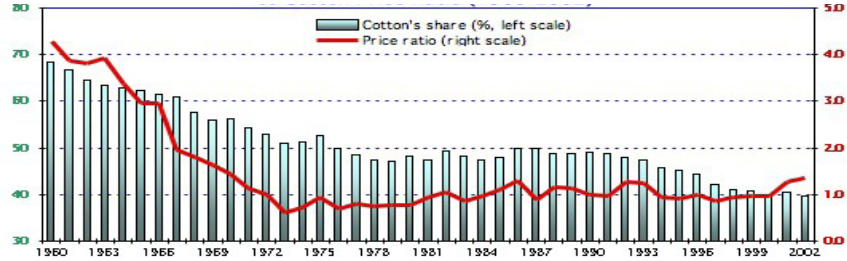
Real cotton prices have declined over the last two centuries, although with temporary spikes. The reasons for the long-term decline are similar to those characterizing most primary commodities: on the supply side reduced production costs due to technological improvements and on the demand side stagnant per capita consumption and competition from synthetic products. Between 1960–64 and 1999–2003 real cotton prices fell by 55 per cent, remarkably similar to the 50 per cent decline in the broad agriculture price index of 28 commodities (see Figure 3). Reductions in the costs of production have been associated primarily with yields increases from 300 kilograms per hectare in the early 1960s to 700 kilograms per hectare in 2005 (a 1.8 per cent annual increase).[8] The phenomenal growth in yield has been aided primarily by the introduction of improved cotton varieties, expansion of irrigation and use of chemicals and fertilizers. Additional diffusion of GM technology along with precision farming introduced during the 1990s, are expected to further reduce the costs of production. Technological improvements have also taken place in the textile industry, so that the same quality of fabric can now be produced with lower quality cotton, a trend that has taken place in many other industries whose main input is a primary commodity.

Figure 1. **Long-Term Trends in Cotton Consumption**



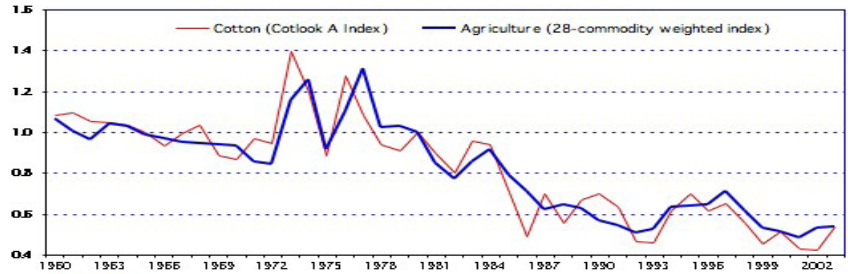
Source: International Cotton Advisory Commitee

Figure 2. **Cotton's Share in Total Fibre Consumption and Polyester to Cotton price Ratio (1960–1002)**



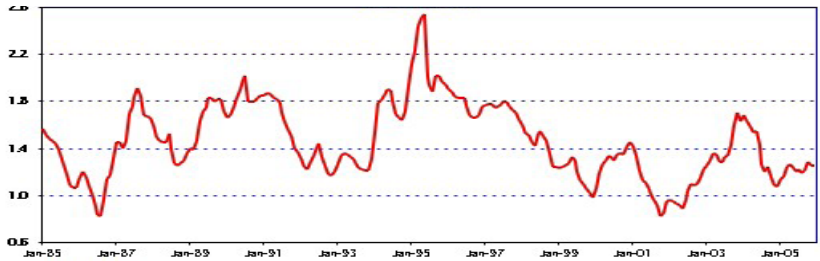
Source: International Cotton Advisory Commitee and the World Bank

Figure 3. **Real Price Indices (1960–2005; 1980=1.0)**



Source: The World Bank

Figure 4. **Monthly Cotton Prices (January 1985–October 2005, nominal US$ per kilogram)**



Source: The World Bank

In addition to their declining pattern, cotton prices have been volatile, a phenomenon very common among most primary commodities.[9] The degree of volatility, however, has changed considerably during the last 40 years. Various measures of price volatility calculated by John Baffes consistently show that cotton prices during 1985–2002 were at least twice as volatile compared to 1960–72, but half as volatile compared to 1973–84.[10] This conclusion is similar to findings by Alberto Valdès and William Foster who looked at price variability of corn, rice, sugar and wheat, as well as findings by Alexander Sarris who examined intra- and inter-year price variability of wheat and maize.[11] Real cotton prices during these three periods have experienced an annual decline of 1.5, 3.2, and 1.5 per cent respectively. Therefore, not only prices have been twice as volatile in 1985–2002 compared to 1973–84, but also they have declined twice as fast. In a more recent study, Xuemei Pan and Carlos Valderrama compared the price variability of 22 primary commodities and concluded that during the past four years, 17 commodities exhibited more price variability than cotton.[12]

In terms of the structure of world cotton trade, the market is characterized by a large number of cotton trading companies – often called cotton merchants. This is in sharp contrast to the market structure of other internationally traded commodities such as coffee, cocoa or grains where a few companies, perhaps four or five, dominate global trade. A recent survey of the cotton market estimated that 21 large companies (either private or state-owned) were active in cotton trading during 2004 and handled volumes greater than 200,000 tons. Another 48 companies traded cotton with volumes between 50,000 and 200,000 tons, followed by 43 firms with volumes 20,000 and 50,000 tons. Another 362 smaller companies handled volumes less than 20,000 tons.[13]

There are two widely used price indicators in the cotton market: the "Cotlook A Index" and the New York Board of Trade futures price. The A Index is the average of the five lowest quotations of 19 types of cotton (Middling 1-3/32")

Table 3. **Global Cotton Trade (thousand tons)**

	1960	1970	1980	1990	2000	2002	2004	2005
EXPORTS								
US	1,444	848	1,290	1,697	1,472	2,591	3,000	3,215
Central Asia	381	553	876	1,835	1,203	1,172	1,251	1,316
Franc Zone	48	137	185	498	767	833	952	1,092
Australia	0	4	53	329	849	575	420	561
Brazil	152	220	21	167	68	170	360	425
Greece	33	0	13	86	244	275	263	283
India	53	34	140	255	24	17	175	275
Syria	97	134	71	91	212	120	152	150
Egypt	346	304	162	18	79	150	140	125
Tanzania	34	66	36	40	39	41	88	99
World	**3,667**	**3,875**	**4,414**	**5,081**	**5,857**	**6,618**	**7,542**	**8,270**
IMPORTS								
China	65	108	773	480	52	685	1,350	2,900
Turkey	0	1	0	46	383	516	750	792
Thailand	4	46	86	354	342	410	480	465
Indonesia	7	36	106	324	570	500	511	452
Mexico	0	1	0	43	410	501	352	302
Russia	—	—	—	1,190	373	315	306	287
Pakistan	1	1	1	0	101	186	325	275
Korea, Rep.	51	121	332	447	304	325	295	266
Taiwan	47	160	214	358	226	265	275	238
World	**3,804**	**4,086**	**4,555**	**5,222**	**5,747**	**6,577**	**7,117**	**8,270**

Note: See Table 3.
Source: International Cotton Advisory Committee, *Cotton: Review of the World Situation*, various issues.

traded in Far Eastern ports.[14] The A Index is compiled daily by Cotton Outlook, a private company located in Liverpool, UK. Staff collects quotations by interviewing cotton traders and merchants in the Far East, and they also look at other market developments likely to affect cotton prices. These offering prices and the day's indices are published at about 2.30 pm, UK time. The prices are expressed in US cents per pound, c.i.f. North Europe, cash against documents on arrival of vessel, including profit and agent's commission. When a particular cotton growth is not offered in large volume, the quotation is still reported, but it is not eligible to participate in the index. The index is based on the five least expensive quotations because quotations reflect offering prices, not the level at which business has been arranged, so a buyer would normally expect to succeed with bids that are slightly lower than quoted. The quotations represent nearby delivery, normally between two and six months. For example, quotations on 15 September 2005 referred to deliveries between November 2005 and May 2006. When cotton for the next season becomes available, two concurrent indices are published, one representing nearby contracts and one representing forward contracts.

The second widely used cotton price indicator is the futures price reported by the New York Board of Trade (NYBOT). The NYBOT contract, whose size is 50,000 pounds, uses Memphis No. 2 cotton as the cash price equivalent. There are five delivery months (March, May, July, October and December) and the nearest 10 delivery months are available for trade, extending the time span of the contract to almost two years – a July 2005 contract could be traded as early as August 2003. Apart from NYBOT, whose contract exhibits high liquidity, there are three futures exchanges trading cotton contracts: Brazil introduced a cotton contract in 1996, India in 1998 and China in 2003.[15]

There are two main differences between the two pricing mechanisms. First, the A Index reflects offerings, not prices, at which actual transactions have taken place; on the contrary the NYBOT futures price reflects actual transactions. Second, the A Index reflects world supply and demand conditions while the NYBOT price reflects US market conditions. Because of these differences, the correlation between the NYBOT contract and the Cotlook A Index is low, which is the main reason why the contract is used frequently by traders and merchants of non-US types of cotton.[16]

Cotton Policies by Major Players

Cotton has been subject to various marketing and trade interventions. Most of the protection in the cotton market takes the form of domestic support, i.e. financed by taxpayers. In contrast, two-thirds of the support given to OECD commodity producers takes the form of border measures, i.e. financed by consumer. The International Cotton Advisory Committee (2002 and 2003), which has been monitoring the level of assistance to cotton production by major producers since 1997,

found that at least eight countries have consistently supported cotton production – Brazil, China, Egypt, Greece, Mexico, Spain, Turkey and the USA (see Table 4).[17] In 2001 – the year in which support was highest – government assistance to US cotton producers reached US$3.9 billion, China's totalled US$1.2 billion, and the EU provided almost US$1 billion. Producers in Brazil, Egypt, Mexico and Turkey received a combined total of US$110 million.

The United States

Cotton subsidies in the United States have a long history dating from the commodity programmes of the Great Depression. The specific provisions of these programmes, including the one for cotton, change with each "Farm Bill" passed by the Congress (Farm Bills are introduced approximately every four to five years), but their chief objective has remained largely unchanged: to transfer income from taxpayers (and to a lesser extent consumers) to producers. The main channels of support to US cotton producers are price-based payments, decoupled payments, crop insurance and countercyclical payments. US cotton users and exporters also receive some support in the form of:

- *Price-based payments* (also known as loan rate payments) are designed to compensate cotton growers for the difference between the market price and the target price when the latter exceeds the former.
- *Decoupled payments* (renamed direct payments in the 2002 Farm Bill) are predetermined annual payments calculated on the basis of area historically used for cotton production. Direct payments were introduced with the 1996 Farm Bill to compensate producers for "losses" following the elimination of deficiency payments.

Table 4. **Estimated Governement Assistance to Cotton Producers, 1997–2004 (US$ million)**

	1997	1998	1999	2000	2001	2002	2003	2004
US	1,163	1,947	3,432	2,149	3,937	3,075	1,021	2,244
China	2,013	2,648	1,534	1,900	1,217	800	1,303	1,145
Greece	659	660	596	537	735	718	761	836
Spain	211	204	199	179	245	239	233	230
Turkey	—	220	199	106	59	57	22	115
Brazil	29	52	44	44	10	—	—	—
Mexico	13	15	28	23	18	7	6	49
Egypt	290	—	20	14	23	33	9	89

Source: International Cotton Advisory Committee; US Department of Agriculture; European Union.

- *Crop insurance* is subsidy to weather-related crop failures.
- *Countercyclical payments* were introduced in 1998 (as "emergency payments") to compensate producers for income "lost" due to low commodity prices. They were made permanent under the 2002 Farm Bill. Payments to cotton exporters and domestic end-users (also known as export subsidies or Step-2 payments) are made when domestic prices exceed world prices, so that US exporters maintain their competitiveness. Implicitly, cotton exporters receive another subsidy through the export credit guarantee programme which insures importers of US cotton against potential defaults.

In addition to these transfers there are other publicly funded programmes – among them research and extension services and subsidized irrigation. The US cotton programme, which has been subject to review by the US General Accounting Office (GAO) twice, was (and still is) very complex and expensive.[18] Perhaps the best summary of the programme's complexity and costs was given by the 1995 GAO audit report (p. 3):

> The cotton program has evolved over the past 60 years into a costly, complex maze of domestic and international price supports that benefit producers at great cost to the government and society. From 1986 through 1993, the cotton program's costs totaled $12 billion, an average of $1.5 billion a year. Moreover, the program is very complex, with dozens of key factors that interact and counteract to determine price, acreage, and payments and to restrict imports. The severe economic conditions and many of the motivations that led to the cotton program in the 1930s no longer exist … The [US] Congress could, for example, reduce or phase out payments over a number of years, perhaps over the life of the next [1996] farm bill.

According to US Department of Agriculture data, in 1996, the first season of the *1996 Farm Bill*, support to US cotton growers reached US$759 million. Almost US$600 million came in the form of decoupled payments, and the rest as an insurance subsidy. In 1997 support was US$1.2 billion. When prices began declining, the emergency assistance measures were introduced, increasing the support to US$1.9 billion in 1998, US$3.4 billion in 1999, US$2.1 billion in 2000 and US$3.9 billion in 2001.

The European Union

During the 1960s and 1970s Greece and Spain together were producing 130,000 tons of cotton. Following their accession to the European Union, cotton growers in these two countries became eligible for Common Agricultural Policy funds, causing cotton production to grow by an annual average of 7.3 per cent, to ex-

ceed 400,000 tons during the 1990s. Support to cotton producers is based on the difference between the market price and a support price. The policy also influences the quantity produced by specifying a maximum for which assistance will be provided – the equivalent of 255,000 tons for Greece and 82,000 tons for Spain.

During the past 10 years, the budgetary expenditure on the cotton sector ranged between US$0.7 and US$1.0 billion, implying that, on average, EU cotton producers received more than twice the world price of cotton. EU cotton producers receive support even in periods of high prices, since the budgetary allocation to the cotton sector must be disbursed. For example, EU cotton producers received approximately the same level of support in 1995 and 2002, although cotton prices in 1995 were twice the level of 2002.

The EU has implemented a number of adjustments to its cotton programme including the 1999 reform which effectively imposed a cap on the budgetary expenditures allocated to the industry.[19] A major reinstrumentation of the EU cotton programme will take place in 2006. Under the Luxembourg Council's decision of 22 April 2004, which was based on the September 2003 proposal, an estimated €700 million will fund two support measures, with 65 per cent of the support taking the form of a single decoupled payment and the remaining 35 per cent taking the form of an area payment.[20] Eligibility for the decoupled payment is limited to growers who produced cotton during the three-year period 1999–2001. The area payment will be given for a maximum area of 380,000 hectares in Greece, 85,000 hectares in Spain and 360 hectares in Portugal, and will be proportionately reduced if claims exceed the maximum area allocated to each country. To receive decoupled payments, cotton growers must keep the land in good agricultural use. To receive area payments they must plant (not necessarily produce) cotton. Giannis Karagiannis estimated that the reforms are likely to reduce EU cotton production between 10 and 25 per cent.[21]

China

China's cotton sector became fully government-controlled in 1953 following the introduction of the first Five-Year Plan.[22] The central planning policies adopted then were similar to those of the Soviet Union and remained in place for the next 35 years. The central government set production targets and procurement quotas (all primary processing facilities were owned by co-operatives). Some changes took place in 1978 when the government substantially raised the price of cotton and supplied more fertilizer. Market-oriented reforms were introduced in 1980 when the communal production system was partially abolished and individual farmers were given land use rights. Cotton production increased considerably in response to both the 1978 and the 1980 policy changes.

Currently, China intervenes in its cotton sector through price support meas-

ures (a reference price typically set above world prices), subsidies to transportation and marketing, and public stockholding. China also imposes a 3 per cent tariff on cotton imports up to 0.86 million tons (and 90 per cent for volumes above that amount).[23] The International Cotton Advisory Committee estimates that support to the cotton sector from 1997 to 2004 ranged from US$0.8 billion to US$2 billion. Jikun Huang, Scott Rozelle and Min Chang estimate that in 2001 the nominal rate of protection for cotton averaged 17 per cent.[24]

In 1999 the government announced reform measures that included creating a cotton exchange to facilitate domestic trading, reducing prices paid to producers, and lowering stocks. In September 2001 further reforms were announced.[25] First, the internal cotton market was open to cross-regional trade. Second, various enterprises were allowed to buy cotton directly from producers with the approval of the provincial government. Third, primary processing operations were separated from marketing cooperatives, in effect making them commercial enterprises.

To some extent the reform efforts have achieved their stated objectives. China currently operates a cotton exchange that trades future contracts.[26] Its publicly held stocks declined from 3.5 million tons in the two-year period 1998–99 to 2 million tons in 2001–02. According to International Cotton Advisory Committee (ICAC) figures, estimated support to the cotton sector declined from US$2.1 billion to US$1 billion between the two periods – cotton prices during these two periods averaged US$1.30 and US$1.04 a kilogram. Furthermore, the import quota has been extended in order to meet domestic demand requirements.

Implications of Cotton Policies

Numerous models have evaluated the impact of cotton policies on the cotton market with considerable variation in the results. The International Cotton Advisory Committee, for example, concluded that in the absence of direct subsidies, average cotton prices during the 2000–01 season would have been 30 per cent higher than what they actually were.[27] The study, which was based on a short-run partial equilibrium model, did acknowledge that while removal of subsidies would result in lower production in the countries which receive them (and hence higher prices in the short term), such impact would be partially offset by shifting production to non-subsidizing countries in the medium to longer terms. Louis Goreux, who extended the ICAC model by replacing the base year with 1998-2002 average subsidies, estimated that in the absence of support the world price of cotton would have been between 3 and 13 per cent higher in these five years, depending on the value of demand and supply elasticities.[28] Ian Gilson and others using subsidy data for 1999 and a model similar to that of Louis Goreux, estimated that removal of subsidies by the USA, the EU and China would increase the world price of cotton by 18 per cent.[29]

George Reeves and others used a Computable General Equilibrium model

and found that removal of production and export subsidies by the USA and the EU will induce a 20 per cent reduction in US cotton production, a 50 per cent reduction in US cotton exports, with much higher figures for the EU.[30] They also estimated that if support was not in place, world cotton prices would be 10.7 per cent higher compared to their 2001–02 levels. Simulations from a model developed by the Food and Agriculture Policy Research Institute (FAPRI) found that under global liberalization (i.e. removal of trade barriers and domestic support of all commodity sectors including cotton), the world cotton price would increase over the baseline scenario by an average of 12.7 per cent over a 10-year period.[31] Based largely on FAPRI's data and assumptions, Daniel Sumner estimated that had all US cotton subsidies not been in place during the marketing years 1999–2002, the world price of cotton would have been almost 13 per cent higher.[32]

Based on a partial equilibrium model, Stephen Tokarick finds that multilateral trade liberalization in all agricultural markets (including cotton) would induce a 2.8 per cent increase in the world price of cotton and a US$95 million annual increase in welfare.[33] Daneswar Poonyth and others estimate that removal of cotton subsidies – as reported in the WTO notifications – would increase the world price of cotton between 3.1 per cent and 4.8 per cent, depending on assumptions about demand and supply elasticities.[34] In contrast, Ben Shepherd and Suwen Pan and others find a negligible impact of subsidies on the world price of cotton.[35]

The highly divergent results for these models reflect in part the structure of the models and the assumed elasticities. Several other factors also influence the results.[36] First, there are differences in the level and structure of support. For example, some models incorporate China's support to its cotton sector and model its removal; others do not. Second, there are differences in the underlying scenarios. Some models assume liberalization in all commodity markets while others assume liberalization only in the cotton sector. Third, the models use different base years and hence different levels of subsidies. For example, support in the United States was three times as high in 1999 as in 1997. Setting all the differences aside, however, and taking a simple average over all models shows that world cotton prices would have been about 10 per cent higher without support. Applying a simple average to the Francophone Africa cotton-producing countries shows that these countries lost approximately US$150 million annually in export earnings due to the subsidies.

Not all models report results on the gainers and losers from the removal of cotton subsidies. In that respect the most complete analysis is offered by the FAPRI model, which finds the largest gains in trade for Africa, with an expected average increase in exports of 12.6 per cent. Exports increase by 6.0 per cent for Uzbekistan and by 2.7 per cent for Australia, while exports from the US decline by 3.5 per cent. The most dramatic impact is on the production side. The EU's cotton output would decline by more than 70 per cent – not a complete surprise

considering that the EU's cotton output during the late 1990s was three times higher than it was before Greece and Spain joined.

Brazil vs. the United States

On 27 September 2002, Brazil requested consultation with the US regarding US subsidies to cotton producers. On 18 March 2003, the Dispute Settlement Body of the WTO established a panel to examine the issues, and on 26 April 2004, the WTO issued an interim ruling in favour of Brazil. The final ruling (issued on 8 September 2004) concluded that "the United States is under the obligation to take appropriate steps to remove the adverse effects or … withdraw the subsidy."[37] It should be noted here that cotton prices reached their lowest level in modern history during 2001.

Brazil argued that US cotton subsidies were inconsistent with provisions of the Agreement on Subsidies and Countervailing Measures, the Agreement on Agriculture, and the General Agreement on Tariffs and Trade 1994 and were causing "serious prejudice to the interests of Brazil" because of a "significant price depression and price suppression."[38] Brazil's claims can be summarized as follows:[39]

- The USA provided domestic support to its cotton sector during 1999–2002 in excess of the support decided during the 1992 marketing year under the peace clause (article 13) of the Agreement on Agriculture.
- Export subsidies (i.e. export credit guarantees and the so-called step-2 payments) violated the Agreement on Agriculture.
- The direct payments should have been placed under the WTO's *Amber Box* category (disciplined support) instead of the *Green Box* category (undisciplined support).

Using the econometric model developed by FAPRI, Brazil claimed that the US subsidies induced a 41 per cent increase in US cotton exports, reducing the world price of cotton by 12.6 per cent and causing an estimated injury to Brazil of more than US$600 million for 2001 alone. The United States appealed the case but the original ruling remained by and large intact. The USA announced that it would eliminate the export subsidies. However, it remains unclear what, if any, steps it will take regarding containing the overall level of subsidies and the inappropriate placing of direct payments in the *Amber Box*.

The ruling was issued against the background of the ongoing critical agricultural negotiations, the expiration of the peace clause, the more assertive stance taken by the G-20, and the West African sectoral initiative on cotton (see following section). The ruling has numerous implications for the WTO and the Doha Development Agenda and for developing countries and international institutions:[40]

- As the first case of a developing country challenging an OECD farm subsidy programme in the WTO, it may set a precedent. If further cases follow, there may be a shift in the focus of WTO activities from negotiation to litigation.
- The way to avoid a significant increase in such disputes is to make significant progress in the Doha Development Agenda. Hence, the ruling may help agencies such as the EU Commission and the US Trade Representative's Office confront domestic protectionist lobbies.
- The ruling strengthens the claims of many developing countries that OECD subsidies distort global commodity markets and depress world prices.
- This dispute spotlights the importance of models analyzing the effects of subsidies on world prices and export shares, making model developers more accountable for the analysis. The ruling reveals the importance and weaknesses of current measures of support and the differences in WTO, US and EU definitions of "decoupled support."

Cotton in Central Asia

Cotton in Central Asia was introduced during the 1860s.[41] About a decade later cotton varieties were imported from the USA and following research at the newly created cotton research station in Tashkent they were adapted to local growing conditions. With the expansion of irrigation and the construction of new railways cotton production reached 246,000 tons in 1913. By 1940 cotton output reached almost 750,000 tons while it exceeded one million tons by the early 1950s, turning the Soviet Union into a cotton exporter. Cotton production increased even further with expansion of irrigation, the introduction of mechanical harvesting, as well as the use of fertilizers and chemicals. During the 1970s and 1980s, the Soviet Union produced about 2.5 million tons of cotton, accounting for more than 20 per cent of global cotton output (see Table 5).

Despite a seemingly successful performance, the fundamentals of the sector were indeed poor. The massive expansion of irrigation not only became unsustainable but it has been associated with one of the worst environmental disasters in modern history – the desiccation of the Aral Sea, which has shrunk to about 15 per cent of its former volume.[42] Mechanical harvesting, on the other hand, failed as cotton farms never fully utilized the technology. In fact, Peter Craumer reported that following a high adoption rate of almost 70 per cent in early 1980s, the share of cotton picked by mechanical harvesters declined to less than 50 per cent in the late 1980s.[43] Currently, most cotton in the area is handpicked. Richard Pomfret, who examined the diffusion of cotton-related technology in the Soviet Union, concluded that the introduction of mechanized cotton harvesting was a misplaced strategy on both investment and policy grounds.[44] He also noted that the costs of premature introduction of the technology may have exceeded US$1 billion in 1960 prices.

Table 5: **Historical and Recent Cotton Production Trends in Central Asia (thousand tons)**

HISTORICAL COTTON PRODUCTION TRENDS	**1913**	**1940**	**1953**	**1960**	**1965**	**1970**	**1975**	**1980**
Uzbekistan	171	457	803	973	1,288	1,483	1,759	2,061
Turkmenistan	23	70	102	120	182	287	356	415
Tajikistan	11	57	129	132	201	240	276	334
Kazakhstan	11	72	66	28	24	91	—	118
Azerbaijan	21	51	128	121	117	111	149	292
Kyrgyzstan	9	31	44	42	55	62	67	68
Soviet Union	**246**	**738**	**1,271**	**1,415**	**1,868**	**2,274**	**2,595**	**3,287**
WORLD	**6,296**	**6,934**	**8,736**	**10,201**	**11,504**	**11,740**	**11,705**	**13,831**
% of World	**4%**	**11%**	**15%**	**14%**	**16%**	**19%**	**19%**	**24%**

RECENT COTTON PRODUCTION TRENDS	**1990**	**1992**	**1994**	**1996**	**1998**	**2000**	**2002**	**2004**
Uzbekistan	1,593	1,306	1,248	1,062	1,000	975	1,033	1,125
Turkmenistan	437	378	314	120	197	187	148	203
Tajikistan	256	160	168	99	110	106	165	172
Kazakhstan	102	70	70	59	55	85	105	148
Azerbaijan	180	147	83	80	38	32	31	48
Kyrgyzstan	25	15	18	23	27	27	25	40
Central Asia	**2,593**	**2,084**	**1,901**	**1,442**	**1,427**	**1,412**	**1,509**	**1,737**
WORLD	**18,970**	**17,937**	**18,762**	**19,584**	**18,713**	**19,437**	**19,437**	**26,193**
% of World	**14%**	**12%**	**10%**	**7%**	**8%**	**7%**	**8%**	**7%**

Source: G. Gleason, " Marketization and Migration: The Politics of Cotton in Central Asia," *Journal of Soviet Nationalities*, Vol. 1, 1990, pp. 66–98 up to 1980 — originally reported as cotton seed and subsequently converted to cotton lint equivalent using a 0.33 ginning outturn ratio (i.e. one kg of seed cotton is equivalent to 0.33 kg of cotton lint; the remaining becomes cotton oil, meal and linters). International Cotton Advisory Committee, *Cotton: Review of the World Situation*, various issues since 1990.

The collapse of the Soviet Union exposed a number of other problems as well, including the inefficient use of water, salinity of the soil, excessive use of chemicals, the use of child labour, and cross-border trade of seed cotton. The World Bank has estimated that as much as 60 per cent of the water diverted from the rivers that feed into the Aral Sea fails to reach the cotton fields.[45] Moreover, even the water that reaches the fields is mismanaged to such an extent that about two-thirds of the area allocated to cotton suffers from salinization problems.[46] Apart from environmental issues, the cotton sectors in Central have been associated with human rights violations, especially child labour. A recent report on child labour estimated that "tens of thousands of children are likely to be involved for several weeks during the annual harvest."[47] Finally, the collapse of research and extension services appears to be another problem that the countries (apart from Uzbekistan) have to deal with.

Following the collapse of the Soviet Union, cotton production in Central Asia declined by about 30 per cent (see Figure 5). Although several reasons are behind the decline, the shift to other crops (most notably wheat in Uzbekistan) along with the fact that the sector was subjected to external competition appear to be the dominant ones. However, one may be tempted to question the pre-1990 statistics, as they are likely to reflect reported targets or quotas rather than actual output, so the 30 per cent decline should be viewed as an upper bound rather than an average.[48] Cotton production in Central Asia now accounts for about seven per cent of global cotton output. Uzbekistan is still the dominant producer, whose production in 2004 exceeded one million tons, just under 5 per cent of global output. It is followed by Turkmenistan (203,000 tons), Tajikistan (172,000 tons), Kazakhstan (148,000 tons), Azerbaijan (48,000 tons) and Kyrgyzstan (40,000 tons) (see Table 5, lower panel).[49] Currently, Central Asia's cotton is exported under conventional trading arrangements (until the mid-1990s, some cotton was going to Russia under barter trade arrangements).

The collapse of the Soviet Union also meant that the marketing and trade

Figure 5. **Cotton Production in Central Asia (thousand tons)**

Source: International Cotton Advisory Committee

cotton regimes of the Central Asian republics had to adjust to the new realities. To that end, the said countries have taken different paths with respect to market reforms ranging from largely unreformed sectors with the government retaining control throughout the entire supply chain (Uzbekistan and Turkmenistan) to a fluctuating degree of control and intervention (Tajikistan) and total removal of government control (Kazakhstan and Kyrgyzstan).[50] To a great extent, reforms of the cotton sector are a mirror image to the land reforms that have taken place in these countries. For example, Zvi Lerman who ranked the differences in implementation of land policy in transition countries found that, from a scale of zero to 10 (10 indicating ideal market attributes and zero indicating no market attributes at all), Uzbekistan, Tajikistan and Turkmenistan received scores of 0.6, 2.5 and 4.0 respectively while Kazakhstan and Kyrgyzstan received 5.4 each (most Central European countries scored close to 10).[51]

Uzbekistan

Uzbekistan accounts for almost two-thirds of region's cotton output. Most aspects of marketing and trade of cotton in Uzbekistan closely resemble pre-1991 arrangements. Numerous entities are involved in production, marketing and trade activities. They include the state company responsible for all primary processing including ginning, the state trading organizations responsible for exports, and the Ministry of Foreign and Economic Relations, which handles financial transactions. Other entities are the state company responsible for domestic and international transportation of cotton, the organization responsible for quality monitoring, and customs.

Cotton growers appear to be heavily taxed both directly, through the lower prices paid by the state company and indirectly through the (likely misaligned) exchange-rate regime. Marc Sadler concluded that only a third of the world price of cotton reaches producers.[52] However, when subsidized inputs and environmental costs are accounted for, the sector may not be as heavily taxed as the numbers suggest. A recent study found that transfers from farmers to the government amounted to about 30 per cent of farmers gross cotton revenues in 2003 and 2004, a much higher rate compared to other crops.[53] The same study concluded that a neutral-revenue reform of the tax system (i.e. reduction of input subsidies and output taxes by equivalent amounts) would considerably increase the efficiency of the sector and the welfare of cotton producers.[54]

Other Central Asian Cotton Producers[55]

Following independence, Tajikistan's cotton output averaged 140,000 tons, a marked reduction compared to pre-independence. Until 1996, Tajikistan's production and marketing structure remained largely unchanged when official state orders were the norm. The first key step towards reform took place in 1998 when

ownership of most gins was transferred to private companies. Most of cotton production is currently financed by the gins who supply credit for seeds, fuel and fertilizer. In turn, producers must sell their cotton to the ginner that provided the credit. However, the emergence of middlemen during the last few seasons has induced considerable side-selling, consequently alarming the gins who provide credit.

Two Central Asian republics (Kyrgyzstan and Kazakhstan) have, to a large extent, allowed the private sector to handle most production, marketing and trade aspects of the sector. Kyrgyzstan's cotton output averaged 25,000 tons after 1990, which is the lowest level in the region. Yet, cotton exports contributed seven per cent to Kyrgyzstan's total merchandize export during 2001–03. Most of Kyrgyz cotton does not go through the normal international trading channels; instead it goes directly to Turkey and Russia mills partly because most of the 23 ginning factories are owned and operated by Russian and Turkish shareholders. Because of Kyrgyzstan's relatively free marketing and trade regime, large quantities of cotton are coming from Uzbekistan – not surprisingly considering Uzbekistan's high tax rates. For example, during 2003, seed cotton was traded at US$0.45/kg in Kyrgyzstan compared to US$0.25/kg in Uzbekistan.

Kazakhstan's cotton output averaged 85,000 tons after independence. During 2004 it is estimated to have reached almost 150,000 tons, a considerable increase over the previous season. The recent surge in cotton output has created labour shortages, which are being filed by seasonal workers from Uzbekistan. Numerous reforms have taken place in Kazakhstan's cotton sector. All 15 ginning operations have been in private hands since 1998. Land privatization of the previous large farms has created a large number of independent smallholders. Cotton producers are financed by ginners.

Turkmenistan's cotton output during the last decade averaged about 170,000 tons, less than half the output realized during the 1970s and 1980s. Turkmenistan's cotton sector has been largely unreformed, with the state being the only buyer and marketer of cotton, which partly explains its poor performance during the last few years. More than 90 per cent of land is still under leaseholders' associations, a structure that reflects pre-1991 arrangements.

Summary of Issues and Challenges Ahead

This paper reviewed the world market of cotton by paying particular attention to the policies of major cotton players as well as the countries that are dependent on cotton, including Central Asia. Numerous conclusions and challenges emerge from the review:

- The global cotton market is subject to considerable domestic support by major players, notably the USA, the EU and China, whose policies depress world

prices. While there is a great deal of disagreement regarding the precise effect of these policies on the world price of cotton (and market shares for that matter), a reduction of 10 to 15 per cent appears to be a widely accepted figure.

- A number of poor countries are dependent on cotton – especially in sub-Saharan Africa and Central Asia – both at household and national levels. Typically, these countries have been taxing their cotton sectors. While East African cotton-producing countries have undertaken substantial reforms, West African and Central Asian countries are still far behind in terms of reform efforts.
- Genetically modified seed technology has advanced in the cotton market much more than any other commodity, most likely a reflection of the fact that cotton is not a food crop.
- Cotton consumption, and hence trade flows, have increasingly tended to concentrate to South East Asia reflecting the fact that this region is a major producer of chemical fibres, textiles and garments.
- In terms of the world market structure, international trade of cotton is handled by a large number of traders, in sharp contrast to other commodity markets whereby a small number of companies account for most of international trade.

Other characteristics of the cotton market, i.e. long-term decline in prices, price variability and competition from synthetic products, are similar to those of other primary commodity markets. Lastly, it is worth noting that value-added activities such as the establishment of textiles and clothing industries are often recommended as investment strategies that cotton-dependent countries should follow. The implicit assumption (or expectation) is that following the development of these down-stream industries the conditions of poor cotton-dependent households will be improved. While the successful creation of such industries may be benefiting the country in general as well as the ones involved in this industry in particular, it should be emphasized than not many benefits are expected reach cotton growers. Cotton growers will sell their cotton at world prices regardless of whether cotton buyers are located in the country in question or elsewhere.

In addition to the above challenges, a number of other issues are relevant to the cotton-producing countries of Central Asia. These include the inefficient use of water (including the environmental disaster of the Aral Sea), salinity of the soil, excessive use of chemicals, use of child labour, cross-border trade of seed cotton, and migrant workers. Furthermore, the collapse of research and extension services appears to be another problem that the countries (apart from Uzbekistan) have to deal with. Most of these issues require genuine co-operation among the Central Asian cotton-producing countries, which goes far beyond the formation of committees.

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Notes

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3

Cotton in Central Asia: "Curse" or "Foundation for Development"?

Max Spoor

If one analyses very critical reports on the "political economy of cotton" in countries such as Uzbekistan (amongst others the ICG 2005 report,[1] which seems to blame all evil in Central Asia on the cotton "industry"), the distinct impression is given that cotton is seen as the "white death," in contrast with the Soviet Planner's view of "white gold." The paper will analyse this proposition, which seems to abstract from the harsh economic reality of these countries, being partly dependent on cotton production (particularly in terms of foreign exchange and rural employment), and the opportunities that they have to produce the crop in the specific climate conditions and resources (land/water) that are available to them, which could mean that cotton becomes a foundation for development, rather than a curse.

The paper will take stock of the development of cotton during Soviet and post-Soviet times, its impact on the political economy of the Central Asian cotton-producing countries, the changing social relations and institutional framework in the agricultural sector, and the environmental costs incurred because of cotton production. It will come to a more balanced conclusion in which cotton is estimated to remain fundamental for quite some time in the future, although specific (and intrinsically related and inter-dependent) water and land reforms will be needed to make cotton production a more sustainable engine of agroindustry-led growth. This is an argument "against the grain" in the heated discussions on "cotton in Central Asia."

The paper will discuss the issues that are important to understand the current political economy of the cotton sector in Central Asia, taking Uzbekistan as the most representative case. This will be done in the following manner. In the first section the history of cotton is briefly introduced, from the feudal times of the Emirs and Khans, passing through the Tsarist colonization, into the Soviet era. In the second section the political economy of cotton "in transition" is placed in a macro-economic framework. It will be shown that cotton has played a crucial role especially in Uzbekistan, to avoid the dramatic contraction that was experienced in some of the other Former Soviet Union (FSU) countries of the Caucasus and Central Asia. In the third section, the social relations in the agricultural sector and its institutional framework will be analysed, at a time when a

land reform is being carried out. The reform is creating medium-sized "private" farms with a view of improving efficiency, but leaving part of state procurement and trade monopolies intact. In the fourth part, we will discuss the environmental impact, which in general has been disastrous but which could improve with institutional changes and efficiency measures in integrated water management. The conclusions will reflect another vision on cotton than the one that is given by the recent ICG (2005) study, which even stated: "The cotton monoculture is more destructive to Central Asia's future than the tons of heroin that regularly transit the region." This remark (and many others in that report) seems to suggest that if cotton is taken away all will be well in the region, which is a rather unfounded view. It is also an erroneous comparison, and hides that the cotton crop can (with necessary and appropriate institutional reforms) become the engine of agroindustry-led growth and development.

The Cotton Legacy

Cotton was already widely cultivated during the 19th century in the areas around the main rivers Syr Darya and Amu Darya, well before it became important to the Russian empire. When in the 1860s Tsarist Russia expanded its reign to Turkistan, it invaded the Khokand and Khiva Khanates and the Bukhara Emirate with important cultural and trading centres such as Samarkand, Tashkent and Bukhara, all now in current Uzbekistan. Parts of the Central Asian region were absorbed by the Russian empire, while the Khiva and Bukhara states became protectorates with, in practice, different degrees of independence.[2] It was only in 1920 that the traditional regimes in these states were overthrown by the Bolsheviks, while from 1924 onwards a process of formal inclusion and delineation of current borders within the (former) USSR took place. Therefore, the Central Asian states in their current formation were latecomers to the Soviet orbit but had already passed through a long process of Russian colonization.

They had been largely agricultural, semi-nomadic societies with deeply entrenched feudal structures of land (and water) ownership. The area, which is now represented by the four states Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, was for the Russian empire not only a region with vast natural resources but also a stronghold that was seen as strategically important. There were seemingly unlimited possibilities for agricultural production, for the establishment of settler economies, and for the extraction of gas, gold and other valuable minerals given the presence of a cheap labour force. Therefore, even before the inclusion of Central Asia into the USSR, a process of opening up of the territory had been initiated, comparable with the "move to the west" in the United States, with railroads being built at great speed connecting the main cities and commercial centres, and a gradual stream of Russian settlers coming in.[3]

The feudal system had produced rather intricate and effective means of water

control, with "water-lords," being even more powerful than landlords, something which can only be understood in the context of a semi-desert or desert region such as prevails in Central Asia, where water is *the* scarce resource. Cotton was produced as a cash crop that was well integrated into the traditional production systems, which rotated between the crop and lucerne that was consumed by cattle, in turn providing manure for fertilization of the soil. This system was still in use until the 1940s, but was mostly eliminated by the introduction of intensive cultivation of cotton.[4] When the US civil war of the 1860s hampered exports from the "cotton belt," Russia had turned to Central Asia for this crucial crop, sometimes referred to as "white gold." Central Asia was to become the major provider of raw cotton for the Russian and Ukrainian textile factories.

Therefore, already before its inclusion in the USSR, cotton in Central Asia had become the main cash crop, particularly in Uzbekistan and, to a lesser extent, in Turkmenistan and Tajikistan. Surplus transfer to the centre already took place, although it is unclear – with the substantial subsidies towards the peripheral regions from the "All Union Budget – whether this was also a net outflow of resources. Nevertheless, cotton was grown under conditions of "forced cultivation." The order "cotton first" that came from Moscow during nearly three decades with ever expanding production and procurement quotas, explains the near exponential growth of cotton cultivation. Although yields increased, this cannot be taken at face value, particularly not when one considers the bias to overestimate which was developing in the planned system, while during the 1970s the quality of cotton, in terms of fibre content, was rapidly decreasing.

Producers (co-operatives and state farms) were compelled to sell to parastatals while they partly operated in parallel markets in order to purchase consumer necessities and even agricultural inputs, confronting prices ruled by non-official exchange rates. The lion's share of cotton was exported to Russia and the Ukraine for further processing, and the added value generated remained outside Central Asia. The region had practically no important textile factories and was even dependent on importing most of its textiles.

Cotton expanded under orders of Moscow, and other traditionally grown high-value crops like grapes and melons diminished in importance, although their market perspectives may have been better. Before the October Revolution cotton production in Central Asia was reasonably balanced with grain and fruit production systems. What can be observed in Table 1, is that in 1913 both wheat and barley were cultivated in winter and summer (or spring) seasons. As better soils became reserved for the "white gold," only marginal soils were left for grains which were then reduced to a single cropping (rain-fed) pattern. It is interesting to note that summer (spring) grain cultivation indeed vanished.

Cotton rapidly increased its cultivated area, from 441,600 hectares in 1913 to 1,022,600 hectares in 1940. Production was carried out on production co-op-

eratives (kolkhozes) and state farms (sovkhozes), which were established in the early 1930s after the country had experienced a wide-scale land reform during the second half of the 1920s.[5] A major boost to cotton production was provided by the completion of the Karakum Canal (from Kerki to Ashkhabad over more than 1,200 kilometres), which diverts water from the Amu Darya into the southern desert regions of Uzbekistan and Turkmenistan. The cotton cultivated area increased from 1,427,900 hectares in 1960 to 1,709,200 in 1970, reaching around 2,000,000 hectares in the early 1980s. Thanks to rapidly increasing yields, output had reached nearly 4.5 million tons in 1970 and more than 5 million tons in 1980, ten times the 1913 figure (see Table 1).

The Political Economy of Cotton in Soviet and Post-Soviet Central Asia and Uzbekistan

With the rapid expansion of cotton production, vested interests developed within the political elite of the Central Asian republics linked to the agro-industrial cotton-complex of production, inputs, processing and marketing. In the 1970s a clear-cut cotton *nomenklatura* had developed, with "cotton barons" dominating the complex. This becomes clear when we analyse the case of Uzbekistan, the main cotton producer.

The falsification of output and yield data, illicit trade practices and forced labour came to the surface after the Party leader, Sharif Rashidov, died in 1983. As part of the post-Brezhnev "anti-corruption" campaign, Moscow purged thousands of cadres in Uzbekistan. This is known as the "cotton affair" in which the native Uzbek leadership was particularly implicated; this is a reason why after independence in Uzbekistan many convictions were re-examined and several persons rehabilitated.[6] However, the fact remains that cotton is not only the motor of Uzbekistan's economy but many vested interests depend on "white gold."[7]

In the post-1991 independent Central Asian states, and particularly in Uzbekistan and Turkmenistan where a clear "regime continuity" occurred (to use the counterpart term of the word introduced by the Bush administration), the cotton economy remained crucial to derive political and economic power, as is emphasized by the 2005 ICG report. Also, it gave Uzbekistan in particular the possibility to move rapidly into hard currency markets of exports, in order to finance imports that were foregone with the sudden collapse of the Council for Mutual Economic Asssitance (CMEA). Through the derived export income and the policy decision to transfer resources from agriculture (i.e. cotton production) towards incipient industrial sectors (such as the gas and oil industry), following an import substitution model, the country was able to avoid a deep economic contraction, such as the one that took place in many other FSU countries.[8]

It is actually incorrect to still suggest that "farmers"[9] in Uzbekistan receive a minimal share of the value (in world market terms) of the produce. This has

Table 1. **Agricultural Sector Development of Uzbekistan (1913–1991)**

			1913	1940	1960	1970
Wheat (winter)	Areea	(x 1,000 ha)	460.5	615.6	384.2	540.0
	Output	(x 1,000 tn)	299.3	172.4	253.6	340.2
	Yield	(tn/ha)	0.7	0.3	0.7	0.6
Wheat (spring)	Area	(x 1,000 ha)	471.7	396.7	128.2	123.6
	Output	(x 1,000 tn)	212.3	103.1	70.5	66.7
	Yield	(tn/ha)	0.5	0.3	0.6	0.5
Wheat Total	Output	(x 1,000 tn)	512.6	272.6	327.0	408.9
Barley (winter)	Area	(x 1,000 ha)	117.7	107.1	211.8	312.4
	Output	(x 1,000 tn)	57.7	34.3	167.3	253.0
	Yield	(tn/ha)	0.5	0.3	0.8	0.8
Barley (spring)	Area	(x 1,000 ha)	132.9	207.5	90.6	77.7
	Output	(x 1,000 tn)	74.4	64.3	55.3	45.8
	Yield	(tn/ha)	0.6	0.3	0.6	0.6
Barley (total)	Output	(x 1,000 tn)	143.3	98.0	225.4	301.4
Rice	Area	(x 1,000 ha)	161.1	83.1	31.2	63.3
	Output	(x 1,000 tn)	210.2	125.5	57.8	184.9
	Yield	(tn/ha)	1.3	1.5	1.9	2.9
Corn	Area	(x 1,000 ha)	38.8	17.3	30.8	24.6
	Output	(x 1,000 tn)	38.8	33.5	70.8	66.3
	Yield	(tn/ha)	1.0	1.9	2.3	2.47
Cotton	Area	(x 1,000 ha)	441.6	1022.6	1427.9	1709.2
	Output	(x 1,000 tn)	517.2	1385.9	2828.5	4495.2
	Yield	(tn/ha)	1.2	1.4	2.0	2.6
Potatoes	Area	(x 1,000 ha)	6.5	23.5	28.1	21.2
	Output	(x 1,000 tn)	46.2	113.3	167.7	180.3

Source: M. Spoor, "Transition to Market Economies in former Soviet Central Asia: Dependency, Cotton, and Water," *The European Journal of Development Research*, 5 (2), 1993, pp. 142–58.

(Table 1 continued)

1980	1985	1986	1987	1988	1989	1990	1991
500.0	396.7	269.9	426.9	431.2	327.6	107.0	–
415.0	353.1	224.0	461.0	539.0	321.0	521.0	–
0.8	0.9	0.8	1.1	1.3	1.0	1.3	–
22.7	62.5	32.1	41.0	25.3	18.3	24.8	–
16.8	34.4	17.0	64.0	24.0	21.0	32.0	–
0.7	0.6	0.5	0.8	1.0	1.2	1.3	–
433.9	387.9	241.0	495.0	563.0	342.0	553.0	–
304.3	163.0	119.4	208.9	256.4	214.7	269.2	–
276.9	166.3	117.0	257.0	359.0	219.0	358.0	–
0.9	1.0	1.0	1.2	1.4	1.0	1.3	–
36.3	48.0	19.7	31.4	27.8	22.5	22.5	–
33.0	33.6	15.0	32.0	32.0	27.0	27.0	–
0.9	0.7	0.8	1.0	1.2	1.2	1.2	–
309.2	199.4	132.0	289.0	391.0	246.0	385.0	–
105.1	150.3	127.5	155.2	166.5	160.8	147.1	–
507.2	482.2	399.0	506.0	581.0	484.0	503.0	–
4.8	3.2	3.1	3.3	3.5	3.0	3.4	–
185.0	128.9	117.4	118.6	116.3	111.1	108.8	107.4
1239.7	443.1	389.0	421.0	520.0	460.0	431.0	421.0
6.7	3.4	3.3	3.6	4.5	4.1	4.0	3.9
1912.1	2027.0	2091.2	2103.0	2016.9	1967.3	1832.6	1719.6
5579.0	5381.8	4989.0	4858.0	5365.0	5292.0	5058.0	4643.0
2.9	2.7	2.4	2.3	2.7	2.7	2.8	2.7
23.3	26.3	30.0	30.7	31.1	35.3	42.0	39.5
239.0	240.7	308.6	261.0	308.0	325.0	336.0	316.0

indeed been the case in most of the 1990s. For example in 1993 it was estimated that taxation (land tax, procurement pricing, overvalued exchange rate etc.) on cotton production amounted to US$1,362 million, while subsidies (water, energy, inputs and finance) represented a total of US$561 million, leaving a net outflow of US$801 million (see Table 2). At the level of the cotton farm this meant that only 20 per cent of farm income could be held, while 80 per cent would be taxed as government revenue. In the macroeconomic model that was chosen, which was not a shock therapy *cum* full-scale liberalization strategy, but a gradual policy of import substitution and avoidance of a negative supply shock, this resource flow was seen as the best option to finance the start-up costs of energy independence. By 1998 the net transfer was still substantial as it was estimated at US$500–600 million.[10]

There is no doubt that farm incomes suffered, which in the end provided strong disincentives towards cotton production, but there were macroeconomic reasons for this strategy, apart from the often cited interests represented by the powerful political elite to continue producing cotton, procured at very low prices. However, since the late 1990s and early 2000s, there is a clear shift in strategy, in which the omnipotent procurement system for cotton (and wheat) is showing cracks, and the share of benefits for the farm enterprises has become substantially bigger than before, improving farm enterprise incomes. The World Bank[11] gives data that underline this development (see Table 2).

By the year 2000, taxation had fallen (including debt write-offs, which was

Table 2. **Taxation of Cotton Sector in Uzbekistan (2000–2004)**

	2000	2001	2002	2003	2004
With debts write offs					
Net transfers (% of GDP)	4.7	2.9	3.1	1.5	1.8
Net transfers (as % of gross farm income)	50	35	35	20	22
Taxation (US$ million)	770	605	508	569	644
Subsidies (US$ million)	486	450	290	420	441
Net transfers (US$ million)	285	155	218	150	203
Without debt write offs					
Net transfers (% of GDP)	9.5	8.4	3.5	2.4	2.9
Net transfers (as % of gross farm income)	66	61	38	28	31
Net transfers (US$ million)	572	443	246	240	338

Source: World Bank, "Cotton Taxation in Uzbekistan: Opportunities for Reform," *ECSSD Working Paper*, No. 41, Washington, The World Bank, 2005.

a common form of implicit ex-post subsidy) to a level of US$770 million, while subsidies to the cotton sector were estimated at US$486 million, leaving a net outflow of US$284 million (around 35 per cent of the level of net transfer of 1993). This accounted for around 50 per cent of farm income (down from 80 per cent in 1993). At a macroeconomic level this transfer represented 4.7 per cent of GDP, where without debt write-offs this would be US$572 million (9.5 per cent of GDP), which is still sizeable. However, by 2003, this picture had fundamentally changed. Net transfer had been reduced to only US$150 million, representing 1.5 per cent of GDP (and 2.4 per cent without debt write-offs). The situation in terms of farm income vs. government revenue had reversed (80–20 per cent) since a decade ago. In 2004, taxation increased somewhat, as official prices remained below improved world market prices, but this did not fundamentally change the trend that is clearly visible.[12]

Farm enterprises (and the emerging "private" farms) certainly face serious payment problems in terms of arrears, lack of cash and under-valuation of quality. However, the taxation of the cotton sector has become substantially less than it was (less than corporate tax levels for example), and farm output prices are closer to adjusted world market prices.

Corruption at high levels in the government is also rampant and it is made possible by the still existing procurement system. It can be noted that in the early 1990s state procurement was withdrawn from all agricultural sub-sectors, except cotton and grain. The data on the quota should, however, be understood as procurement percentages of planned output (see Table 3). Planned output for cotton has been consistently higher than actual output, in particular since 1995, which means that farms had to sell a larger share of their cotton at official (very low) procurement prices. Although the rest should have been sold at negotiated prices,

Table 3. **State Procurement of Agriculture Products (1991–2002)**

Product	1991	1992	1993	1994	1995	1996	1997	1999	2001	2002
Wheat	100	100	80	75	50	50	50	50	50	50*
Cotton	95	85	80	75	60	40	30	30	30	30
Vegetables	100	50	50	–	–	–	–	–	–	–
Fruits	100	100	50	–	–	–	–	–	–	–
Tobacco	100	100	80	–	–	–	–	–	–	–
Meat and Milk	100	100	80	50	–	–	–	–	–	–

Source: Centre for Economic Research, Tashkent.
* In 2002 it was decided, by the Decree of the Cabinet of Ministers No. 306 dated of 29 August 2002, that this procurement share would be on actual, rather than planned output.

in order to stimulate production, in practice this above-plan price was just nominally higher.

Therefore, a much larger share of cotton is bought by the government – which holds a quasi-monopoly of cotton exports – at official procurement prices than is officially stipulated. This is to the detriment of the farms and agricultural enterprises. In the case of wheat the situation is slightly better. Half of the official quota is sold at – again low – procurement prices, and the other half at a ("negotiated") price, which is 20–30 percent higher. Most of the rest can be sold at market prices, which, depending on the season, can be two or three times the official procurement price. Nevertheless, also in wheat the planned output has been the norm, and the difference between plan and realized output has been very large in the second half of the decade. Only in 2002 was it decided that procurement quota would be related to actual output. Optimistically, these changes show a gradual road towards improvement and a more open market for cotton sales and exports. The US Foreign Agriculture Service (FAS)[13] concludes that "real changes appear to be on the horizon," citing an interview with a *shirkat* chairman who "expects cotton to be much more profitable, and as a result, expects that his farm will produce more cotton." The above analysis also does not concur with ICG's following statement:

> In theory, the low prices paid to farmers have been justified by Uzbekistan's import substitution policy. Hard currency receipts from agriculture would be used to fund capital expenditure for joint ventures and manufacturing[14]. In reality, much of this revenue has been channelled into the pockets of government officials and their allies. When spent, it often goes on loss-making prestige projects that do little to compensate for the rural poverty they rely on.[15]

Substantial changes have actually taken place in the agricultural sector in Uzbekistan, which needs to be analysed in order to understand the options for an agroindustry-led development, in which cotton can play a crucial role. The import-substitution model followed by Uzbekistan, which was so criticized by the international financial institutions (IFIs), but was reasonably successful, included the shift from importing grain from other parts of the former Soviet Union to growing grain up to a level of self-sufficiency. Whether this was economically justified is questionable, but within the emerging political economy of independent states, and the absence of functioning intra-regional markets in Central Asia, this policy was at least understandable. Sometimes this shift was wrongly interpreted as a move away from cotton. However, as can be seen from Table 4, the substitution of wheat was for fodder crops, rather than for cotton, as the livestock sector substantially contracted in Uzbekistan (and even more in other countries in Central Asia).[16]

Table 4. **Cotton/Wheat Crop Mix in Uzbekistan (1992–2004)**

Cotton	Unit	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
Area harv.	ha	1666.7	1695.1	1539.4	1492.8	1487.3	1513.4	1531.6	1517.4	1444.5	1452.0	1421.0	1392.7	1362.0
Yield	hg/ha	24.8	25.0	25.6	26.4	22.5	24.0	20.9	23.7	20.8	22.5	22.0	20.3	26.0
Produc-tion	mt	4128.7	4234.9	3936.1	3934.2	3350.1	3639.3	3206.2	3600.0	30001.8	3264.6	3122.4	2822.5	3540.0

Wheat	Unit	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
Area harv.	ha	627.0	697.4	958.5	1164.4	1328.6	1498.2	1412.4	1419.9	1355.8	1219.8	1282.6	1507.0	1210.0
Yield	hg/ha	14.4	12.6	14.2	20.2	20.6	20.9	25.2	25.4	26.0	30.2	38.7	35.8	37.0
Produc-tion	mt	964.0	876.0	1362.0	2347.0	2741.8	3073.4	3556.0	3601.8	3532.0	3689.8	4967.4	5400.0	4476.0

Source: FAOSTAT, Statistical Databases, 2005.

Social Relations and Land Reform in Central Asia, with Special Emphasis on Uzbekistan

Privatization of land and other assets, and the restructuring of the previously dominant state farms (sovkhozes) and collectives farms (kolkhozes), have been a focal point in many "transitional strategies" of countries of Central and Eastern Europe and of the FSU.[17]

Although reforms have shown a great diversity in form and implementation, there is a broad consensus on the reasons behind the stagnation of agriculture during the final stages of the Soviet regime. Firstly, the very large state and collective farms – although they were formed to benefit from economics of scale – suffered from low productivity and were inefficient in the use of resources, particularly capital. Technological innovation lagged behind, as did crop yields and the quality of production. Secondly, in the collective farms, free-rider behaviour was dominant and the income of members or workers, as well as overall production, had to be complemented by the produce of the household plots that had much higher land and labour productivity (partly by using subsidized inputs provided by the collective farm). Thirdly, these farm enterprises were taxed through the state-order system, which included compulsory procurement against low administered prices and disincentives to farm enterprises. This led in most cases to a transfer out of agriculture, even if one takes the inflows of subsidized credit, public investment and services into account. Nevertheless, apart from being production units, the sovkhozes and kolkhozes in Central Eastern Europe (CEE) and FSU countries had important social functions, providing their members with not only basic income and food, but also social and health services in the rural areas, the latter being a complicating factor in the current farm restructuring process during the "transition." In Central Asia these social functions were very much linked to ethnic, kinship, clan or family relations within the farm enterprise.[18]

As stated above, post-1991 reforms in the agricultural sector of CEE and FSU focused on the privatization of assets, especially of land, and the transformation of the existing state and collective farms, leading to farm restructuring. This led to new forms of association, namely co-operatives, joint-stock companies, partnerships, associations of peasant farms, private farmers and peasants. Sometimes these represented superficial changes, in other cases they were more profound and really transformed the enterprises.

These differences are not explained by simply pointing to a categorization of "slow," "gradual" or "rapid" reform. Of course, there are great differences in terms of the sequencing and extent of reforms at the macro level and *versus* the agrarian sector in Central Asia, but there are equally unexpected and contradictory processes that take place.[19] While there are calls for a deepening of reforms, in particular towards the privatization of land, seen as a precondition for farm efficiency, the diversified and dynamic nature of current farm restructuring is

increasingly recognized.

When analysing Kyrgyzstan, which is often hailed as the showcase of reform among the Central Asian states, Delehanty and Rasmussen also come to the conclusion that many of the transformations were initially "cosmetic."[20] Even after the new push in agrarian reforms during 1994–95, the private farm sector developed gradually, while other "reformed sectors," such as joint-stock companies, co-operatives and peasant associations, still retain some of the features of – largely inefficient – Soviet-style management practices. Kazakhstan has also gone through a wide-ranging process of farm restructuring, but most often without sufficient preparation, institutions and accompanying policies, which has contributed to a profound crisis in the sector.

Privatization of land and other assets, in combination with the restructuring of the dominant sector of state and collective farms in the FSU was generally seen as crucial in reforming the agricultural sector.[21] Certainly during the first half of the decade of the 1990s these reforms have proven to be very difficult to execute. Particularly in Central Asia, state ownership of land was maintained, and the distribution of land to sovkhoz workers and kolkhoz members was in most cases only in the form of usufruct rights, with wide variations between countries as regards inheritance and tradability. In Kyrgyzstan, land sales became possible but the government immediately decided to impose a five-year moratorium on the sale of land. Changes in farm enterprises – such as the formation of joint stock companies, farmers' co-operatives and partnerships (*tovarishchestvo*) – were often nominal rather than real. This reveals the existence of political and social forces that represent vested interests, but it also points to a certain hesitation among the farming population to embark upon private farming, with rural input, output and credit markets often lacking.

Why has relatively little land really been privatized (although the governments of Central Asian states consider some of the above-mentioned mostly quite superficial, ownership transformations as "privatization")? There are a number of reasons. Firstly, there were initially insufficient incentives to break away from the remaining collective structures. New markets for inputs and outlets for agricultural production were emerging in a very slow and fragmented manner, while credit for private farmers was often not available.

Furthermore, the social infrastructure of education and public health was related to the old parastatal or collective structures. Secondly, the rural *nomenklatura* held on to power, or even hoped to increase it. Keeping the previous structures intact (albeit under another name) gave the *nomenklatura* better options to retain social and political control over the rural areas.[22] Furthermore, when land is privatized it is the former party elite that seems to acquire control over most of the best land. Newly established enterprises (joint-stock companies, peasant associations, co-operatives, etc.) are still closely tied to remaining large-

scale state trading and processing companies (as is the case in Turkmenistan, Uzbekistan and partly in Kazakhstan), forcing them to keep their structure and previous forms of operation intact. Peasant farms – sometimes physically within the perimeters of the former kolkhozes – still depended on the farm manager of the latter for inputs and sales. Thirdly, agricultural production depends heavily on existing large-scale irrigation systems. There is a fear, in particular in Uzbekistan, that the break-up of the large production units into small peasant farms will lead to the deterioration of the existing irrigation structures.[23] Fourthly, the governments of Central Asian states want to ensure that the land privatization process does not lead to conflicts along ethnic lines, as was the case in 1990 in Osh, where access to land was a major issue in the violent and bloody riots between Kyrgyz and Uzbeks.

There are similar tensions in Kazakhstan, in particular between the Russian farming population and the Kazakhs on the Northern plains. Therefore, leasing of land (often with inheritance rights and long leasehold periods) has meant an initial step on the road to privatization, while land was still owned by the state. Distribution of usufruct rights to farm on small plots of state-owned land by households is widespread, while subcontracting of collective land to households, forming "private" peasant farms, has recently emerged in response to popular demand for land. Agrarian reform – in terms of the formation of private family farms – has made considerable progress in Kazakhstan and Kyrgyzstan, less in Uzbekistan, and very little in Turkmenistan. Since the peace agreement in Tajikistan in 1997, land reform has also been implemented in that country. However, land reform has more often than not taken the shape of nominal or cosmetic changes, with state farms transformed into joint stock companies or co-operatives, and collectives into limited liability partnerships or leasehold companies. These changes mean nothing more than taking away the old name plate above the main gate and replacing it with a new one. Land in the CAS has been "privatized" in different ways, which makes it also difficult to assess what share of agricultural land is currently in private usufruct or *de jure* ownership. The process of dividing up large farms and forming peasant farms has speeded up since the late 1990s, especially in response to the enormous indebtedness of many "post-collective" enterprises.

Uzbekistan has followed a gradual reform path in the agricultural sector in comparison to other countries in the former Soviet Union. Although it is difficult to identify clear stages of reform, the changes in land tenure were, until the late 1990s, rather cosmetic in nature, apart from the re-distributive expansion of the household plots that took place in the first few years. Most of the reforms were taking place in the sphere of markets and prices, and in relation to the degree of coverage of state procurement.

In response to popular demand, the government increased the access to house-

hold plots, a process that had started since late 1988. By 1993, a total of 650,000 new households had received plots and 1.6 million households had been able to increase the size of their plots. The overall number of households with plots had reached 2,5 million, and the average size per family increased from 0.12 to 0.19 ha per family. The land distribution took various years, as little land was available, and the government – after independence – decided not to break-up the large-scale farm enterprises at once.

The *s*ovkhozes and kolkhozes were converted into collective farms, which often only meant a change of name. As they remained largely within the planned system (as far as cotton and wheat – the country's strategic crops– were concerned) of delivered inputs and procurement of output, this did not mean that there was a move towards privatization. The system of subcontracting to families (already introduced since the late 1980s), was continued, although there was very little freedom for the household to decide what to grow and where to sell the output, except on own their garden plot. For collective farms, during a large part of the 1990s, the Soviet-type planning system remained in force.

However, on the ground, several experiments within the margins of the system were undertaken, such as splitting very large farms into somewhat smaller ones, and introducting a form of management that was decentralized to some degree. Some farms were even transformed into joint-stock (shareholding) companies (with shares given to their workers) after 1996. Therefore, until late in the decade the agrarian structure remained a dual one, with on the one hand the strictly controlled collective farm enterprises, and on the other hand the very small-scale household plots. The latter were producing most of the high-value agricultural products, such as tomatoes, potatoes, milk, meat and eggs. Much of the livestock also came into the hand of the households, and the large-scale enterprises nearly exclusively focused on cotton and increasingly also on wheat, as the government of Uzbekistan embarked on a wheat self-sufficiency policy, which was forced upon the collective farms.

The new type of farm enterprise that was supposed to become important, as it was introduced with the Law on Peasant Farms of July 1992, was the peasant or *dekhkan* farm. Originally these farms were intended to become farms of between 10 and 20 ha, which is quite different in size from the household plots. Since 1999 the term *dekhkan* has been used for a formalized form of a household (plot) farm, which uses the household labour force and the private plot given to the head of household for lifelong inheritable ownership. At the same time, state ownership of land has remained unchanged, with only different forms of leaseholds in place. They encountered – with often only marginal lands from the collective farms being allocated to them – very fragmented or even missing markets of inputs and farm output, which made their chances of survival rather slim. The household or subsidiary plots numbered 3,362,400 in 2001. In this category

the *dekhkan* farms have 1.8 million units, covering 290,000 ha of land, with an average of 0.16 ha/*dekhkan* farm. The *dekhkan* farms (just like the garden plots of often similar size) have land with life-long inheritable usufruct rights. The maximum size is 0.35 ha of irrigated land per capita, and up to 0.5–1.0 ha of non-irrigated land or in steppe or desert areas. The garden-plots of rural and also urban dwellers that are not considered as *dekhkan* farms, cover around 200,000 ha, with an estimated average of 0.13 ha. The average acreage of arable irrigated land can, however, be substantially smaller than this amount. The official minimum is 0.06 ha (or 6 *sotka*).

At the beginning of 1998, several important laws were adopted, which allowed to facilitate the process of reforms in the agricultural sector: the Law on Agricultural Co-operatives, the Law on Farms, the Law on *Dekhkan* Farms, the Law on State Land Cadastre and the Land Code. One could see this as the second phase of the land reform, but equally so it can be considered as a way of speeding up the gradual process that was started in the early 1990s. The most important change was that the collective enterprises were transformed into co-operatives (*shirkats*). Since 1998, a process of financial sanitation of economically insolvent agricultural enterprises (*sanatsia*) has been under way. The Law on Sanitation of Agricultural Enterprises, adopted on 1997, was issued in order to promote the financial sanitation of economically insolvent enterprises in the country. In some cases, the process of sanitation ends in reorganizing the farm into private (leasehold) farms, a process which has been speeded up since 2003.

This also contributed to the recent and rapid growth of the private [leasehold] farm sector (Table 5), although these farms still have substantial difficulties in terms of their limited decision-making power regarding their crop-mix and sales.

Table 5. **"Private" Leasehold Farms in Uzbekistan (1992–2004)**

	1992	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**
No.	1,900	5,900	7,500	14,200	18,100	18,800	21,400
Size	7	8	9	14	15	15	15
Acreage	13,300	47,200	67,500	198,800	271,500	282,000	321,000
	1999	**2000**	**2001**	**2002**	**2003**	**2004**	
No.	23,000	31,100	43,800	55,400	87,550	103,900	
Size	19	21	20	19	24.5	28	
Acreage	437,000	653,100	889,600	1,054,700	2,148,100	2,929,980	

Source: Department of Statistics, Ministry of Macroeconomics and Statistics, Tashkent; A. R. Khan, "Land System, Agriculture and Poverty in Uzbekistan," Paper presented at UNDP Seminar on Land Policies, Institute of Social Studies, The Hague, April 2005.
Note: Data is given for 1 January of each year, except for 2002, which reflects the situation in October 2001.

These private leasehold farms, when they are producing wheat and cotton, are still covered by the planning and state procurement system, which – in spite of the reduction of the official procurement quota – is still largely in force.

The private or independent leasehold farms numbered 55,400 in 2002, occupying a total acreage of 1,054,700 ha. In particular during the period 1998–2002 there has been a rapid growth in this sector, both in the number of farms and in the total acreage they cover. They received long-term land lease rights of up to 50 years. As stipulated by law, cotton and cereal farms should have minimally 10 ha of (irrigated) land. Horticultural farms, vineyards and other intensive crop farms should have no less than 1 ha, while in livestock breeding there is a minimum of 30 animals stipulated and at least 0.30–0.45 ha of irrigated land or 2.0 ha of non-irrigated land.

In many cases the farms are still within the boundaries of the *shirkats*, and therefore these are dependent on the vagaries of the *shirkat* management, with regard to access to water and other inputs. Given the fact that the practice of partial allocation of land from collective and *shirkat* farms did not prove successful, in line with governmental resolutions, in the mid-1990s more than 7,000 "private" farms were established on the territory of 138 unprofitable and "dead-end" *shirkat* farms.

In the process of division of the large-scale farms, land is allocated to newly established private farms, sometimes including the farm workers that traditionally worked the land. The private farm then has to pay wages or sub-contract the work to these families. Finally, at regional (*oblast*) and district (*raion*) levels, associations of private and *dekhkan* farmers have been established, which should have the role of supporting both categories, but sometimes form a new intermediate bureaucratic layer of control. Until 2002 the *shirkats* still remained predominant with 65 percent of the arable land. However, in these agricultural enterprises, several changes took place in the management and operation of the family leaseholds. The *shirkat* farmer works in a *pudrat* which represents a leasehold contract with a family. Since 1999 the responsibility of keeping the farm accounts (on inputs used and output produced) has been shifted to the *pudratchi*. This is a further step towards financial independence of the leasehold, but given the planning and procurement system which is enforced on the cotton and wheat farms, the room for manoeuvre is still restricted, while the production risks have been passed on to the leasehold families.[24]

Since 2003, a major change in government policy towards the *shirkats* has been introduced, namely the rapid transformation of most of them into private commercial (leasehold) farms. While "land hunger" amongst the rural population is quite strong, and rural poverty severe (see below), the leadership has opted for enterprise restructuring and privatization (at least towards leasehold farms), rather than the more obvious step to a re-distributive land reform. Khan correctly

points out that the current process of privatization is far from transparent, and it seems indeed that the rural (and urban) elite takes the opportunity to become a new landlord class in Uzbekistan.[25] It is not efficient, as small-scale farms could be equally productive or even more than medium-size or large farms (also when it concerns cotton). It is certainly not equitable, which would be very important in the case of Uzbekistan. The move seems to reflect the political economy of authoritarian power in Uzbekistan, and a strive by the elite to keep control over resources and in particular over value-chains and resource extraction through intervention in marketing systems, although, as we have seen above, these find themselves in a flux of change. Nevertheless, while the 2005 ICG report firmly states that "land reform has been blocked," gradual changes and increased dynamism can be noted from the above analysis. However, it remains unclear whether there will be an improvement in terms of the low incomes of the *shirkat* workers, of which a large part will become workers on "private" farms, although labour-shedding will take place. Rural unemployment might be the outcome of this privatization process, while there is hardly any rural non-farm economy to absorb it. In the short-run the use of student, female and child labour to pick cotton are likely to remain commonplace, in spite of the justified objections against it. Any visitor to Uzbekistan during the cotton harvest period will be impressed when their car is obliged to give way to long queues of trucks and buses, hired by the cotton enterprises and full of young students, factory workers and civil servants, mostly women. With the liberalization of prices of many inputs, the use of harvesters has become much more expensive, while the quality of handpicked cotton is also better. Therefore, pressure remains to supply large quantities of seasonal labour, in spite of the disruptive effects this has on industrial production, schools and universities. Working conditions are often bad,[26] and child labour is used, in spite of agreements to the contrary. Improvement of the output of these new farms, and consequently increased rural wages are expected to improve the lot of cotton workers, but this might lead to the creation of an even poorer segment of the rural population, namely the unemployed.

Cotton as "White Death"?

During the Soviet era no ecological costs were taken into account in the production of cotton. Although water was scarce it was always seen as a free resource, and in Central Asian parlance, as a resource "given by Allah." The high costs of spillage of pesticides, the salinization of soils, the drying up of the Aral Sea and the disastrous health consequences became apparent during the "transition," but its causes were hardly taken seriously.[27]

Although investments have been made in irrigation the maintenance of the whole system is insufficient and its quality is declining. Whereas in other major cotton-producing countries like the USA or Egypt water-saving techniques have

been important in improving the efficiency of irrigation systems, they have not been a priority in Central Asia. The seepage from major canals and field channels seepage is enormous, and substantial losses are incurred when transporting water in open canals in the desert temperatures of Central Asia. That has led to the current situation in which, in most parts of Central Asia around 13,000 square metres is needed for a hectare of cotton, much more than in many of the competing cotton producing countries.[28] The sovkhozes and kolkhozes were part and parcel of the state supply and procurement system, and inputs were planned on the basis of the (often over-) estimates of the enterprise management. Water, the most important input had no price and therefore did not represent a cost in the production accounts.

In earlier work I have elaborated extensively on the relation between agricultural intensification, cotton production, irrigation and environmental disaster in the Aral Sea Basin.[29] There are several problems, which are indeed severe. Firstly, the Aral Sea itself has been shrinking to around a fifth of its volume of the 1960s. Fishery is practically eliminated, and exposed sea-beds of salt and polluted sand have negative consequences on the environment. Storms take the particles far away, and pollute the fields and the air. Temperatures become more extreme, since the volume of water of a large inland lake in the middle of the desert is shrinking fast. Secondly, river water and soil are exposed to processes of increased salinization, changing the eco-systems of water and reducing soil quality, and hence the productivity of irrigated land. It is often said that Central Asia's problem is not that of water, but that of salt. Thirdly, the irrigation systems have suffered considerably during the past decade and a half, and although it is generally accepted that the water management system and its institutions are reasonably well organized, investments and maintenance are badly needed. Fourthly, there are clear-cut conflict areas on the use of water, at local or regional level, as well as between states, such as the upstream (Kazakhstan and Kyrgyzstan) and downstream countries (Uzbekistan and Turkmenistan) in Central Asia. Uzbekistan has not moved away from cotton (neither have Turkmenistan and Tajikistan), and for the governement of Uzbekistan the sector still has enormous significance in terms of employment and foreign exchange. Therefore, to suggest that the easy way out of the environmental problems caused by the overuse of water to irrigate cotton would be to drastically reduce the area in production seems to be rather far from the harsh economic reality of the region. This was already reflected by the statement of a high official of the Interstate Council for the Aral Sea:

> Who will have the braveness to tell the farmers: "reduce production and perish"? It will take quite some time to have rational production systems, where instead of cotton and rice, in some places the farms will produce wine and other products. Nevertheless, currently all states want to be independent in

> the production of grains. In fact, it is too hot during the summer in Turkmenistan and Uzbekistan to produce grains. At the same time, cotton is the foreign exchange earner. This question is a very important one, and has to be faced in the very near future.[30]

The move towards self-sufficiency in wheat by Uzbekistan has been successful in strategic terms, but was economically not really rational, and although wheat uses much less water than cotton, because of the extensive type of production, was also not beneficial for the environment.[31]

Some argue that the cotton areas in Uzbekistan and Turkmenistan should be severely reduced, adopting a slogan which was heard as far back as 1970s in Tashkent: "down with cotton, long live the orchards."[32] It seems that the ICG 2005 report also reflects this populist idea, as it suggests that cotton is the cause of poverty and the continuation of authoritarian rule, and the cotton "farmers" get next to nothing paid anyway. So why not stop altogether with cotton? The answer could be that they are forced to grow it, but you do not need a detailed analysis in order to conclude that cotton production in Uzbekistan for example is much more profitable than wheat. In that sense the view of the more technical reports on cotton[33] is one of substantiated critique of institutions and policies, as well as of their negative impact on incomes, productivity and the environment. Also these reports indicate the type of reforms that might substantially improve the situation in the cotton sector rather than suggest that cotton itself is the "curse."

Concluding Remarks

Cotton in Central Asia is a fundamental part of the economic, social and economic history and future development of the Central Asian cotton-producing countries, particularly for Uzbekistan, which is by far the biggest with cotton being also the most important sector in the economy. To a lesser extent, this is also the case for Tajikistan and Turkmenistan, and substantially less so for Kyrgyzstan and Kazakhstan. While the social, environmental and institutional problems in the sector are serious, and issues such as child labour and rampant corruption clearly need special attention, this still does not mean that cotton needs to be portrayed as a "curse." The region has abundant sources of water (although these have been grossly misused with devastating environmental consequences), and the appropriate climate for the growing of this particular crop. Cotton is still cost-effective to produce, in spite of lower real prices in international markets, a situation which – providing the right incentives to producers and provoking an increase in yields, quality and shift towards organic cotton – could well improve rural incomes. This aspect is crucial as many rural dwellers in Uzbekistan are depending on wage labour in the cotton sector (regular and peak harvest labour).

Recent developments towards investments in the textile industry seem prom-

ising for a stronger cotton-based agro-industrial development, which – in the absence of many other competitive industrial sectors – could clearly become an engine of growth.[34] According to the FAS 2002 report this sector has attracted substantial foreign direct investment, and has started to consume a larger share of the produced cotton lint. Until now cotton has co-financed a substantial part of the import substitution model of Uzbekistan, and, contrary to the negative judgement of its outcomes (such as in the often referred to ICG 2005 report, but also shared by the IFIs, although in a more moderate manner), with a considerable degree of success.[35] That the model has become exhausted is also clear, and the cotton sector should now become the object of incentives and investment, rather than be seen exclusively as a "milking cow." The current institutional changes in the land structure, property rights and the procurement system do point in that direction, although much more needs to be done.

Notes

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3 Azizur Rahman Khan, and Dharam Ghai, Collective Agriculture and Rural Development in Soviet Central Asia, London, MacMilland, 1979; H. Carrère d'Encausse, *Islam and the Russian Empire*, op. cit.
4 Boris Rumer, "Central Asia's Cotton: The Picture Now," *Central Asian Survey*, Vol. 6 (4), 1987, pp. 75–88.
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6 C. Cavanaugh, "Uzbekistan Looks South and East for Role Models," RFE/RL Research Report, 1/40, 9 October 1992.
7 B. Rumer, "Central Asia's Cotton: The Picture Now," op. cit.
8 Giovanni A. Cornia et al., *Uzbekistan: Linking Macroeconomic Policy to Poverty Reduction, Tashkent*, UNDP, 2003.
9 Until recently there was even not such a category of producers (except for the household plots), and certainly not in the cotton sector, that was worth taking into account, as most cotton was produced by *Shirkats*, the heirs of the state and collective farms, and not by independent " farmers." Those who work on these farm enterprises are workers, who are indeed having lower incomes than independent farmers and peasant farms (the so-called *dehkhan*). See D. Kandiyoti, "Pathways of Farm Restructuring in Uzbekistan: Pressures and Outcomes," in M. Spoor (ed.), *Transition, Institutions and the Rural Sector*, Lanham and Oxford, Rowman & Litllefield, 2003, pp. 142–63; A. Ilkhamov, "Shirkats, Dekhqon Farmers and Others: Farm Restructuring in Uzbekistan," *Central Asian Survey*, Vol. 17 (4), 1998, pp. 539–60.
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14 Which it actually did, see G. A. Cornia et al., *Uzbekistan: Linking Macroeconomic Policy to Poverty Reduction*, op. cit.
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23 *Ibid*.

24 D. Kandiyoti, "Pathways of Farm Restructuring in Uzbekistan…," op. cit.

25 A. R. Khan, "Land System, Agriculture and Poverty in Uzbekistan," Paper presented at UNDP Seminar on Land Policies, Institute of Social Studies, The Hague, April 2005.

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28 *Ibid*.

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4

Legal Regulation of Cotton Exports in Uzbekistan

Mavlyuda Kulikova

After independence, Uzbekistan created a normative and legal framework to regulate the export of goods, including cotton. It includes:

- The law of 14 June 1991 on "foreign trade activities,"[1] which proclaims freedom and economic independence, protection by the state of the rights and legitimate interests of foreign trade agents as the main principles of foreign trade.
- The law of 7 May 1993 on "currency regulation,"[2] which governs the activities of the managing agents involved in the exportation of cotton production, especially in terms of the regulation of currency transactions between foreign trade participants.
- The law of 29 August 1998 on "the contractual and legal basis of managing agents' activities" which as a whole defines: the legal basis of signing, implementing, changing and voiding contracts; the rights and duties of managing entities; the competence of governmental bodies; and the principles of management in the sphere of contractual relations.
- The Civil Code, the Customs Code and the Tax Code and other normative and legal documents which place further conditions on the export and sale of cotton, and the regulation of producers.

It is important to note that the legal regulation of foreign trade has certain deficiencies such as the preservation of an administrative bias and the rigid centralization of economic management. Not only are the laws of great importance in regulating the economy but sub-legislative statements (including presidential decrees, governmental orders and resolutions of authorized bodies) often distort the meaning of constitutional provisions and laws.

An Evolving Export System: The Basic Stages

Important changes have taken place since independence, particularly in the field of institutional reform and the search for necessary ways of regulating the external economic sphere. Regarding the development of foreign trade legislation,

it is possible to conditionally mark out three basic stages in the regulation of exports (including the export of cotton).

The first stage (1991–95) marked the beginning of market transition, the promotion of foreign trade, the decrease of state duties, the liquidation of the state monopoly on foreign trade, and negotiations of structural distortions in agriculture. Given the price disparity between agricultural and industrial products, the mechanisms of pricing that were used in the country demanded significant state intervention and subsidies to unprofitable sectors such as agriculture.

The state took measures to liberalize prices and trade, and to allow the establishment of commodity and stock exchanges, joint-stock companies, insurance companies and other elements of market infrastructure. However, these reforms could not be properly completed as the liberalization of prices was followed by the introduction of a distributive and normative system for different kinds of goods and, despite a slow transition to tariff regulation, rigid control over foreign trade continued. Even the transformation of some enterprises into joint-stock companies did not radically change attitudes to property because of their unavoidable dependence on decisions by strong-willed, authorized state bodies.[3]

Although the state applied a limited approach to regulating the agricultural sector, a continuing recession in the economy called for structural reforms. Some measures such as the introduction of a national currency in 1994, the harmonization of foreign exchange rates with the national currency, and the establishment of inter-bank auctions of foreign currencies, helped to speed up the pace of reforms. This in turn guaranteed the introduction of an independent monetary policy with a view to macroeconomic stabilization and economic growth, although limited opportunities for converting the national currency constrained the development of cotton exports.

Uzbekistan became a participant in several international legal agreements and a member of leading international financial organizations.[4] It ratified international-legal arrangements and agreements on the protection of foreign investments and the procedures for the settlement of disputes on these issues by arbitration.

A resolution was accepted for the creation of an international cotton stock exchange, an international transport-forwarding joint-stock company and an independent interdepartmental centre on information supply for the international partners of Uzbekistan in the country.[5]

In the first stage, the presidential decrees and the documents issued by governmental bodies on the reform of agricultural sector were accepted, the management system of the agro-industrial complex was reorganized, the former State Committee on Agriculture of the Uzbek Soviet Socialist Republic (SSR) became the Ministry of Agriculture, and the State Joint-Stock Association on

Raw Cotton Processing and Cotton Products Sale, "Uzgoskhlopkopromsbyt," was formed.

During this period the regulation on the manufacture and export of cotton fibre was characterized by an increase in internal prices, the cancellation of state orders for almost all types of agricultural products (except cotton and grain), the introduction of simplified procedures for licensing the export of over-quota production (after the fulfilment of state orders), the cancellation of obligatory licenses for agricultural exports (except for cotton), and the privatization of state agricultural enterprises.

A common foreign currency exchange rate was introduced in the country for all types of transactions and operations,[6] and uniform procedures for the licensing and introduction of quotas for export and import were implemented for all managing entities.[7] Finally, a list of export-licensed goods was established which included cotton, fibre cotton and cotton leftovers. The licensing of cotton fibre export was assigned to the Ministry of Foreign Economic Relations, which at the same time was authorized to export the cotton that remained at the disposal of national currency enterprises through a raw commodity exchange arrangement which did not require a license or the payment of customs duties.

When contracts were made outside the framework of interstate and intergovernmental agreements, an order of the Cabinet was required for barter agreements on the export of cotton fibre and leftovers in excess of the established quota with the enterprises of post-Soviet states.

The provision for the transaction and execution of contracts for agricultural production, approved by the Cabinet Resolution of 29 August 1994 (No. 438),[8] guaranteed the legality of relationships based of these contracts, and established the freedom of legal persons to enter into such contracts. For producers of cotton, however, the situation did not improve because the conditions of the aforementioned agreement do not apply to the system of production based on the state-order system .

Apparently, considering that freedom in the transaction and execution of contracts does not always entail the obligation to observe and execute legislative documents, the authorities have taken measures for the establishment of rather rigid controls over foreign currency transactions for export and import by the Central Bank, authorized banks, the Ministry of External Economic Relations, the State Tax Committee, the State Customs Committee and the Ministry of Finance.[9] Foreign traders faced such restrictions as they were prevented from opening a foreign-currency account in more than one authorized bank. Restrictions included the necessity to register as a foreign trading entity, the registration of export contracts in the Ministry of Foreign Economic Relations and their registration in an authorized bank.

A system of obligatory sale to the Central Bank of foreign currency pro-

ceeds[10] inflowing from the export of state and centralized resources was introduced for the managing agents, and the expenditure of the specified funds was only possible through the Republican currency stock exchange.

The Presidential Decree of 19 July 1995 on "further liberalization of foreign trade in the Republic of Uzbekistan" created conditions for the transition to measures of tariff regulation, the simplification of export-import transaction mechanisms and its adoption in accordance with international practice. The same decree formed the Interdepartmental Commission to consider the rates of customs duties with the right to submit proposals for the change of such rates to government approval.

Significant changes to the system of export-import regulation were brought by the Cabinet Resolution of 25 July 1995 (No. 287) on "measures regarding the further liberalization and perfection of foreign trade." Export of cotton fibre and lint began to be carried out by the licenses granted by the Ministry of Foreign Economic Relations in accordance with established quotas and, at the same time ,the Cabinet reserved the right to approve export quotas on production remaining at the disposal of agricultural producers. Customs duties on the export of cotton by intergovernmental and credit agreements, coming from countries that are benefiting from preferential terms, as well as production delivered within the limits of established export volumes for state needs, were cancelled following the adoption of this decree.

In order to ensure that Uzbek cotton was competitive on the world markets and complied with world standards, the task of carrying out inspection and issuing certificates of origin for exported goods was assigned to the Ministry of Foreign Economic Relations.

A term of obligatory sale of currency proceeds to the Central Bank was established for exporters. Sanctions such as withdrawing the status of foreign economic relations agents, revoking licenses received for carrying out transactions in a foreign currency, holding officials to account and imposing administrative fines in accordance with established procedures were introduced to address the problem of delayed receipt of proceeds on the Central Bank account.

Thus, the monitoring system behind export-import transactions was most likely shaped not by the need to stimulate the producers and exporters of cotton but to respond to delayed or incomplete receipt of payment and infringements of accounting rules, the detection of which made governmental authorities react and immediately take adequate measures against the infringers. It was a rather difficult period that entailed a rigid regulation of foreign traders' activities.

The second stage (1995–97) is characterized by the creation of export-oriented production, the introduction of a system of import tariff regulation and the reduction of export duties (cotton, grain, nonferrous metals and energy carriers remained on the list of licensed and quoted goods for export).

Certain shifts in the sphere of the production and export of cotton were due to the fact that, since January 1995, financial support from the IMF came with conditionalities of transforming the system, and a system of export crediting started to take shape.

However, the privileges established from 1 April 1996[11] under the profit tax for manufacturers of exported goods did not apply to the enterprises that produced cotton fibre, lint and cotton yarn.

It is worth noting that up to the mid-1990s exporters could exchange cotton on barter, which provided producers with a good opportunity to sell their cotton on other markets. However, since barter transactions caused notable violations by businessmen, especially tax avoidance, such contracts were later prohibited.[12] When it was understood that the prohibition of barter reduced opportunities for export, a resolution was accepted to allow export-import operations through barter without the authorization of executive agencies and under the condition of faster delivery of the imported goods or the granting of bank guarantees from the foreign partner.[13]

Export earnings, at this stage, began to decrease under the influence of falling world prices and a poor cotton harvest in 1996, which caused the balance of payments to worsen. At the end of 1996 Uzbekistan was forced to shift to a rigid administrative regulation of the exchange rate and currency transactions which resulted in a sharp growth in the discrepancy between official and unofficial exchange rates. Despite progress in macroeconomic stabilization, exports were nevertheless reduced, following an increase in the level of external and internal debts and a reduction of foreign currency reserves.

An interdepartmental commission to organize a system of obligatory inspection certification of goods on foreign markets and the registration of exporters at inernational stock exchanges for commodities was formed, to deal with problems of timely receipt of currency and the monitoring of quantity, quality and prices of exports.[14] It was established that the export of "liquid goods"(commodities that can be sold quickly) through raw commodity exchanges and republican trade fairs is carried out in hard currency on the basis of average world prices.

With a view to preparation for accession to the WTO, the Ministry of Foreign Economic Relations and other interested ministries, departments and authorized banks are entrusted to organize independent pre-shipping inspections of export goods, establish futures contracts and options with the use of financial guarantees, and introduce a service for the purposes of minimizing losses from the delay in the receipt of foreign currency payments.

From this point onwards, a new stage began in the development of cotton fibre certification in Uzbekistan: an independent republican centre of certification inspection and quality assurance for cotton fibre with regional laboratories

and the organization of warehouses for certified cotton fibre were established, and a programme of measures for bringing the standardization and certification systems to the level of international requirements was developed.

The third stage is characterized by measures to stimulate exports. For instance, the export customs duties on all kinds of goods were cancelled as of 1 November 1997, and the system of licensing exports was abolished practically on all goods, including cotton fibre, cotton yarn and lint.[15]

It became possible for managing entities to carry out export in a hard currency without an advance payment and a letter of credit, and enterprises exporting to CIS countries for hard currency were exempt from paying excise tax and value added tax, and their hard currency income was exempt from deduction of income tax and benefited from lower rates of property tax. However, not all these privileges applied to enterprises exporting cotton fibre, yarn and lint; thus, tax privileges have not reached cotton producers.

However, as a step towards allowing all industrial enterprises to export their own manufactures, they were authorized to open offices to conduct marketing research of foreign markets, advertise their merchandise and ship goods on a consignment basis abroad.

Since 1998 the government has introduced a policy of stage-by-stage liberalization of foreign currency and partial easing of taxes. This has had an effect at the macroeconomic level in the form of stabilizing the dynamics of exports and decreasing exchange rate difference, which in turn has promoted the development of cotton exports to a certain extent.

The Cabinet supported the initiative of local authorities to create joint-stock companies from networks of wholesale agricultural marketing boards.[16] But cotton and grain were excluded from these markets. As a result, agricultural manufacturers did not get the opportunity to sell their cotton on the open markets, which could have been an initial experience of participating in foreign trade for them. Moreover, this may have had real prospects as the founders of the wholesale markets were public associations of businessmen such as the Chamber of Commodity Producers and Businessmen of Uzbekistan,[17] whose tasks include rendering assistance to businessmen in the expansion of their business contacts with foreign partners and investors, and promoting export production on foreign markets. Another founder was the Dehkan and Farmer's Association,[18] which acts to assist agricultural commodity producers in selling their production and to provide *dehkans* and farmers with legal, marketing and other services.

At this stage volumes of cotton fibre export were increasing. The National Programme for the Development of Uzbekitsan's Export Capacities for the period until the year 2000[19] was adopted to strengthen the position for Uzbek cotton in the world market and to increase currency earnings in 2000.

While in 1995 it had been established that the export of cotton fibre and cotton lint was to be carried out in hard currency,[20] since 1999[21] cotton fibre as well as all other export goods began to be sold through raw commodity exchanges only for a hard currency, with the proviso of registering such contracts at stock exchanges, in customs bodies and at authorized banks.

At a certain point the governmental regulation of the cotton processing industry had ceased to be effective and did not meet the conditions and standards of the market. This resulted in the forming of a special commission on privatization to transform enterprises and organizations that are a part of the State Joint-Stock Association on Raw Cotton Processing and Cotton Products Sale (Uzgoshlopkopromsbyt) into joint-stock companies.[22]

In 2001 the "Uzgoshlopkopromsbyt" was transformed into the National Association "Uzhlopkoprom."[23] It was granted the right to control the quantity and quality of raw cotton, the products processed by cotton-processing enterprises and the deliveries of cotton production.

It has been established that the Regional "Hlopkoprom" joint-stock associations (which in turn included the enterprises on processing raw cotton waste and manufacturing of collateral production from it), a member of "Uzgoshlopkopromsbyt," is responsible for the buying and selling of raw cotton. It also supplies processed cotton production for export in accordance with established procedures, maintains mutual accounts with agricultural enterprises to supply raw cotton and cotton products, and provides agricultural producers with cotton seeds.

Because one of the primary tasks of "Uzhlopkoprom" became the control over quantity and quality of manufactured cotton products it thus represented the main managing and auditing department in charge of controlling the reliability of data on quantity and quality of raw cotton. Among other things, it prepared and maintained cotton-growing facilities in accordance with the structure of "Uzhlopkoprom."

Following the Presidential Decree of 13 November 2002 on "additional measures for strengthening control over the system of accounting and reporting of cotton-processing industry enterprises," the Association found that it could not cope with its tasks. Therefore, functions relating to the oversight of cotton-processing enterprises were passed on to the Ministry of Finance.

An important event in the development of cotton exports was the signing of a memorandum concerning economic policy between the IMF and the government of Uzbekistan at the beginning of 2002.[24] Under the terms of this memorandum, Uzbekistan was obliged to maintain state purchasing prices for cotton at the level of world prices, in addition to normal expenses for processing, selling and transportation; also, the volume of state purchases should be defined according to the actual volume of manufacture and not planned volumes. The signing of

the memorandum led to the release of several governmental documents on the problems of pricing and selling.

The Presidential Decree of 24 March 2003 on "the major directions for deepening agricultural reforms," defined the basic purpose and the creation of economic and legal conditions to maintain the interests of rural commodity producers. The decree subordinates to them the storing and processing enterprises, the suppliers of material resources, financial-bank establishments and other service organizations.

At this point an order was issued which forecasted volumes of raw cotton for the current year for the republic as a whole and in the regions. Estimates were made according to the information supplied by local authorities which themselves depended on contracting agreements concluded between agricultural producers and purchasing organizations.

At the same time, agricultural commodity producers were given the right to independently carry, gather and transport crops. However, in view of the continuing state purchasing system, this mechanism has been ineffective and, therefore, cotton exporters have not reached their objectives.

Institutional Environment, Rules and Procedures

Let us consider in brief how the system of cotton fibre production and export now functions in the republic.

Rural commodity producers[25] (basically farms and *shirkats*),[26] take on certain obligations to deliver raw cotton to the state at established purchasing prices; the state in turn provides privileged manufacturers with fertilizers, raw materials and other resources necessary for the cultivation of cotton.

Cotton producers hand over their production to the enterprises of the "Uzhlopkoprom" Association where an assessment of quality is made and where the processing of cotton and its sale to foreign traders is carried out. The "Hlopkoprom" joint-stock associations carry out payments to manufacturers for the cotton supplied.

For many years there were a number of joint-stock companies authorized by the state, such, as GAVK "Innovation," GAVK "Uzmarkazimpeks" and GAVK "Uzprommashimpeks" from which cotton fibre was purchased by all other Uzbek exporters (except for cotton lint, which could be bought from any organization with US dollars via the stock exchange). This was due to the fact that the specified organizations were included into the structures of the Ministry of Foreign Economic Relations until all these joint-stock companies became independent entities.[27]

In June 2003 a new order about cotton fibre exports[28] was issued. According to governmental documents, these changes were made for the purpose of introducing market principles, creating a competitive environment in the cotton

market and introducing an international system of accounts in the cotton production sector.

In accordance with this order: (a) foreign companies make wholesale purchases of cotton fibre at the "Hlopkoprom" joint-stock associations and subsequently sell it to joint ventures purchasing cotton fibre for currency on the basis of established contracts; (b) republican purchasers buy cotton fibre through the Uzbek republican raw commodity exchange; (c) the storage and release of cotton fibre for export and for domestic consumers is made only from specialized cotton terminals.

The Cabinet has established[29] a list of state-joint-stock foreign trade companies ("Uzmarkazimpeks," "Uzprommashimpeks," and "Uzinterimpeks,") which have the right to purchase cotton fibre from producers to export and sell it to joint ventures through specialized cotton terminals.[30]

The Uzbek Centre for Cotton Fibre Certification "Sifat" under the Cabinet operates with a view to increasing the competitiveness of Uzbek cotton on the world market, providing pre-shipping inspection certification of cotton fibre and maintaining its cost indexes at cotton stock exchanges. Because the structure of the Centre includes the seed laboratories of cotton-processing enterprises and the inspectors in charge of controlling the use of cotton seeds, the agency is also responsible for monitoring production, output and quality of cotton seeds, their rational use for specified purposes, the reduction of losses from these resources at cotton-processing and oil-producing enterprises.

The Ministry of Foreign Economic Relations, Investments and Trade, in accordance with the Resolution currently in force,[31] carries out a uniform state policy in the fields of foreign trade, promotion of exports, attracting foreign investments, liberalization of foreign trade, and the expansion and strengthening of foreign trade links. It carries out a number of measures on state regulation of foreign trade, the licensing of exports and imports, the revision of export and import contracts, and the registration and account of other trade and economic agreements.

Under socialism, Uzbekistan entered the global cotton market through the Uzintorg State Agency, which in 1991 became the State Committee on Foreign Economic Relations and in 1992 the Ministry of Foreign Economic Relations. During the period of independence there were several name changes and reorganizations of this body in terms of its regulation of foreign trade – from Ministry of Foreign Economic Relations to Agency on External Economic Relations.

Now this body has been transformed into the Ministry of Foreign Economic Relations, Investments and Trade[32] and has inherited the functions of the now abolished Interdepartmental Council on Foreign Investments and Credits under the Cabinet and the Republican Council for the Promotion of Export Capacity. It is important to note that in essence the character of tasks and functions of this

body have not changed; as previously it is obliged to carry out a uniform state policy regarding foreign trade, stimulation of exports, attraction of foreign investments, expansion and strengthening of foreign trade links.

The Customs Committee carries out the registration of export contracts, checks the conformity of quality and quantity of cotton with the shipping documentation and performs a number of other functions concerned with production and export.

The state company "Uzvneshtrans" is a monopolist in the system of cotton transportation and its involvement is guaranteed in all export contracts in collaboration with state trading organizations.

In July 2001 a specialized organization – a branch of the Uzbek republican raw commodity exchange "Uzaukcionsavdo"[33] – came into being. Through this organization, it was possible to freely acquire cotton fibre based on very limited quotas. It was also possible to choose the forwarding agent for onward transportation and within a short time cotton lint was also sold to non-residents.[34]

The produce on display was sold through this auction with the same discount on the base grade as that granted to exporters. However, a 100 per cent advance payment, the mortgage of 2 per cent of the lot's value and a recommendation from the bank for participation in the auction were required. As the requirements for participating in the auction were extremely demanding, the auction did not make many sales. Consequently, at the beginning of 2005 the organization was abolished,[35] once again showing the rashness of some steps towards reform in the area of cotton exports.

The system of export licensing has undergone changes because the government has established[36] that the basis of state registration of entities is that they should be engaged in foreign trade and that they should open currency accounts in authorized banks. Thus, they no longer require additional registration with the Ministry of Foreign Trade.

Despite the elimination of export licensing as a whole, cotton fibre and cotton lint have remained among the goods licensed by the Ministry of Foreign Economic Relations.[37] In addition, registration of export contracts concluded in a foreign currency remains mandatory.[38]

The situation has changed after the system of export-import regulation started to stop the activity of enterprises and thanks to the influence of the IMF. The power structures understood the necessity of a change. Therefore, a number of measures have been taken regarding the decentralization and de-monopolization of foreign trade. These were, first of all, supposed to regulate the system of the Ministry of Foreign Trade, having removed its subsidiairies away from its control. The latter had been formed with a view to assisting the ministry's activity, but had gradually ceased carrying out their duties, instead pursuing departmental and personal interests.

For the time being, the state has reserved control over export and barter contracts in authorized banks[39] and the licensing of some kinds of export goods and a further monitoring system (the so-called monitoring of export contract transactions)[40]. It does this in order to achieve targeted volumes of exports and a complete and reliable account of data on the movement of export-import goods through customs. According to this document, the collection and processing of statistics on foreign trade and the creation of a database is carried out by the State Customs Committee, and the keeping of records on the export and import of services is carried out by the State Committee on Statistics.

The Ministries of Economics and Finance are responsible for bringing export targets and the compulsory sale of foreign currency to the attention of the ministries, departments, associations, export enterprises and the Central Bank. After making contracts with foreign partners,export enterprises are obliged to register with the corresponding bodies and with customs bodies in order to provide information to the authorized banks, which in turn provide the Central Bank and the State Tax Committee with all necessary data.

This process was extended further by the Cabinet resolution of 30 September 2003 (No. 416) on "measures for further improvement of monitoring export-import transactions." The resolution introduced a system of monitoring foreign trade operations in order to provide appropriate control over export-import contracts that are concluded by managing entities and ensure proper communication between customs, tax bodies and authorized banks.

A uniform electronic information system for foreign trade operations has been introduced For the provision of information, which works in "real time" and contains 34 kinds of data grouped in four sections: (a) general information on export-import contracts; (b) data on the monitoring of contracts held by the Ministry of Foreign Economic Relations, Investments and Trade, customs bodies and authorized banks; (c) information on the movement of funds through bank accounts; and (d) data on goods passing through customs.

In addition to the monitoring of foreign trade operations, a system of monitoring currency transactions has been introduced.[41] This mechanism is a logical part of the information gathering system for the carrying out of export-import transactions by authorized bodies.[42] This shows that a special system of monitoring has been developed in the republic which has changed the previous system into a more rigid one.

Conclusion

On the basis of today's normative and legal arrangements, it is difficult to draw an unambiguous conclusion concerning the organizational effectiveness of the cotton export system in Uzbekistan. Undoubtedly, the governmental authorities understand the necessity and importance of this development process, which is

illustrated to by the recent reforms. However, the transition to market principles in the regulation of the cotton sector and the export of cotton production is still not complete.

The major factors constraining this transition are price restrictions, limited opportunities for direct participation of producers in foreign trade, administrative barriers in the form of quotas, licensing, state orders, the complexity of the privatization processes, state monopoly in providing agricultural producers with industrial inputs and other factors of production.

Undoubtedly, the cotton export system needs a reform based on market principles and private property which suggests the necessity of the following changes:

- cancelling price restrictions and the state-order system of raw cotton purchases;
- eliminating out mechanisms for developing competition in the cotton industry and in the logistics system;
- exempting exports from restrictions and establishing export quotas;
- cancelling the system of trading contract registration;
- abolishing the system of advance payments and commodity credits, and introducing targetted credit support;
- carrying out state purchases through open and competitive tender leading to the eventual elimination of state purchasing;
- establishing a workable system of incentives for cotton producers;
- co-ordinating the actions of all participants in cotton production and export process.

In any case, the basis for stimulating cotton production and exports should be the support of domestic producers, before production is sold on international markets, and this condition must be taken into consideration in the drafting and fine-tuning of legislation for managing cotton exports in Uzbekistan.

Notes

1 The law of 26 May 2000 is currently in force.
2 The law of 11 December 2003 is currently in force.
3 The Presidential Decree of 7 October 1992 on "the formation of Karakalpak republican and regional associations for the usage of cotton fibre, silk cocoons, wool and astrakhan fur that are left at the disposal of farms." According to this decree the associations have been given significant rights to sell independently cotton and based on the governmental quotas. However, the Presidential Decree of 7 May 1995 abolished these associations "with a view to expanding the independence of farms in selling agricultural production left at their order." It is obvious here that these public organizations have not gained full independence in decision-making and, therefore, could not properly use the rights garnted to them.

4 The law of 2 July 1992 on "the membership of the Republic of Uzbekistan in the International Monetary Fund, the International Bank for Reconstruction and Development, the International Association of Development, the International Finance Corporation, Multilateral Investment Guarantee Agency."
5 The creation of a Centre with the right of publishing was prompted by the Uzbekistan's ccession to the International Cotton Advisory Committee in 1992. The government, therefore, has taken up obligations to exchange scientific and technical information about the manufacturing and export of cotton production, in order to familiarize the world community with the prospects for trade, external economic and investment co-operation.
6 The Presidential Decree of 24 July 1992 on "measures for stimulating foreign trade activities, attracting and protecting foreign investments in the Republic of Uzbekistan."
7 The clause about the order of establishing quotas and licensing the export and import of goods, jobs and services in the Republic of Uzbekistan is approved by the Cabinet Resolution of 25 March 1994 (No. 163) on "measures for regulating foreign trade operations."
8 This document has become invalid. The provision about the conclusion, registration and execution of contracts between manufacturers of agricultural production and storing and serving organizations was approved by the Cabinet Resolution of 4 September 2003 (No. 383) on "measures for perfecting contractual relations and increasing the responsibility of the parties regarding the discharge of obligations in an agricultural production."
9 The Presidential Decree of 20 April 1994 on "measures for securing currency control over export-import transactions."
10 The Cabinet Resolution of 17 November 1994 (No. 558) on "the perfection of foreign trade activities in the republic and the reorganization of the Ministry of Foreign Economic Relations."
11 The presdiential decree of 20 March 1996 on "additional measures on stimulating enterprises of manufacturers of export production" and the Resolution of the Cabinet of the Republic of Uzbekistan of 20 March 1996 No. 114 on "measures about perfection of the mechanism of foreign trade activities regulation."
12 The presdiential decree of 9 July 1993 on "elimination of infringements and misuses for the export-import transactions, which are carried out on a barter basis."
13 The presdiential decree of 11 April 1995 on "additional measures for regulating export-import transactions."
14 The Cabinet Resolution of 10 October 1996 No. 309 on "measures about increase of economic efficiency of export operations."
15 The Presidential Decree of 10 October 1997 on "additional measures for stimulating the export of goods (jobs and services)."
16 The Cabinet Resolution of 26 October 1998 on "the formation and development of a system of wholesale markets for the buying and selling of agricultural products."
17 At the moment the Commercial and Industrial Chamber, according to the Presidential Decree of 7 July 2004 on "the creation of the Commercial and Industrial Chamber of Uzbekistan."
18 This was created under the "Uzoptplodoovosh" joint-stock company on the basis of the Association of Owners of Personal Part-Time Farms, according to the Programme for the deepening of economic reforms in agriculture for the period of 1998–2000, approved by the Presidential Decree of 18 March 1998 with a view to increasing the role of the *dehkan* and farming Association. In this document the transition from the structure of "Uzoptplodoovosh" company to an independent public organization was stipulated.
19 Approved by the Cabinet Resolution of 12 March 1998 (No. 110) on "the state programme of development of export potential of the Republic of Uzbekistan for the period until the year 2000."
20 The Cabinet Resolution of 28 August 1995 on "additional measures for regulating export-import transactions."
21 The Cabinet Resolution of 15 April 1999 (No. 174) on "measures for increasing the efficiency of

exchange and exhibition trade."

22 The Cabinet Resolution of 24 April 2000 (No. 160) on "the establishment of a special commission for the privatization and transformation of enterprises and organizations of the cotton-processing industry into joint-stock companies."

23 The Presidential Decree of 11 June 2001 (No. 2874) on "measures for the de-monopolization and perfection of the management of the cotton-processing industry of Uzbekistan."

24 Memorandum on economic and financial policy for the period from 1 January until 30 June 2002 within the framework of the Programme that is carried out under the supervision of the IMF (SMP).

25 According to clause 3 of the law of 30 April 1998 on "farming," such concerns are independent managing entities carrying out agricultural production using land that is given for rent.

26 According to clause 1 of the law of 30 April 1998 on "agricultural co-operatives (*shirkats*)," a *shirkat* was defined as independent (private) entities formed on the basis of either a household or an association of individuals with the purpose of producing agricultural commodities.

27 The Presidential Decree of 21 October 2002 on "further liberalization and perfection of the control system in the sphere of foreign economic relations."

28 The Cabinet Resolution of 3 June 2003 (No. 240) on "the perfection of account mechanisms for the production and sale of cotton fibre."

29 The Cabinet Resolution of 3 September 2004 (No. 414) on "the establishment of provisions about the order of sale of cotton fibre and accounts of the foreign trade companies with the "Hlopkoprom" territorial joint-stock associations."

30 At the moment 22 terminals with a total storage capacity of 352,000 tons of cotton fibre are operating in the republic.

31 Approved by the Presidential Enactment of 26 July 2005 on "the organization of the activities of the Ministry of Foreign Economic Relations, Investments and Trade of the Republic of Uzbekistan."

32 The Presidential Decree of 21 July 2005 on "perfecting the management system in the sphere of foreign economic and trade relations, and attraction of foreign investments."

33 The Cabinet Resolution of 12 July 2001 (No. 298) on "measures for organizing the sale of highly liquid products on an auction basis."

34 In accordance with the provisions of the special order on the sale of strategic kinds of material and technical resources, which wass approved by the Cabinet Resolution of 5 February 2004 (No. 57).

35 The Cabinet Resolution of 11 January 2005 (No. 13) on "the liquidation of the Uzauktsionsavdo specialized organization."

36 The Cabinet Resolution of 4 March 2000 (No. 75) on "measures for the support of farmers, private businessmen and other agents of small businesses."

37 According to the provision for the registration, export-import contracts concluded by managing agents of the Republic of Uzbekistan in the Ministry of Foreign Economic Relations, are registered by the Ministry of Justice (2 December 2000, No. 988).

38 According to the provision for the registration, export contracts concluded on the Uzbek republican raw commodity exchange in a foreign currency, including the transactions themselves and control over their fulfillment, are registered by the Ministry of Justice (23 June 2005, No. 1482).

39 According to the provision for the management of export and barter contracts concluded in authorized banks, registered by the Ministry of Justice (9 August 2000, No. 954), such authorized banks consider all export and barter contracts (except for the contracts in the national currency concluded through a stock exchange, and contracts concerned with export of goods in order to form authorized capital of Uzbek enterprises abroad and contracts for supply of the goods on gratuitous basis.

40 The Cabinet Resolution of 6 October 1998 (No. 424) on "measures for providing complete and timely updating of profitable shares of the balance of payments" approves the order to carry out the monitoring of export contracts concluded by the residents of the Republic of Uzbekistan.
41 The Cabinet Resolution of 15 August 2003 (No. 355) on "measures for the liberalization of currency transactions in carrying out foreign trade activities."
42 Registered in the Ministry of Justice of the Republic of Uzbekistan (4 October 2003, No. 1281).

5

Indirect Taxation of the Uzbek Cotton Sector: Estimation and Policy Consequences

Sandjar Djalalov

Agriculture plays an important role in the macro-economy of Uzbekistan. It accounts for about a third of the country's GDP, over a third of employment (up to 44 per cent according to some sources), and 40 per cent of exports. The two most important crops are cotton and wheat, grown on over 80 per cent of irrigated land. Uzbekistan ranks as the world's fourth largest producer of cotton, and cotton alone accounts for about 25 per cent of export earnings of about US$740 million annually. More than 80 per cent of cotton is exported as raw fibre. The second most important crop is wheat, which in the mid-1990s became the centrepiece of the government's successful quest for grain self-sufficiency.

After independence in 1991, the government adopted a gradual approach to transition. It relied on import substitution, industrial development and a quest for wheat self-sufficiency using familiar instruments from the Soviet past: state planning, foreign exchange restrictions, monopolies in domestic and foreign trade, various other trade restrictions, directed credits and large public investments. Somehow, for nearly ten years, the gradual approach has succeeded in avoiding the extremes of the economic collapse that has befallen the rest of the Commonwealth of Independent States (CIS). However, the cost of macroeconomic distortions kept increasing throughout the 1990s and continues to grow to this day.

From 2000 until 2003, the government was compelled to undertake a drastic macroeconomic adjustment culminating in the liberalization of the foreign exchange rate in late 2003.[1] Meanwhile, structural adjustments have remained elusive and the government's interference in the economy continues to be excessive. Foreign trade has been even further restricted, limits on access to cash have led to dislocations and delays, for example, in salary payments to employees. Privatization of state enterprises has been slow and often subject to opaque procedures.

Unless helped by special favours, the business environment for local and foreign entrepreneurs is discouraging. The level of foreign direct investment is one of the lowest in per capita terms in the CIS and economic growth is far below its potential. According to official statistics, GDP growth has been steady, at about 4 per cent during 1996–2003. However, the International Monetary Fund (IMF) quotes GDP growth rates at less than half the government estimates. In any case, Uzbekistan has increasingly been falling behind most other CIS countries that have opted

for more radical macroeconomic and structural adjustments during the 1990s.

Despite frequent resolutions targeting agricultural reforms, the state-order system remains firmly in place. Farms are mandated to grow cotton and wheat on over 80 per cent of their land. They must sell all their cotton and half their wheat to the government at prices far lower than their fair market value. In addition to many other adverse effects analysed in this report, this system imposes a large indirect net annual tax on agriculture. Draining the agricultural sector of financial resources is undermining production incentives and putting increasing pressure on the public services and infrastructure in rural areas.

Calculations of Indirect Taxation on Cotton and Wheat

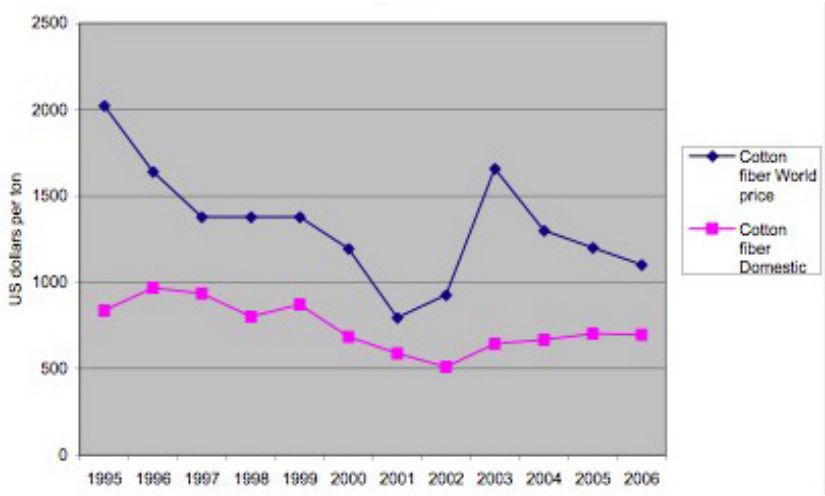
The indirect taxation of agriculture is an important source of Uzbekistan's budgetary income. The size of indirect taxation depends on the methodology used for calculation. The methodology used in the Asian Development Bank (ADB) project was based on the calculation of the total amount of produced cotton and wheat. According to estimates in 2004, net indirect tax generated US$1.04 billion or US$350 per hectare of cotton and wheat. On average, indirect taxation made US$1.13 billion or about 10 per cent of GDP for the period 2002–2004. The World Bank's method of calculating indirect taxation only takes into consideration the exported part of cotton production, assuming that the rest is for domestic use. In this case, indirect taxation of exported cotton was US$334 million, which was 2.8 per cent of the GDP. Both methodologies have advantages and disadvantages. This author used the methodology of the Current Status and Outlook for the Agricultural Sector prepared for the ADB and the Ministry of Economy of the Republic of Uzbekistan.

The basic level of redistribution of this tax is the system of pricing, constructed on a principle of "expenses plus," not taking into account the market conditions when prices are set. The state has declared that procurement prices of cotton will not be reduced below 70 per cent of world prices. However, in practice, because of the overestimated exchange rate and world market opportunities for cotton, local procurement prices for cotton fibre were 39 per cent of world prices in 2003, and up to 75 per cent in 2001 (See Figure 1). Since 2004 there has been a reduction in demand, so world cotton fibre prices slumped.

Calculating Indirect Taxation on Cotton and Wheat

The high indirect tax on agricultural production is the result of the overestimated exchange rate used for converting internal prices. In 1999, the difference between market and official rates was more than fourfold. The liberalization of the exchange rate initiated in October 2003 made indirect taxation more transparent. Because of the overestimated exchange rate, farmers received less for their cotton and wheat than they would have if their production had been marketed at

Figure 1. **Uzbek Cotton Fibre Domestic and World Market Prices**



world prices. The state benefits by saving foreign currency from not importing wheat. Such a system forces farmers to produce wheat, but they receive little money for it.

The tendencies caused by the indirect taxation of cotton and wheat production with such a difference in prices between the world market and local procurement prices are shown in Figure 1. If the predicted reduction of cotton fibre prices in the world market continues, the indirect taxation of agriculture will decrease accordingly. Minimal indirect taxation is shown in 1996 and 2001, when transfers from agriculture respectively generated US$230 million and US$208 million. It is explained by mass debt write-offs for farms by the state – from US$428 million in 1996 up to US$450 million in 2001 – which reflects the unreal trading conditions for agriculture.[2] Obviously, the mass injection of significant public funds into agriculture has been one of the reasons for a suspension of a freely convertible currency in 1996.

Indirect taxation of cotton and grain production via transfers is most clearly shown in Table 1. The total transfer from these two sectors designed under the conditional equilibrium exchange rate varies from US$208.4 million in 2001, when the world market prices for Uzbek cotton fibre fell to US$796 per ton, up to US$1,429 million in 2003, when the prices rose to a peak of US$1,620 per ton. The relative increase in transfers from the grain sector compared to the cotton sector is significant; so if in 1996 the grain to cotton ratio was only 27 per cent, in 2001 and 2002 transfers from grain exceeded the cotton-growing sector by 10 and 20 per cent respectively. This suggests taxation should be increased in the grain sector since cotton production becomes more and more unprofitable.

Table 1. **Indirect Taxation of Cotton and Wheat Production for 1996–2004 with the Forecast until 2006 under "Conditional Equilibrium" Exchange Rate (US$ millions)***

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Transfers on cotton-fiber	841.8	785.5	799.8	1040.8	737.4	399.9	511.7	907.0	729.2	549.2	431.5
Transfers on wheat	228.2	350.8	377.6	426.2	423.1	437.2	631.9	724.4	594.0	681.6	678.8
Total transfers from agriculture	1069.9	1136.3	1177.4	1467.0	1160.5	837.1	1143.5	1631.4	1323.2	1230.8	1110.3
Total transfers in agriculture. from them:	839.7	505.3	622.5	250.9	622.5	628.7	205.7	207.3	282.3	200	180
Subsidies on irrigation	412	283	299	231	191	169	159.1	193.8	260.7	180	160
Other Subsidies	428	223	324	20	432	460	47	14	22	20	20
Net transfers from agriculture	230.2	631.0	554.9	1216.2	538.0	208.4	937.8	1424.1	1040.9	1030.8	930.3

* The World Bank, the Center of Effective Economic Policy and other economic organizations in the estimates for the period before introduction of conversion in October 2003, use the conditional equilibrium exchange rate determined in the following ratios – 70 per cent for the official exchange rate and 30 per cent for the non- official "the black market" rate.

Source: Author's calculations for the ADB study on "Current Status and Outlook for the Agricultural Sector". The comparison Net Transfer Estimation calculated by World Bank and ADB is shown in Annex 2.

Subsidies to Agriculture

The basic argument in favour of a modern policy of indirect taxation in agriculture, in the opinion of state bodies, is the indirect subsidizing of the agrarian sector. In 2004 it was carried out in the form of :

- subsidies for maintenance of agricultural machinery (US$30 million);
- subsidies for fuel and lubricants (US$31 million);
- subsidies for irrigation (US$261 million, of which $69 million was subsidies for electric power);
- subsidies for fertilizers (US$22 million).[3]

If there is no change in state policy on cotton deliveries, it is possible to predict that for the next three years a recession of world market cotton prices of 15 to 25 per cent will reduce state revenue. In part it is possible to compensate such a reduction by further reductions of subsidies in the agrarian sector, or by a reduction of charges on the operation and servicing of an irrigation network, for example. The tendency to reduce subsidies to the agrarian sector from US$840 million in 1996 up to US$206 million turned in 2002. Since 2003 the share of subsidies for irrigation has risen due to an increase in electricity prices. If in 2001 one kWh cost 6.45 sum, in 2004 its cost reached 24.5 sum and continues to increase. A reduction of the indirect subsidizing of the agrarian sector leads to an increase in indirect taxation, which strengthens as payments are delayed for production. These delays range from several months to two or several years, thus worsening the financial parameters of agricultural production.

Differences in prices of agricultural products lead to discrepancies in indirect taxation, depending on the regions. As a whole, indirect taxation leads to a decrease in people's incomes and to a higher level of poverty in the countryside.

"Laffer Curve" and Agrarian Production of Uzbekistan

Many experts have established a connection between economic activity on the one hand and excessive tax burdens and the complexity of the laws on the other.[4] As a result, many types of enterprise activity take place in the shadow sector of the economy. The analysis of the correlation between tax rates and tax revenues in various countries and at different periods in history is illustrated in the "Laffer Curve." The basic postulate of this curve is that up to a certain point tax pressure leads to an increase in tax revenues. However, after a critical point it leads to a further increase in burden and to the reduction of state revenue.

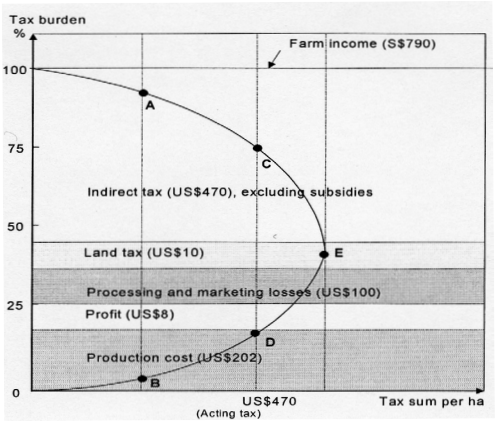
The graphic representation is shown by the "Laffer Curve" in Figure 2. If the tax burden is equal to 100 per cent, the economy becomes natural, i.e. monetary attitudes are replaced by barter. In this case manufacturers stop working. As the income is taken by the state through taxes, and manufacture stops, tax revenues decrease sharply or are brought to zero. On the other hand, with an absence of state regulation and restrictions in manufacture, or lack of financial burden, the

economy runs into a condition of anarchy.[5]

Estimates have shown that, despite measures on the reorganization of *shirkats* and an increase in procurement prices, in 2003 agriculture tested the strong tax pressure with indirect taxation (point C). Average incomes in farms combining cotton and wheat amount to US$790, while gross revenues for farmers and *shirkats* is US$205.[6] On average about US$100 is lost to inefficiencies in processing and weak marketing. The equipment in cotton-processing factories is worn out and obsolete. Losses of raw materials reach 10 to 20 per cent. The unified land tax is about US$10, and US$470 goes into the state coffers as indirect tax. In 2003, the cost price of production on *shirkat* farms was US$202. Despite the non-profitability of cotton production, a profit of US$8 is incorporated in estimates. (The state's taxation separately for cotton and wheat is submitted in the appendix.)

The volume of tax revenues on the Laffer Curve shows identical values in a point C and D, although the level of financial burden they produce is not similar. In point C, a significant part of the farmer's income is spent on the payment of tax that does not stimulate productivity. In point D, by contrast, taxes are insignificant, leaving the most part of the income to the farmer. This promotes the growth of private investments and increases the efficiency of agricultural production. Calculations show that state tax from one ha of irrigated land varies for cotton and wheat (See Figures 3 and 4). The analysis of taxation of state-order production shows that state tax for 1 ha of cotton in 2003 is US$1,106, which is 43 per cent higher, than wheat – US$628. However, the share of indirect tax in the general taxation of wheat production (55 per cent) is higher than cotton (45 per cent). This is explained by the low cost price of wheat production (US$204), which is less than half that of cotton (US$483). The high cost price and low state procurement prices have brought losses to cotton producers at the rate of US$11/ha (see Figure 3). The analysis of the financial dimensions of wheat production

Figure 2. **State Tax per Hectare (2003)**



shows that the profit of farms producing wheat is US$21 compared to contractual prices, which are 33 per cent higher than list prices. It is also necessary to consider profits received by farmers from the part production in a market with prices 57 per cent above list prices, which is not reflected in financial documents. Estimates show that given a level of 18 per cent of production, the farmer receives additional income at a rate of US$61/ha (see Figure 4).

The decline in productivity in the agrarian sector has caused the state to take adequate measures to preserve the existing taxation and financial systems. Law enforcement bodies[7] have been mobilized to monitor the use of resources, fight corruption and smuggling, and maintain law and order. The "rigid" control of manufacture observed in 2004 in the state-order systen and in the monopsonic[8] marketing system will not lead to an increase in production; on the contrary, manufacture is reduced and farmers' expenses are increasing. The indirect taxation of agriculture in Uzbekistan imposes a heavy burden on society taking the form of outstanding industrial obligations, rampant corruption and the development of a shadow economy, which is the opposite of what the independent state aspires to.

Scenarios of the Tax Burden on the Agrarian Sector

Forecasts of world market trajectories predict a 15 to 25 per cent fall of in cotton fibre prices in the next two to three years. The introduction of paid water use and institutional reforms of water management (establishing water user associations [WUAs] and basin managements) will lead to the reduction of subsidies for irrigation. A predicted, the decrease in subsidies to the agrarian sector by 35 per cent in 2006, together with falling cotton fibre prices will lead to the halving of indirect taxation. The state now has a real chance to create a really competitive agrarian sector if it liberalizes the pricing system and the marketing of state orders.

A powerful tool to achieve this is the unified land tax. A fiscal policy based on the liberalization of cotton prices combined with an increase of the unified land rate means that after five to ten transitional years state revenues from the agrarian sector will become equivalent to today's income from indirect taxation.

Figure 5 shows the distribution of tax burden after tax reform, the basic components of which are price liberalization and an increase of the land tax rate. It is thought that any reduction in indirect taxation will lead to an increase in production. With an increase in productivity of up to 4 tons/ha per farm, income will increase up to US$1,450/ha, as indirect taxation decreases.[9] This will nevertheless increase tax revenues and will reduce the cost of compulsory taxes.

The combination of high temperatures, an optimal water-salt balance and the performance of a complex of ameliorative and agro-technical strategies will, in the long term, allow farmers to collect up to 6 tons/ha, and increase their income to US$2,200. The natural potential of Uzbekistan can be realized only under the conditions of a liberalized economy and the elimination of the state-order system.

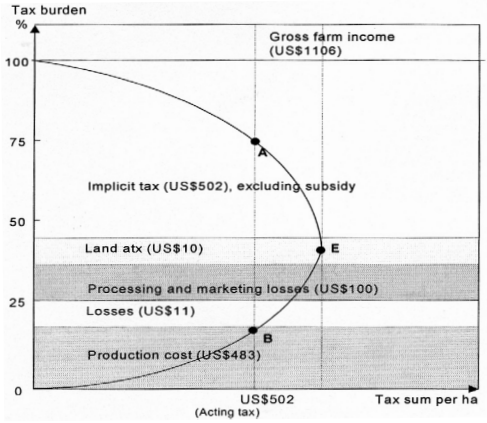


Figure 3.
State Tax per Hectare of Cotton (2003)

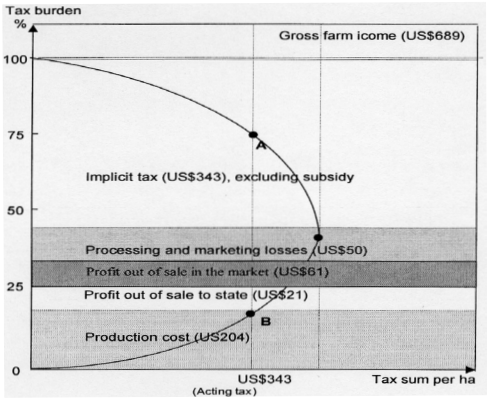


Figure 4.
State Tax per Hectare of Wheat (2003)

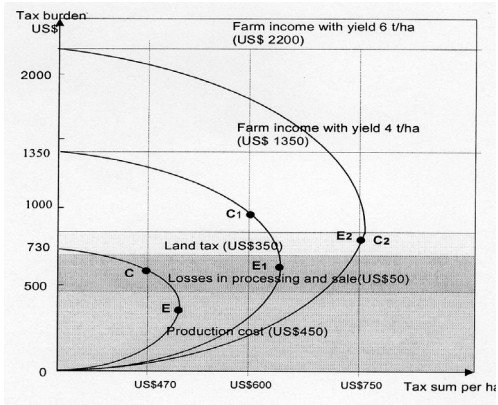


Figure 5.
State Tax per Hectare after Tax Reform (2004)

This would lead to higher farm incomes and maximal tax revenues for the state.[10]

The complete removal of indirect taxation on cotton and wheat production will lead to some essential benefits:

- firstly, the introduction of a land tax will make the state-order system unnecessary as tax revenues will increase;
- secondly, it will no longer be necessary to mobilize law enforcement bodies to monitor fulfillment of state orders for cotton and wheat;
- thirdly, from an economic point of view, the land tax is ideal as it does not distort prices and, hence, maintains price incentives which are very important for the optimal distribution of resources.

Following the move to a full market system and the liberalization of prices of all agricultural products, an increase in universal land tax to US$450 is quite realistic. In 2004 "tenant farmers" producing melons, berries and vegetables focused only on the market and paid between US$300 and US$500 per ha in rent for an agricultural season. Rental costs depend on the site, the soil quality and irrigation of the plot. The elimination of monopolies will lead to an increase in producers' incomes, will improve their ability for pay market rates for land tax and, finally, will lead to an increase in tax revenues.

Further stimulus for cotton and wheat production (through genuine tax reductions) will lead to an increase in production and will strengthen the agrarian sector during the next three to five years. Similar taxation policies have been successfully implemented in countries such as China, Vietnam, New Zealand, etc.

Recommendations

The decrease in subsidies to the agrarian sector should be compensated by an adequate increase of state procurement prices, or by the liberalization of the market for technical resources and agricultural production. A shift from a system of indirect taxation to a system of direct taxation by means of the universal land tax is highly necessary. The introduction of export duties on cotton fibre can be an alternative source of tax revenues. This approach is more effective for the treasury than state orders and control over the market and prices. Not only will state revenues increase, but as a result of the decrease in internal cotton fibre prices compared to world prices, this policy will promote a better processing of raw goods and boost the manufacture and export volume of finished articles. The advantages of this in comparison to the export of raw goods are obvious, both in terms of increased employment and higher incomes.[11]

Introducing price liberalization for agricultural productions delivered under state orders (for raw materials such as cotton, grain and others), is obviously not enough, since the increase in cost prices for raw cotton will lead to a further increase in wholesale cotton fibre prices, which in turn will reduce the competitiveness of enterprises in the textile industry. Increasing producer profitability

without taking into account the necessity of a decrease in the cost price of manufactured goods can lead to a loss of commodity markets by processing enterprises and, hence, to a reduction in revenues. The formation of a competitive market for processing enterprises is vital and will incite commodity producers to introduce new technologies, improve labour quality and reduce the cost price of processing.

At the end of each agricultural year, it is necessary to calculate the average parameters of exchange between agriculture and the industry, and to estimate average parity prices for major agricultural goods, upon which the realization of production profits relies. Depending on the level of parity prices, it is important to adjust the size of the subsidies directed to agriculture. Procurement prices for agricultural goods purchased by the state should be established at a level above parity prices. In this regard, procurement prices of raw cotton, grain and other crops established before harvesting should be specified in farm accounts for the fiscal year.

Acknowledgement

I would like to express my deep gratitude to the ADB project "Current Status and Outlook for the Agricultural Sector" for funding this study. A special acknowledgement goes to team leader Martin Herman, whose warm and patient encouragement and wise advice, not only guided this study to completion but also led me surely into the International Agricultural Economists society. I wish to express my sincere gratitude to the Mauricio Guadagni, Senior Rural Development Specialist of The World Bank, whose support motivated me to write this paper.

Notes

1 In protracted consultations with the International Monetary Fund since the late 1990s, the government backed out several times from liberalizing its current account.
2 "Uzbekistan: Living Standard Assessment," *World Bank Report* No. 25923, May 2003, p. 72.
3 Estimates of subsidies for 2004 are executed by World Bank consultant Anna Krole-Ris.
4 "Shadow relations in Uzbekistan existed, exist, and ... will exist?", http://www.navigator.kz/articles/busines 140601a.shtml.
5 It is possible to carry out parallels in history with the centrally planned economy (point A) when manufacture and received incomes were adjusted by the New Economic Policy (NEP) of 1920–1924, characterized by privatization and development of market attitudes in the economy (point B). The reduction of the tax burden after independence has increased tax revenues by a difference between points A both S. Tax revenues and the production level is maximized in point E. This is designed on the basis of the given annual reports "The Basic Parameters of Activity of Agricultural Enterprises for 2003."
6 Data based on annual report "The Basic Parameters of Activity of Agricultural Enterprises for 2003."
7 Additional transaction costs connected to charges for the maintenance of supervising bodies will increase the tax burden, having shifted it from a point C upwards on a curve to point A or back to a management system.
8 Monopsony (the opposite to monopoly) refers to a marketing system with one buyer and many vendors.
9 Point C moves to point C1 and down to "Laffer curve" to point E1.
10 In this case point C1 will move in point C2 and will be displaced in point E2 – an optimal point providing the maximal tax receipt. Point C2 will go down from an increase in production efficiency further downwards to the bottom part of "Laffer Curve" to which every state aspires.
11 Report of Center for Effective Economic Reforms. *Policy and Institutional Measures on Production and Marketing of Cotton in Uzbekistan,* p. 27.

Apendix. **Cotton and Wheat Sector Net Transfer Estimation Calculated by World Bank and ADB in 2003 (Million Sum)**

	WB cotton	ADB cotton	ADB wheat	Subsidies to agricultural sector	
Subsidies				WB estimation	ADB estimation
Explicit subsidies	207 484	220 367	124 784	427 423	316 561
Irrigation: O & M, including water	97 600	127 311	65 584	195 200	192 895
Electricity	74 739	72 719	37 462	149 478	110 181
Fuel (VAT waiver)	11 366	7 085	10 627	28 414	17 712
Agr. Machinary	13 545	4 352	6 527	33 862	10 879
Fertilisers (VAT waiver)	10 235	8 900	4 584	20 469	13 484
Budgeted debt write-offs	0	0	0	0	0
Budgeted credit subsidies working capital	0	0	0	0	0
Indirect subsidies	84 550	84 550	61 307		
Oil price differential	23 703	23 703			
Simple interest rate	61 307	61 307	61 307		
Amonnium nitrate	-461	-461			
Total Subsidies	292 034	304 917	186 091		
Taxes					
Explicit taxes	393 048	393 048	76391		
Land tax	10 448	10 448	12300		
Income tax	54 087	54 087	64091		
VAT fibre	161 979	161 979			
Ginning taxes	39 284	39 284			
STO commission	24 319	24 319			
Taxes crushing	102 933	102 933			

Appendix continued

	WB Exported amount (cotton)	ADB Exported amount (cotton)	ADB Produc-tion target (wheat)	ADB Total amount (cotton)	ADB Total amount (wheat)
Indirect taxes	176 229	173743	210 180	576510	470 080
Price control	151 417				
Foreign exchange rate control	24 811				
Total Taxes	569 277	566 791	286 571	969 558	546 471
Total Marketing + ginning + taxes	258 415	258 415	15 000	258 415	35 000
Export income	717 666	717 666		717 666	
Export cotton in 1000 tons	456.2	456.2		456.2	
Total amount of cotton produced 1000 tons	880.5	880.5		880.5	
Net Transfers	277 243	261 874	100 479	664 641	360 379
in per cent GDP	2.82	2.66	1.18	6.76	3.67
Net transfers: 2004 constant US$	344	325	143	825	448

Notes:
1. Central Bank ER in 2003 1 USD = 971 sum
2. Due to lack of data on input for wheat production I took WB ratio between total Agricultural subsidies and cotton so the difference was the amount allocated for wheat production.
3. Half of the total amount allocated to agsector is to the cotton sector for inputs such as irrigation, electricity and fertilizers by the WB estimation. However cotton requires twice as much water and fertilizer as wheat. The ratio used for machinery and fuel looks reasonable.
4. Price controls and foreign exchange rate controls in WB and ADB calculations are different (yellow colour). The ADB approach based on the difference between local and export prices whereas mine is the total amount for marketing, ginning and taxes (258,7 Mln. soum). There are two different approaches used for calculation price and foreign ER control. One is for amount that Uzbekistan has exported and another one is for total cotton production. Calculation based on export earnings are quite close to what WB stated. However the calculation of total cotton production is quite different and close to the results we got in our first estimation. (For transfer for cotton fibre see sheet Net Transfer ADB).
5. For grain we also used two approaches: one is that of Mauricio Guadagni who used only production target amount (2502 thous. Tons); another approach is to count all domestic production (5612 thous. Tons). The results show net transfers for cotton and wheat subsectors in total. This approach was used for the estimation of net transfers in the ADB project.

6

Cotton in Uzbekistan: Water and Welfare

Iskandar Abdullaev, Mark Giordano and Aziz Rasulov

Cotton has been a major crop in Uzbekistan at least from the time of the Russian empire. However, its rise to become the dominant produce of Uzbek agriculture and a major factor in global cotton production occurred during the Soviet period. This rise was made possible by two main factors, the expansion of the volume of land under irrigation and Soviet central planning. Irrigation allowed increased crop production. Central planning both mandated that the crop be cotton and that it be traded within the Soviet structure in exchange for water, energy and food as part of an integrated national system.

Since the disintegration of the Soviet Union and independence of Uzbekistan in 1991, the politics of Uzbek cotton have simultaneously seen both inertia and change. On one hand, the government has continued to maintain significant aspects of the former central planning system, for example mandating that local farmers plant cotton, and imposing centralized control of output and input prices at well below market rates. On the other hand, it has allowed a shift towards increased farmer control of many aspects of both land and water management. At the same time, the government and farmers have had to face the breakdown of the Soviet state. This has meant that trade can no longer rely on central direction and internal co-operation but rather must be based on market mechanisms or negotiated agreements between sovereign states.

Concurrent with the recent political and economic shifts, environmental problems, often directly related to the rise of cotton production, have increasingly impinged on Uzbek agriculture in general and cotton production in particular. The most notable of these problems is the now famous shrinking of the Aral Sea. However, less well publicized salinization and waterlogging of farm lands, both related to irrigation operations, may in many ways be of even greater significance, at least in terms of agriculture.

The net impact of these and other factors has been a significant decline in Uzbek cotton production in the post-Soviet era. The specific goal of this paper is to provide an examination of each of these factors in the evolution of the Uzbek cotton economy and on the broader economic and physical environment of the region. The broader goal of the paper is to highlight the complex interac-

tions between agricultural policy and resource use systems, particularly water, in Central Asia and beyond.

Background

Uzbekistan is the most populated country in Central Asia and has the largest agricultural sector. Within Uzbekistan, agriculture is the largest sector of the economy, accounting for more than 30 per cent of GDP, 40 per cent of employment and 25 per cent of foreign exchange earnings.[1] Of Uzbekistan's 45 million ha, about 60 per cent is used for agricultural purposes and of that 4.3 million ha or 12 per cent percent is irrigated.[2] While the area of irrigated land appears relatively small within the context of overall land utilization, irrigation in fact accounts for almost 80 per cent of all water use in the country.[3] Irrigated lands account for the vast majority of all cotton, as well as wheat, production.

Cotton was, until recently, the dominant crop in the Uzbek agricultural economy. The territory of modern Uzbekistan was already considered an important cotton growing region even in Russian imperial times. This role was substantially enhanced during the Soviet period, especially after 1950, when it was decided that Uzbekistan would form the centre of the nation's cotton production. Starting in the 1950s, seed cotton production grew from 300,000 tons to a peak of three million tons by the mid-1980s.[4] This increase was made possible by two factors. First, irrigation was expanded. Second, Soviet planners mandated that these newly irrigated and other lands be used to grow cotton on the large scale state and co-operative farms that dominated the agricultural economy. Cotton production was supported with supplies of critical inputs including tractors, combines, gins and, perhaps most notably, water. This water, primarily from the Amu Darya and Syr Darya, the two main tributaries of the Aral Sea, largely emanated from neighbouring republics.

Importantly, cotton production in the Uzbek republic took place as part of a centrally co-ordinated and planned national system. The irrigation water needed to support cotton production was supplied through the construction of facilities to first store waters of the Amu Darya, Syr Darya and their tributaries, and then released at suitable times in the cropping year, particularly the summer. The storage facilities were primary built in upstream Soviet republics and could alternatively have been used by them to produce power for heating in the winter months. In compensation for water releases favouring cotton, Uzbekistan, Russia and other republics provided alternative fuel to their upstream neighbours. Similarly, Uzbekistan's cotton was sent out of the Republic in a centrally co-ordinated exchange for foodstuffs and other products.

Uzbekistan and the other Soviet republics of Central Asia gained independence with the collapse of the Soviet Union in 1991. This massive change and the events preceding it had wide-ranging implications for the politics and economy of Uz-

bekistan as well as for the region as a whole. For Uzbek cotton production in particular, the net result was a decline in both production and exports of some 50 per cent (see Figure 1) due both to a reduction in cultivated land and declining yields.[5]

Why Has Uzbek Cotton Production Declined?

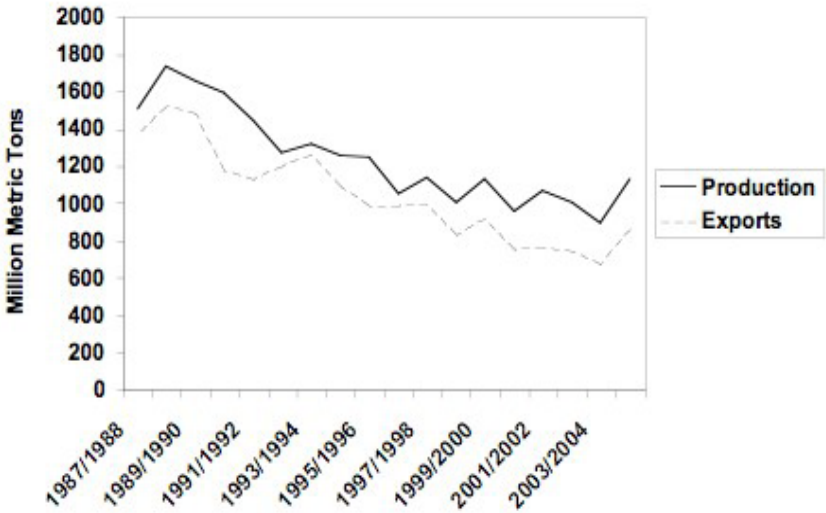
The reasons for the drop in Uzbek cotton production and exports are complex, and sometimes offsetting, but can be divided into two broad albeit interrelated categories. The first is political and includes direct cotton policy as well as other policies indirectly affecting the sector. The second is environmental and includes both the "natural" environment as well as the ability of farmers to adapt to that environment.

Policy factors in the decline of Uzbek cotton

Immediate response to the soviet collapse

As in most other former Soviet republics, the collapse of the Soviet Union brought massive disruption to the economy and hardship to the people of Uzbekistan. In rural areas, the centralized command system broke down and millions lost their livelihoods as the social infrastructure, previously supported by collective farms, collapsed. The first serious post-Soviet policy change in the agricultural sector occurred in response to this crisis and took the form of the expansion of individu-

Figure 1. **Uzbek Cotton: Production and Exports**



Source: Cotton and World Outlook, Trends and Tendencies of Cotton Production, 2004

al family plots. The objective of the policy was to ease social tension by ensuring that the population would be able to produce basic foodstuffs. Starting in 1986, over 1.5 million families were given the opportunity to extend their personal plots and some 0.5 million additional families acquired plots for the first time. In 1991 additional plots were allotted to families living in rural areas to provide fodder for cattle. During this short period of time, over 0.5 million hectares of irrigated land, more than 10 per cent of the total irrigated area, was allocated for small-scale production, mainly vegetable growing. These plots had previously been used primarily to produce cotton and were in fact in some of Uzbekistan's most productive cotton lands with relatively unpolluted soil and low salinity.[6]

New considerations for national food security

The second major change made to Uzbek agricultural policy after the end of the Soviet Union was driven by a desire to reconsider national food security and achieve grain (wheat) independence. During the Soviet period, around three to four million tons of wheat were imported into the Uzbek Soviet Socialist Republic, primarily from other Soviet states, in exchange for cotton and as part of a national, centrally controlled system. After the collapse of the Soviet Union, wheat imports had to be paid for not with cotton, the demand for which had fallen within the system due in large part to the ensuing economic disruption, but with cash. Paying for these imports was a major burden for the newly independent government. Furthermore, importing large amounts of grain now had implications for national food security. In response, the government of Uzbekistan mandated a shift in production away from cotton and towards wheat. The result was an expansion of the winter wheat area from 620,000 ha in 1991 to 1.2 million ha in 2004. As much of the areas newly sown had been amongst the best quality cotton fields, the result was a reduction in the cotton area of 30–35 per cent for at least one season per year (see Figure 2). Wheat production did increase substantially, from one million tons in 1991 to 5.2 million tons in 2004, and Uzbekistan has now become a wheat supplier with exports of some 500,000 tons annually over the last three years.[7]

The Production Quota System

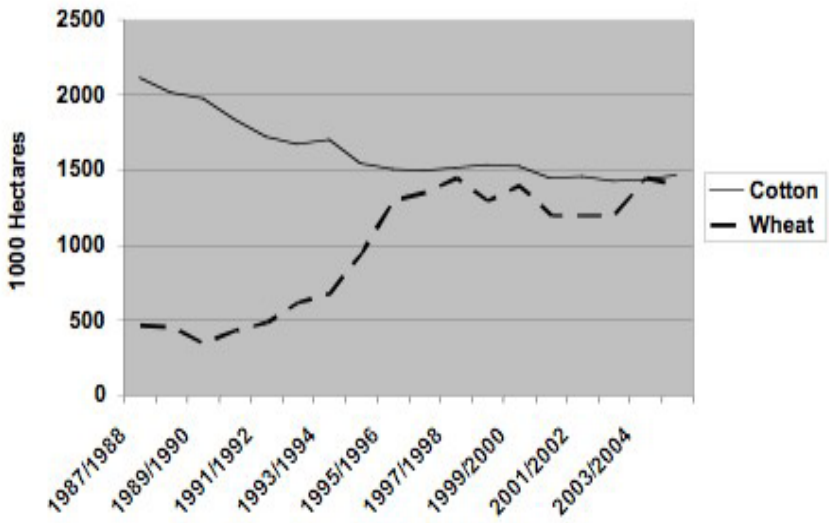
During the Soviet period, central planners could influence the cropped area and production through their control of state farms as well as farm inputs. After independence, the new government still sought to maintain control of at least certain aspects of farm output, for example in influencing the shift to wheat production just described. Control in the post-Soviet era has involved quotas on output and area, a state purchase system and price, quantity of production, controls on farm inputs. In 1991, 100 percent of all agricultural products were required to be sold to the state, except crops grown in the backyard plots of families. After

1995, state quotas were removed for all agricultural products, except cotton and wheat.[8] In the wheat production system quotas are somehow more flexible, allowing farmers either to sell 50 per cent of the quota on the open market or keep it for their own consumption.

For cotton, the most malign part of the quota system is not the amount of the production to be sold to the state (100 per cent), but the quota on the area which must be sown with cotton. Even if farmers fulfil their cotton production quota, they can still be penalized if the area they planted with cotton is less than the requirement. In effect, this gives farmers little incentive to increase land productivity (yields) so long as their overall output is sufficient to meet the production quota. There is a general belief that this system is a significant factor in the overall stagnation in cotton yields, especially when compared to wheat (see Figure 3). This belief is at least partially supported by evidence from 1992 to 1995 when cotton production was partially liberalized and only 50 per cent fell under the quota system. While not dramatic, yields did reverse their slow decline, rising from 0.76 t/ha in 1992 to 0.83 t/ha in 1995. This period also saw a partial liberalization of input markets which have otherwise largely been monopolized by the state.

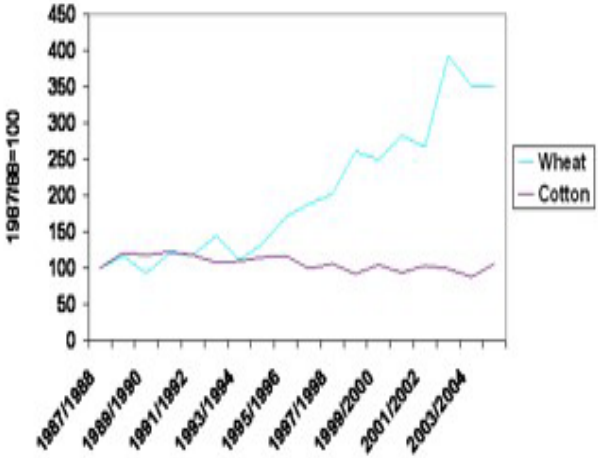
Also impacting output, the forced procurement by the state takes place at

Figure 2. **Cropped Area: Cotton and Wheat**



Source: FAOSTAT, 2005

Figure 3. **Yield of Wheat and Cotton in Uzbekistan**



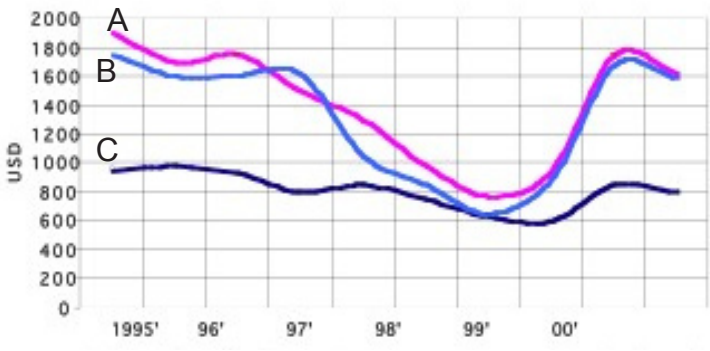
Source: FAOSTAT, 2005

relatively steady state set prices. The difference between the international, export and internal (procurement price from farmers) prices can be substantial, for example, in 1995 the internal procurement price for cotton was some US$900 per ton, with state exchange rate (state exchange rates were 250 per cent lower then black market rates) or almost 50 per cent lower than the external price (see Figure 4). Internal and external prices became almost equal as world prices declined until 2001, but the gap has now again risen to the levels of the mid-1990s.

Somewhat offsetting the effective tax on cotton output has been the subsidization of inputs. Most farm inputs are in fact controlled by state monopoly at a net subsidy. A major part of the subsidy comes in the form of bank credits which are supplied at negative real interest rates. To gain access to these funds, farmers must produce cotton and wheat under the quota system.

The paradox of the quota and procurement system is that, on the one hand, it forces cotton production through quotas while on the other it gives a disincentive to produce via its procurement pricing. An added irony of central Asian agricultural policy comes out when Uzbekistan is compared to neighbouring Tajikistan. In Uzbekistan farmers are forced to grow cotton through a quota system, because the overall policy environment discourages production. In Tajikistan farmers are given a limit on their cotton area, so that a sufficient amount of land is reserved for wheat.

Figure 4. **Internal and External Prices from Cotton in Uzbekistan (US$/ton)**



A External Price (Index)
B Export Price
C Internal Price

Source: Cotton Outlook 2000

Farm restructuring

The final major policy factor impacting cotton in the post-Soviet period has been the restructuring of farms, which started in 1992 and accelerated after 1996. This change, and its place within the overall economic system, also has implications for the way Uzbek agriculture interacts with the environment as will be explained later. During the Soviet period, cotton was produced in large scale collective farms, typically of sizes of 2,000–3,000 ha. The farms managed all aspects of the production system including mechanization (e.g. tractors and combines) and irrigation. Because the farms were believed to be inefficient, their land was split after independence into smaller, though still collective, farm units known a *shirkats*. However, no reform of the other systemic assets such as irrigation was undertaken. The result was that the land management units no longer matched the input units, and poor performance was ensured. Therefore co-operative farms remained low performing: cotton yields were lower then in the 1980s and the overall economic performance of such farms was weak.

At the beginning of the reforms, in 1992, individual farming systems were emerging at the same time as co-operative farms and were looked upon by the government of Uzbekistan as experimental farming. The individual farms initially were allotted lands with low fertility and poor water supply.

Until the year 2000 the major focus of government policies was the improvement of incentive systems and the partial allocation of management deci-

sions on production to family units within *shirkat* farms. These attempts led to a small increase in agricultural productivity; however, it was difficult to develop both truly co-operative management and stimulate individual initiatives. It was partially due to the fact that *shirkat* farms were created on the basis of old collective farms with a centralized top-down approach.

Beginning in 2003, the government of Uzbekistan began to transform the *shirkats* into individual farms. According to the new policy, priority is given to the development of the individual farms as the major producer of agricultural commodities. According to the new concept, from 2004 to 2006 a total of 1,020 *shirkat* farms (55 per cent of their total number) will be transformed into individual farms. Individual farms in 2004 already occupied 47.7 per cent of irrigated lands, employed 765,300 workers and provided 20.4 per cent of the agricultural economy, including 51.5 per cent of cotton production and 46.2 per cent of grain production (see Table 1). The character of agricultural reforms in Uzbekistan for the past 10–12 years can be characterized as a slow transformation of the collective farming system into individual farming units. After 10 years of gradual decline in cotton yields, figures recovered back to 2.6 t/ha levels by 2004, indicating the positive response to the agricultural transition (see Figure 1).

Table 1. **Allocation of Cultivated Area and Agricultural GDP by Different Types of Agricultural Enterprises (in %)**

Types of Farms	Share in Agricultural Area		Share in Agricultural GDP	
	1995	2004	1995	2004
Collective Farms	15.0	0	12.0	0
Shirkats (co-operative)	75.0	72.6	48.1	14.6
Individual farms	3.8	16.7	2.6	10.5
Dehkan farms	6.2	10.6	33.3	74.9

Source: State Department for Statistics of Uzbekistan, 2004

Dehkan farms are legalized family plots, orchards from which most of Uzbekistan's population earns its income. The state encourages family plots to be registered as legal entities so that they can acquire credits or other financial supports (e.g. leasing). *Dehkan* farms can grow all types of crops, except cotton. All crops grown by *dehkan* farms are not bound by quotas allowing them to sell their products on the open market. The majority of products (fruits and vegetables) grown by *dehkan* farms are exported to Russia and Kazakhstan.

Other important aspects of farm reform include land rights and the tenancy

system. Along with farm restructuring have come legal changes on land use and allocation. In July 1998 a new land code was introduced which strengthened land usage rights and gave greater security of tenure to individual farmers. At present individual farms have 49-year tenancy rights. However, according to the land regulations, land rights can be revoked for farmers who do not fulfil production agreements three consecutive years. This uncertainty makes strategic investment in land conservation as well as water management risky, thereby reducing resource productivity.

Environmental Factors in the Decline of Uzbek Cotton Production

The dramatic decline of the Aral Sea is one of the most globally known environmental disasters in the world. The decline was and is a direct consequence of agricultural, especially cotton, expansion in Central Asia in general and Uzbekistan in particular. However, while cotton may have adversely impacted the Aral Sea, the connection between the degradation of the Aral Sea and cotton production is less clear. What is more important is how the water of the Aral Sea's tributaries, as well as the land of the Aral Sea basin, have been and will be managed.

Water availability and the Aral Sea

The plight of the Aral Sea is often highlighted as a case study in the impact of water scarcity. Thus it might seem reasonable to conclude that this increasing water scarcity has played a role in the decline of Uzbek cotton and will continue to do so in the future, in particular since the Aral Sea's two main tributaries flow through Uzbekistan and are the key suppliers of water to the countries irrigated cotton. However, this is not the case.

The expansion of irrigation, primarily for cotton production, was in fact the primary cause for the Aral Sea's decline. This decline did not come as a surprise to Soviet planners, contrary to popular belief in the West. While the overall impact of the Aral Sea's drying may not have been fully appreciated, the impact of increased irrigation from the Aral Sea's main tributaries, the Syr Darya and Amu Darya, on the sea's overall volume was expected.[9]

There is enough water in the Aral Sea's tributaries to keep the current irrigation systems functioning indefinitely. In fact, a major problem in the Syr Darya is that there is too much water in the upper part of the system, at least at certain times of the year because of the current timing of releases from upstream. This volume of water is too great to make it through the river channel in the area of Chardara water reservoir and so is instead backing into a large inland lake rather than entering the Aral Sea. In the Amu Darya basin, Turkmenistan is creating an artificial lake with 130 cubic km of volume, which must be filled with drainage water. However, the concern is that the existence of such a lake will not help water conservation in the region.

In fact, the major problems of water as related to cotton production in Uzbekistan are related to its poor management and the resulting impact on land resources as described in the next section.

However, while there is no evidence water scarcity has been a significant factor in cotton production to date. During the shortage of water (1985–86, 1999–2001) the production of the cotton failed in tail ends of the irrigation systems. On the contrary, in the wet years land conditions in the saline and waterlogged areas declined and cotton production decreased. Water shortages could be a problem in the future, though this is not likely because of a lack of absolute volume. Since the break-up of the Soviet Union, the waters of the Amu and Syr Darya have been internationalized. The system which had been set up to trade water for cotton and power disintegrated. Attempts have been made to re-formalize these agreements for the post-Soviet age through a series of agreements and treaties. However, there has been increasing dispute, and it is as yet unclear what the final outcome will be.

Salinity and water logging

Conditions for cotton production in Uzbekistan have deteriorated significantly, resulting in significant areas of irrigated land being affected by high levels of salinity and rising water tables and leading to crop yield losses exceeding 30 per cent. In Uzbekistan 63.5 per cent of the irrigated land is affected by salinization. Declining agronomic productivity associated with salinization and elevated water tables has contributed to the development of endemic poverty and reduced incomes in the rural communities of the region. The major reasons for land degradation, especially salinity, are outdated drainage systems, which were built during the 1970s and were not properly maintained in the last 10–15 years, over-irrigation and inappropriate agronomic practices.

The dominant approach adopted by irrigation farmers to mitigate salinity in the region is to apply excessive amounts of water to salt affected fields in order to leach salts below the effective root zone. It has been estimated that between 20 and 25 per cent of the annual available surface water in the region is used for leaching which could otherwise be delivered to the Aral Sea to lessen its degradation.[10] The application of excess surface waters to fields has resulted in the development of elevated water tables that effectively exacerbates the problem by encouraging further salinization. When soils become highly saline farmers tend to abandon affected fields resulting in large tracks of saline/waterlogged soils.

It is estimated that annually between two and three per cent of the irrigated area of the Hungry steppe (Mirzachul) – one of the largest irrigated regions of Uzbekistan – is taken out of crop production due to salinization. The rehabilitation of these salinized areas requires significant technical expertise and financial investment. A recent assessment of the costs associated with the rehabilitation of

salinized soils in the Hungary Steppes was in excess of US$1.2 billion.[11] Whilst these costs include the development of significant irrigation and drainage infrastructure in the reclamation process, there are cost effective strategies that can potentially be used in the rehabilitation process that involve plant based production systems.

The use of plants in the remediation of saline soils is an emerging low-cost approach in the recovery of abandoned irrigated fields.[12] In this respect the creation of highly productive fodder systems through the establishment of palatable halophytes in saline areas has been shown to remediate saline soils as well as provide an income to resource-poor farmers.

In a 2000–2004 study in the highly saline lands of the Syrdarya province of Uzbekistan, the potential use of *Licorice naked* to reclaim abandoned saline areas was assessed over a four-year period before the land was reverted back to a cotton/wheat crop rotation. After four years of Licorice-growing cotton yields in the highly saline areas recovered from initial 0.87 t/ha to 2.42 t/ha and salt content of the soil in the *L. naked*-treated plot declined during the study whilst those in the control increased. The study has clearly demonstrated the ameliorating affect of *L. naked* in bringing abandoned salt-affected soils back into production to be a low-cost method which can be adopted by resource-poor farmers.[13]

Water Availability and Reliability

Institutional deficits in water management

Two institutional deficits caused the decline in cotton production: (i) inadequate water management institutions to the restructured agricultural system and (ii) outdated water allocation mechanisms, the absence of a water rights system and ineffective water distribution methods.

Agricultural restructuring in Uzbekistan, following the collapse of the former Soviet Union, has led to a multiple increase in the number of individual farm units along secondary and tertiary canals.

In the 1960s the Soviet government started its "virgin land development" programme, which included the construction of water reservoirs, a net of new irrigation systems and the development of millions of hectares of desert and virgin lands. In the old irrigation systems, such as the Fergana Valley, a few new main canals were constructed to improve water availability for irrigated agriculture. The performance indicator of irrigated agriculture was deemed to be the amount of cotton produced and the effective utilization of resources was never an issue. The water management infrastructure was taken care of by centralized, hierarchical organizations, branches of the Ministry of Agriculture and Water Management. The management of water was territorially organized and only in a few cases were inter-district (hydrographic) canal management organizations created.[14] The sole goal of centralized, hierarchical and territorially based water

management systems was timely delivery to meet the demands of cotton growing mega farms. However, due to their territorial character, water management organizations were always failing to fulfil their main objective – equitable water distribution. Such ineffective water management led to the frequent conflicts over irrigation water. However, the Soviet system had its tools and approaches in place, which included repressive measures for preventing conflicts over water between territories, including then Soviet republics, nowadays independent Central Asian states.

After independence, almost all states of the region conserved water management systems as they were in Soviet times. The only changes were of an economic character, placing part of the operation and maintenance (O&M) cost on the water users' shoulders, through creation of water users associations and charging for water delivery. The major change to the agricultural sector was the dismantling of large collective farms into small farms, through land distribution.[15] The formation of numerous smaller farm units, sharing formerly on-farm structures led to the further deterioration of fair and efficient water distribution.[16] The reaction of the Central Asian states, including Uzbekistan, was the launching of Water Users Associations (WUAs) to replace the former on-farm systems. However, the main irrigation systems in Uzbekistan were still managed territorially.

In 2003 Uzbekistan launched a major step in its water-sector reforms, introducing the basin water management principle.[17] On 21 July 2003, the Cabinet of Ministers of the Republic of Uzbekistan issued a decree (No. 320) with far-reaching consequences for the management of the water sector in the country. The purpose of the decree was to initiate a process for the transfer of the administrative-territorial system of water management to a basin system of water management. This is the first step in the reform of the redundant institutions of water management. This reform has already brought changes in water management, O&M funding and water distribution equity between major canals, and water users representation in water management has improved.[18] However, there is one other major problem with existing water management system in Uzbekistan – the absence of a water rights system.

During the collective farming system, water distribution was scheduled according to "agro-technical operations plans." Since the mid-1960s water distribution in Central Asia was demand-based. In the mid-1980s, the "restricted water demand principle" ("*limitirovannoye vodopol'zovazniye*" in Russian) was introduced, requiring proportionate adjustments to initially expressed water demands subject to lower water availability in the system. All these above-listed water distribution mechanisms lacked clear water-rights systems. The allocation of the water was based on administrative, short-term decisions, making water distribution unreliable. It seems clear that changing bits and pieces of the old, outdated and rigid water allocation system is an impossible task. Water rights

based on seasonal planning (crop based) cannot be efficient in a system where only a few people know what the actual water requirements for each crop are. On the other hand, it is almost unimaginable that all farmers can be educated on crop water requirements. The water rights must be simple, clear and user-accepted, but not imposed by "water bosses." At present Uzbek water law does not provide a clear definition of water rights. The solution to this situation is to introduce water rights (proportional, area-based, etc.) for the water users groups (WUGs) or WUAs. Interviews with water users, managers and local authorities indicate that allocation of water in Uzbekistan is outdated, fitting only to the collective farming systems. Crop-based planning is unimaginable, especially for multi-cropped, fragmented land use under individual farming systems. However, legal changes, through the introduction of water rights alone will not bring improvements to water management. Therefore, realization of the water rights system is the most important approach for improving water management. The core of this approach is the mobilization of water users (WUGs or WUAs) around this idea. This will be a panacea against the undefined, top-down water allocation, which exists in the irrigation water management system of Uzbekistan.

The water management framework for improving cotton production (and other agricultural crops) must be complete and universal for all hierarchical levels of water management (WUAs, main canal, irrigation basins). This framework should include: (i) helping water users organize into self-identified groups (e.g. informal WUGs or formal WUAs, WUFs) by canal sections, formally or informally; (ii) if such groups are already established, the basic principles of individual or group water entitlements (rights) must be decided or adopted; (iii) water management organizations then should carry out water allocation and planning against such entitlements; and (iv) both WUAs and water management organizations should decide on the ways in which water can be distributed among the WUGs; (v) these steps must then be complemented by a monitoring and evaluation function, to make sure the whole system works as required.

Outdated technical infrastructure

The irrigation and drainage (I&D) system of Uzbekistan is complicated and interlinked. Uzbekistan has the following structures of irrigation infrastructure: (i) main canals, which are major artificial water arteries and deliver water to the irrigated areas; (ii) secondary or formerly inter-farm canals, which distribute water among co-operative farms and WUAs; (iii) tertiary and lower level canals, which deliver water to the farming (individual) units or sections of co-operative farms.

The main canals ("*magistralniy*" in Russian) in Uzbekistan are mostly lined or very well equipped against seepage losses (tampered). Most of the main canals start from water reservoirs or from dams in the river. Every major water distribution point of a major canal is equipped with water regulation gates (manual or

electrical). The volumes of water released from these points are measured regularly. If canals receive water through pumps, then the reliability of the water supply fully depends on the availability of electricity. Communication between main canal reaches ("*gidrouchastka*" in Russian) is made by radio transmitter. However, the communication systems between canal reaches are outdated and inefficient. Therefore the canal masters (heads of "*gidrouchastka*") in every reach have relative independence to make decisions on water distribution. Therefore fluctuations due to simultaneous changes made in the different reaches of the main canal result in unreliable and unequal water distribution. Most of the main canals of Uzbekistan were built or reconstructed in the mid-1970s, so most of the canal infrastructure (gates, bridges, and pumps) is outdated and requires upgrading. Lining materials (concrete) are ageing and need to be replaced. The same situation prevails in the large and intensive drainage network, which is the only means of production for the saline areas. According to World Bank assessments, around US$2 billion are needed for the rehabilitation of I&D in Uzbekistan.[19] Outdated I&D infrastructure has a serious impact on cotton production. According to Umarov[20] and Khorst[21] the maximum cotton yields are achieved in the irrigated areas with properly maintained irrigation and drainage infrastructures. The lowest cotton production was monitored in the Syr Darya provinces (<2.0 t/ha), where I&D infrastructure mostly deteriorated.[22]

Institutional deficits, such as inadequate water management arrangements to the restructured agricultural system, outdated water allocation mechanisms due to the absence of water rights system lead to ineffective water distribution for cotton production. Together with outdated I&D infrastructure they are one of the major causes of the decline of cotton production in Uzbekistan. The importance of water as a cause of cotton production decline is equivalent to policy (agricultural) causes, discussed in the first section.

Discussion and Conclusion

Since independence in 1991, cotton production in Uzbekistan has declined by approximately one-third. This decline is primarily a result of a reduction in the area devoted to cotton and, secondarily, of a minor decrease in yields. The decline in cotton cultivation and the current area planted to cotton are first and foremost results of explicit government policy. After independence, the government allowed some cotton areas to be transferred to the private cultivation of non-cotton crops and encouraged a shift to wheat production to cope with economic and political disruption and to meet new desires for national food security. The lesser cotton area which resulted has then been maintained by a coercive quota system for both planting and procurement. Should the quota system be removed with no other change in policy, it is fairly clear that cotton cultivation would decline further. However, it must also be remembered that output and input prices as well

as credit are now controlled by the government. At current world price levels, a general freeing of the cotton sector would raise the prices farmers receive for their crops but would also raise the costs of production inputs. Predicting the net effect on both cotton output and farmer well-being, at least in the short term, is less than straightforward.

The minor decline in cotton yields is partially related to the decline in the volume of land used for cultivation. For example, farmers have been able to transfer some of the most productive cotton lands to the production of other crops including wheat and vegetables. However, other factors have also been at work. Environmental problems have certainly contributed to the difficulty of maintaining, or increasing, cotton productivity. The shift from large collective farms towards family organization has resulted in a vacuum of responsibility and organization for the operation and maintenance of some irrigation and drainage systems. The impact, exacerbating problems emerging by the end of the Soviet period, has been land degradation primarily in the form of water logging and salinity.

However, the true driving force in cotton productivity improvement, or lack thereof, becomes evident when comparisons are made with Uzbekistan's other major crop, wheat. Typically grown in the same irrigated fields as cotton, wheat yields have more than tripled since independence. The comparison between cotton and wheat is perhaps especially surprising given the increasing levels of salinization and cotton's relative salt tolerance. This evidence strongly suggests that it is not the natural environment which has held down cotton productivity but rather it is the policy environment which is to blame. In particular, the stagnation in yield appears to be largely a response to a government quota system for cotton which gives little, if any, incentive to increase productivity beyond the levels required to meet production quotas.

Global concern for the environment of Central Asia, including Uzbekistan, is focused not on land but rather water resources, in particular the environmental and human disaster taking place in the Aral Sea. There is no doubt that this disaster was precipitated by the development of irrigation, primarily to produce cotton. However, using the Aral Sea crisis as an example of the problems of growing water scarcity, both in Uzbekistan and globally, is incorrect as is the assumption that the dwindling water resources within the Sea are a sign that future Uzbek agricultural production is under threat. The decline in the Aral Sea is not due to a reduction in basin water supplies, but rather a decision to use those supplies for agriculture.

A recent report by Chapagain et al.indicates that each year Uzbekistan exports essentially the entire runoff of the Aral Sea basin in the form of the virtual water embedded in the cotton trade.[23] Even if this is an overestimate, the implicit suggestion is that a reduction in cotton exports and the production behind them might free supplies for the Aral Sea. It is much more likely that any water

"saved" from reduced cotton production will instead be used to produce other crops as has been the pattern to date. Soviet planners made the initial decision to trade the viability of the Aral Sea for agriculture. There is currently no reason to think that present and future governments will make a different decision.

If water scarcity is to be a factor in Uzbek cotton production, it is likely to be because of tradeoffs between agriculture (in downstream Uzbekistan) and energy production (in upstream Kyrgyzstan and Tajikistan), not between agriculture and the environment, at least for the foreseeable future. How this will work out in practice will depend on the negotiating skills of the countries involved and their ability to work out solutions which maximize the benefits to all parties. The present regime is forcing some water to be put to entirely unproductive uses because of the timing of flows. Further water is being used unproductively, because of the state of current land and water management institutions which are as yet unable to fully ensure maintenance of irrigation and drainage systems. The question is not cotton per se. It is how to ensure that land and water resources are shared and used most productivity, and that the costs inflicted on the environment have a real payoff.

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7

Abandoned by the State: Cotton Production in South Kyrgyzstan

Alexander Kim

Unlike other branches of agriculture, cotton growing in Kyrgyzstan did not experience a deep decline in the early to mid-1990s. In the late 1990s it even began to increase. Cotton land increased from 25,900 to 46,3000 ha or by 78.8 per cent (see Table 1). Yields for raw cotton increased from 63,4000 to 121,700 tons or by 92 per cent respectively (see Table 2).

The construction of new gins led to a greater demand for raw cotton and, as a result, motivated the farmers to sow and harvest more cotton. During these

Table 1. **Land under Cotton, thousand ha**

					Growth 1990–2004	
Oblasts	1990	1995	2000	2004	1,000 ha	%
Osh	10.4	13.0	10.7	15.5	5.1	49.0
Jalal-Abad	15.5	19.7	22.8	29.3	13.8	89.0
Batken		0.5	0.3	1.5	1.5	300.0
Total	25.9	33.2	33.8	46.3	20.4	78.8

Source: National Committee on Statistics of the Kyrgyz Republic, *Agricultural Census of the Kyrgyz Republic. Book II*, Bishkek, 2003

Table 2. **Raw Cotton Yield, thousand tons**

					Growth 1990–2004	
Oblasts	1990	1995	2000	2004	1,000 t.	%
Osh	23.3	28.2	29.1	40.5	17.2	73.8
Jalal-Abad	40.1	45.3	58.4	79.0	38.9	97.0
Batken		1.0	0.4	2.2	2.2	220.0
Total	63.4	74.5	87.9	121.7	58.3	92.0

Source: National Committee on Statistics of the Kyrgyz Republic, *Agricultural Census of the Kyrgyz Republic. Book II*, Bishkek, 2003

Table 3. **Cotton Fibres Output , thousand tons**

					Growth 1990–2004	
Oblasts	1990	1995	2000	2004	1,000 t.	%
Osh	13.9	8.2	10.3	21.6	7.7	55.4
Jalal-Abad	5.0	9.5	18.5	25.5	20.5	410.0
Batken				0.4	0.4	
Total	18.9	17.7	28.8	47.5	28.6	151.3

Source: National Committee on Statistics of the Kyrgyz Republic, *Agricultural Census of the Kyrgyz Republic. Book II*, Bishkek, 2003

Table 4. **Number of Wheeled Tractors 50–100 h.p. by Oblast**

Oblasts	Total no. of tractors	before 1980		1981–90		1991–2000		after 2001	
		no.	%	no.	%	no.	%	no.	%
Osh	1,297	672	51.8	542	41.8	65	5.0	18	1.4
Jalal-Abad	1,372	616	44.9	634	46.2	92	6.7	30	2.2
Batken	658	403	61.2	214	32.5	30	4.6	11	1.7

Source: National Committee on Statistics of the Kyrgyz Republic, *Agricultural Census of the Kyrgyz Republic. Book II*, Bishkek, 2003

years the production of cotton fibres also increased substantially, from 18,900 to 47,500 tons or by 151.3 per cent (see Table 3).

However, the expansion of cotton growing has led to serious problems which impede the development of this branch. The disintegration of Soviet collective farms resulted in the formation of many small farms. These small farms benefitted from the advantages of the market economy, but they were also faced with a number of considerable problems, as it was difficult for them to reach a decent level of profitability.

The first problem is a sharp reduction of cotton-growing technologies. Few farms have tractors (see Table 4), and even when they do, these were made in the 1980s and 1990s. Most machinery is rented and manual labour is widely used. Mechanized cultivation and cotton-picking have not been practiced for a long time. As of 1 November 2003 there were only 25 cotton-picking machines in Kyrgyzstan and they were all made before 1980.[1] The three farmers who were interviewed for this study have neither tractors nor trucks.

The second problem is a lack of skilled workers. It makes no sense to become an agronomist in Kyrgyzstan, because the average size of most farms in the south of the country is 0.1–1 ha (see Table 5).

During the Soviet period there were four big gins in the country. After the Soviet Union disintegrated and Kyrgyzstan became independent, new gins were

Table 5. **Distribution of Farms by Total Area under Crops**

Oblasts	Total	< 0.5 ha	0.5–1.0 ha	1–10 ha	10-100 ha	100–200 ha	over 200 ha
Osh	213,431	174,053	12,464	24,802	2,059	34	19
	100.0%	81.6%	5.8%	11.6%	1.0%	0%	0%
Jalal-Abad	203,239	155,742	22,881	23,581	977	32	26
	100.0%	76.6%	11.3%	11.6%	0.5%	0%	0%
Batken	89,200	76,891	5,782	5,990	498	34	5
	100.0%	86.2%	6.5%	6.7%	0.6%	0%	0%

Source: National Committee on Statistics of the Kyrgyz Republic, *Agricultural Census of the Kyrgyz Republic. Book II*, Bishkek, 2003.

built. Now there are 25 of them, including nine in Osh oblast, 15 in Jalal-Abad oblast, and one in Batken oblast. Large consumers of cotton fibres in Kyrgyzstan, like Bishkek joint-stock company "Ilbirs" and Osh textile factory became bankrupt. Production at Osh textile factory is being restored now, but "Ilbirs" no longer operates as a cotton-processing business.

This explains why cotton is generally exported. The new gins of the late 1990s triggered the growth of the cotton sector in the south of the country. This growth has had positive outcomes such as a cash inflow to Kyrgyzstan, new jobs and budget inputs. But the method used by gins to obtain raw cotton does not allow the farms to develop and will soon reduce their cotton-growing capacity. The method is as follows: since farmers in spring do not have enough cash to buy seeds, gins lend them money for their future yields. This agreement often provides for credit repayment in raw cotton at the fixed price (usually very low). With such rigid conditions, farmers are forced to save money by giving up necessary agrotechnology such as the appropriate fertilizers, herbicides and pesticides. The director of the Seed Testing Commission, Mr Ten, said in an interview that the long-term and permanent growing of cotton on the same fields leads to the spreading of wilt, which causes huge damage to the crops and reduces yields. One of the most important measures for improving cotton yields and their quality is crop rotation, ideally with lucerne or cereals. These crops are less profitable but they are also less costly. All the farmers we interviewed perform crop rotation, but farmers in the south of Kyrgyzstan often do not, at least consistently.

Nevertheless, it is obvious that the cotton sector is growing. The farmers I interviewed are confident about their business prospects. However, I beleive this growth has obvious negative consequences on income distribution as it favours gins at the expense of farms.

To corroborate this argument, I shall present an income analysis of three farms located in the Aravan and Kara-Suu regions of Osh oblast and in the Suzak

region of Jalal-Abad oblast. Ordinary farms in Kyrgyzstan most often consist of the members of a single family. Hired labourers are not used at all or used temporarily (for example, during harvesting). The great majority of farms are small in terms of output. In 2003 the National Committee on Statistics registered only 156 farms with an annual output of over 300,000 som (US$1=40.9 som).

In Erkin Torobekov's farm, in the Aravan region, there are three adults and two minors belonging to the same family; they own 0.3 ha of land and lease 0.7 ha of land at the price of 13,000 som per ha per year. Torobekov has no machinery, so he has to hire it: ploughing one hectare costs 1,500 som, sowing costs 1,000 som. Like most farmers in this region he grows the variety Fergana Three. This variety is not approved for Osh and Jalal-Abad oblasts by the Seed Testing Commission but is smuggled in from Uzbekistan. Earlier the varieties Kyrgyz Three and Five were bred for these regions, but their seeds cost three times as much as Fergana Three seeds. On the other hand, in terms of fibre quality, the varieties Kyrgyz Three and Five belong to type V, while Fergana Three belongs to type IV. Spending less money on seeds leads to lower-quality cotton fibres.

The farmer does not have any problems with irrigation, which costs him 300 som per year. He applies nitrogen as a fertilizer, at the rate of 150 kilograms per ha, which costs 6.5 som per kilogram. In 2004 he managed to grow and pick 38 metric centners (one centner is equivalent to 100 kg) of raw cotton from one hectare and sold it to Aravan gin at the price of 14 som per kg. Because he had no lorry he had to hire one for transportation: he paid 600 som for one run (10 km) and in total spent 1,200 som (for two runs). For the harvest he hired two to three casual workers which cost him 2,000 som.

According to the Tax Code of the Kyrgyz Republic, small farms (up to 300,000-som output per year) only pay budget land tax, which amounts to 200–1,000 som per ha (depending on the location of the plot, water resources and other factors). Another substantial payment is the contribution to the Social Security Fund, which is also calculated on the basis of the sown area and is equal to the land tax. In 2004 Erkin Torobekov paid 300 som per ha in land tax and the same som to the Social Security Fund. Financial indices of this farm are presented in Table 6.

The profit in Table 6 is not a real profit because the farmer does not pay wages to his family or himself, so the profitability of cotton-growing at this farm is somewhat distorted. If we include wages at the minimum rate we get the following:

3 adults x 1,500 som/month x 8 months = 36,000 som
2 minors x 500 som/month x 3 months = 3,000 som
27,525 som – (36,000 + 3,000) som = –11,475 som (losses)

Of course, the farmer is not only involved in the cotton business. As a rule, every farmer has livestock, grows vegetables and fruits on their personal plot, sells the excess and makes additional profit which increases the profitability of

Table 6. **Accounts for Erkin Torobekov's Farm* (in som)**

Income	
Sales 3,800 kg x 14	53,200
Expenses	
Lease of land 0.7 ha x 13000	9,100
Rent of tractor - ploughing	1,500
- sowing	1,000
Seeds	4,000
Irrigation	300
Fertilizers 150 kg x 6.50	975
Transportation	1,200
Taxes and payments	600
Hired workers	2,000
Overhead expenses	5,000
Total expenses	**25,675**
Profit	**27,525**

*Data presented by E. Torobekov

the farm. Cotton growing at Erkin Torobekov's farm makes up to 40–50 per cent of the total income. However, the farmer's apparent propserity and optimism cannot hide the absence of any development prospect. For example, with such profits it is impossible to buy a tractor costing US$10,000–15,000.

The other two interviewed farmers share similar characteritics with Erkin Torobekov. Khamid Kalmurzaev's farm in the Kara-Suu region consists of five adults and two minors. He owns 0.42 ha and rents 1.0 ha (see Table 7). The second is Azamat uulu Temirbek from Suzak region. The farms has five adults and five minors. The farmer owns 0.75 ha and rents 1.0 ha (see Table 8).

These farmers also do not include wages in their expenses. The calculation of the farms' profits is as follows:

Kalmurzayev's farm
5 adults x 1500 som/month x 8 months = 60,000 som
2 minors x 500 som/month x 3 months = 3,000 som
39,148 som – (60,000 + 3,000) som = –23,852 som (losses)

A. Uulu Temirbek's farm
5 adults x 1,500 som/month x 8 months = 60,000 som
5 minors x 500 som/month x 3 months = 7,500 som

Table 7. **Accounts for Khamid Kalurzayev's Farm* (in som)**

Income	
Sales 5,500 kg x 14	77,000
Expenses	
Lease of land 1.0 hectare x 12000	12,000
Rent of tractor - ploughing (1.42 x 1,500)	2,130
- sowing	1,420
Seeds	5,500
Irrigation	500
Fertilizers 300 kg x 6.50	1,950
Transportation	1,500
Taxes and payments	852
Hired workers	3,000
Overhead expenses	9,000
Total expenses	**37,852**
Profit	**39,148**

*Data presented by K. Kalmurzayev

Table 8. **Accounts for Azamat Uulu Temirbek's Farm* (in som)**

Income	
Sales 6,100 kg x 14	85,400
Expenses	
Lease of land 1.0 hectare x 11,000	11,000
Rent of tractor - ploughing (1.75 x 1,400)	2,450
- sowing	1,750
Seeds	6,000
Irrigation	900
Fertilizers 300 kg x 6.50	1,950
Transportation	1,500
Taxes and payments	1,100
Hired workers	4,000
Overhead expenses	12,000
Total expenses	**42,650**
Profit	**42,750**

*Data presented by Azamat uulu Temirbek

42,750 som – (60,000 + 7,500) som = – 24,750 som (losses)

The overheads presented here are not very high but the losses prevent the farmers from buying machinery, seeds, fertilizers, herbicides, etc.

The analysis of expenses and income shows that the farmer's expenses are minimized. To make farming effective it is necessary to raise purchase prices. Because of the great number of gins, the raw cotton market is not a monopoly but it is highly probable that ginners have agreed on setting an extremely low price for raw cotton. The increasing number of gins shows that this part of the cotton sector in Kyrgyzstan is profitable enough. So even with low world cotton prices the government can and must interfere in the distribution of income from cotton growing and processing to make it fairer. If we base our calculations on a 15 per cent profit for a farm, the necessary purchase price should be 18–20 som for one kg of raw cotton.

From my research I conclude that cotton growing in Kyrgyzstan is not profitable today. The income of an average farm in the cotton sector does not allow it to develop. The mechanization and, as a result, labour productivity of cotton-growing farms, are still at their 1960s and 1970s level. There is no new machinery, no new technologies, no new specialists. Local authorities are indifferent to the problems experienced by farmers and blame the lack of resources. The cotton sector needs the support of the government in terms of the regulation of purchase prices for raw cotton or subsidies for cotton growing. Because the state suffers a budget deficit and cannot afford to subsidize farmers, the gins should be taxed more heavily so that the generated revenues may be given back to the farmers. The quantity of the cotton which is to be subsidized should be registered in the gins' collection centres. Then, farners could received subsidies based on the amount of raw cotton delivered. Subsidies would have to be computed on the basis of the difference between the government-approved price and the actual raw cotton purchase price.

These subsidies should be directed only to the development of the farm. Farmers should also receive some help to acquire machinery, especially tractors, and be granted low-interest loans to develop their farms and invest in skilled labout.

Note

1 National Committee on Statistics of the Kyrgyz Republic, *Agricultural Census of the Kyrgyz Republic*, Book II, Bishkek, 2003, p. 324.

8

Kazakhstan's Cotton Market

Olga Dosybieva

In Kazakhstan, cotton is now cultivated on over 200,000 ha in the Southern Kazakh oblast (region). In 2004, the average crop capacity per hectare was 2,150 kilograms (see Table 1). In the first few years after independence, the cotton industry in Kazakhstan experienced a short-term crisis. In 1984 the area devoted to the cultivation of cotton in the Southern Kazakh oblast (SKO) covered 140.2 ha, and some 295,500 tons of cotton were gathered. The peak of the crisis occurred in 1996–98, when the sown area had contracted to 103,000 ha. The lowest volume of crops –161,600 tons – was reported in 1998. The share of cotton in the total volume of the SKO agricultural production is now 37 per cent.

Table 1. **Sown Areas, Crop Capacity and Gross Raw Cotton Collection in the Southern Kazakh Oblast from 1990 to 2004**

	Sown area (thousand ha)	Crop capacity (100 kg/ha)	Gross collection of raw cotton
1990	119.7	27.0	323.6
1995	109.7	20.3	223.0
2000	153.4	18.7	287.2
2004	211.2	21.5	466.1

Source: Oblast Administration of Statistics

The main producers of raw cotton in Kazakhstan are farmers. Thousands of small and medium farms of the Mahtaaralsky, Ordabasinsky, Shardarinsky and Saryagashsky regions, as well as Turkestan, supply their raw material to 19 cotton-processing enterprises. The biggest enterprises are the Jetysaisky Branch TOO "Korporatsiya Nimeks" (Nimeks Corporation), the OAO (United Enterprise, Ltd.) "Ak Altyn," the OAO "Maktaaral," and the OAO "Myrzakent." Each of these enterprises has the capacity to process 60,000 tons of cotton into cotton fibre per year. Cotton is also cleaned and packed for sale. The textile factories "Adal," "Voshod i Youg" (Sunrise and South), and "Senim" are also implanted in the area. The TOO "Alians Kazahsko-russkii texti" (Kazakh Russian Textile Alliance) opened in 2005. These enterprises receive cotton fibre for processing

and manufacture yarn and textile products.

As recently as 2004, large companies, in agreement with farmers, used to finance works in the field before sowing, purchase petrol, diesel, and fertilisers, and controlled the purchase price of cotton in the autumn. Therefore, manufacturers and dealers had the most to gain from the difference between the cost of raw cotton and cotton fibre. Authorities did not play a major role in the cotton market. They did not provide investments into this sector and preferred to receive their share for "sympathy and amiability."

Essentially, the chain stops there. The major share of cotton is exported. However, over the past few years, efforts have been made to make this business less attractive with the issue of the creation of a cotton cluster in the region. The concept of a cotton cluster involves the provision of a full production cycle from the collection of cotton to the production of textile goods. In the middle of the 1990s, dealers from China used to come with suitcases full of US dollars, and bought up almost all the harvest at very low prices. The large scale of these cotton deals was evidenced by the shortage of cash in Shymkent in the autumn in the early 2000s. As it turned out, cotton businessmen withdrew literally all the cash from banks in order to settle accounts with farmers.

The government promises to introduce the most favourable regime in the cotton sector by creating a free economic zone for establishement of a cotton cluster. Its main point is to make the chain "peasant—cotton processor—textile goods," a single, unified process. It also implies a reduction in the quantity of mediators and the redistribution of the profit among participants in the cluster in proportion to their contribution. A Special Economic Zone (SEZ) will be created in the Sairamsky region of SKO to make the innovation more efficient. The Director of the SEZ, Arman Jetpisbaev, explained in an interview that if the "head" of the production chain is based in the SEZ, the chain will get significant tax benefits.

Local businessmen suggested a similar scheme several years ago. They argued that a full cycle in the cotton industry would resolve the problem of poverty in the cotton production sector. However, initiators of the project were claimed to be "voluntarists" and the project was discredited.

In the summer of 2004, the Minister of Economy and Budget Planning, Kairat Kelimbetov, held a conference on "the creation of a free economic zone for light industry enterprises in SKO." Representatives from ministries, departments and development institutes of Kazakhstan, directors of cotton-processing enterprises and *akims* (heads) of cotton-growing areas in the oblast took part in the discussion. Cotton has become the dominant produce of the agricultural sector in the South in the last few years. Almost all areas of the oblast, excluding Suzakskaya, Tolebiiskaya and Tulkubasskaya, try to exploit this profitable agricultural branch, so the cotton business has become very competitive. Nearly all the cotton fibre, processed at 12 cotton-cleaning plants in the region is exported.

Table 2. **Data on the Export of Cotton Fibre in The Southern Kazakh Oblast, 1993–2003**

	Quantity (tons)	Cost (thousands of US$)
1993	8,035.00	8,540.00
2000	77,074.60	71,628.90
2003	129,606.30	101,608.90
Total	725,381.70	738,762.30

Source: Oblast Administration of Statistics

The export of cotton fibre has increased significantly (see Table 2). Specialists from the oblast's Department of Industry and Trade explain that such an increase is due to the underdevelopment of the Kazakh textile industry.

Cotton fibre is not in demand in the domestic market of Kazakhstan. According to the data of the oblast's Department of External Economic Activity, only four per cent of the cotton grown locally is processed in local textile enterprises. One of these is Melange, Ltd., which produces 2,500 tons of cotton fibre per year. Almost all the production is sold to textile enterprises in Russia and Turkey since the local textile industry only represents one per cent of the total volume of industrial production. Light industry is still one of the most promising and strategically important industries in the country, but it requires extensive capital investments.

In order to stimulate the development of textile and sewing industries, the *akimat (*administration) of the Southern Kazakh oblast suggested the creation of a special economic zone.

The first deputy *akim* of the SKO, Islam Abishev, said that according to some estimates, the processing of 70 percent of cotton fibre locally would create 18,000 jobs and would provide the country with billions in tax revenues. Government support is essential for the rapid creation of cotton clusters. When a free economic zone is created, investors will receive some benefits and preferential treatment. Thus, the free economic zone will help in promoting a network of textile and sewing plants.

Legislative Initiatives

Nurlan Kanybekov, the head of Nimeks, one of the biggest cotton companies in the region, called the "Law on the Development of the Cotton Industry" (the initial version suggested by the Ministry of Agriculture in the spring of 2004 was "The Law on Cotton,"), the "law on hindrances to cotton processing plants." He added:

Suddenly, the government decides to make a law today, which was necessary

> in 1991. At that time all of us experienced difficulties. And the present-day project will allow corrupt officials to satisfy their ambitions through legal means. Seventy per cent of the law's essence is about ways to restrict cotton processing plants. Neither producers nor processors of cotton need this law. The appearance of the "Provision Corporation" [the department responsible for governmental purchase] interested in cotton has coincided with the development of this project.

The members of the Kazakh Cotton Association, established in 2005 and representing 12 cotton-processing companies and one cotton farm are not likely to accept this new project. This association was created to resolve the problems of cotton growing. Its members have noted that six out of nine components of the project were dedicated to the licensing of cotton-processing plants.

Thus, cotton producers think that when the cotton industry started being profitable, the government decided to use the new law to exert stricter control over them. Thirty-three administrative structures of control already exist in the region.

The Minister of Economy and Budget Planning. Kairat Kelimbetov, held a meeting with members of the Kazakh Cotton Association on 29 August 2005 at the *akimiat* (regional administration) of the SKO. Kairat Kelimbetov said that the Kazakh government had decided to create a working group in order to consider the law project on the "Development of the Cotton Industry" at the end of August 2005. The members of the Kazakh Cotton Association expressed their concerns about the project during the meeting with the minister. They argued that if the project was adopted in its current form, it would hinder the development of the cotton sector.

The President of Kazakhstan, Nursultan Nazarbaev, visited SKO on 1 September 2005. As soon as he arrived at Shymkent airport, Nazarbaev was taken by helicopter to the Mahtaaralskii region, the largest cotton sowing area of the oblast. "We will not give any benefits or preferential treatment to farmers that cultivate five hectares of land," Nazarbaev said during his meeting with cotton farmers.

Officials from the oblast already started discussing the necessity of a regrouping of small farm during their meetings at the beginning of 2005. They explained that small farms (5–10 ha) do not observe the rotation of crops and the land becomes overused and infertile. They also argued that large farms can take bank loans to facilitate their development and upgrade their equipment. However, many farmers think that the unification of smaller farms will take them back to forced collectivization.

"Why would I unite with somebody?" said a farmer, Dosjan Beibitov. "I have five heactres of land and I have been growing cotton for five years. We gather

3,000 kilograms of cotton per hectare. I buy quality seeds. I've never made any losses. I can afford to utilize machinery. I am the owner of my land now. But I do not have any confidence that I will own my land in the future."

Work on expanding cotton-growing farms in the Mahtaaralsky region continues at full speed. The oblast has 42,716 farms with an area less than five ha. Some 35 per cent of these farms, or 15,028, are located in the Mahtaaralsky region. The *akim* (head) of the region, Omarbek Nurjanov, said that the unification of farms is taking place only on a voluntary basis. However, farm managers are very hesitant to enter such unions because they are afraid that they could lose their rights to own land. Nurjanov thinks that expanded farms allows for an increase in capital, a significant circulation of investments, and stand a better chance to be granted loans.

According to specialists from the Oblast Agricultural Department, cotton-processing plants in the South played a crucial part in cotton growing. The managers of these plants regularly financed work in the fields before sowing, when more investment was required.

"I do not want to enter any unions," said Kairat, a farmer. "I am quite happy with going to my investor. I know he can always help me. If farmers need money for weddings or funerals, investors never refuse. Of course, we pay back all debt in the form of harvest, but we are fine with this. They say that investors will be prohibited from giving us money. Is this the government's way to reward those who helped the cotton industry?" The farmer refers to the new law project on "Development of the Cotton Industry," which prevents cotton manufacturers from financing farms. Analysts think that the creators of the project have included this clause in the new law only in order to disavow local players in the cotton market and clear the playground for participants from the future special economic zone. This patron-client relationships between farmers and investors finds its roots in tradition since it was common wealthier members of the village community to help the poor.

The Provision Corporation arrived on the cotton market scene by the Spring of 2005. The government has claimed that the Provision Corporation will help farmers become independent from cotton-processing plants, which supported cotton sowing and collection campaigns. Nobody knows yet how and at what price the farmers will settle accounts with the Provision Corporation. Farmers have suffred an acute deficit of investments, which stems from the reluctance of processing plants to provide loans in view of the unfavourable economic situation. These circumstances have forced farners to sell their cars and cattle.

The Problem of Seeds Supply

The Kazakh Cotton Association held a series of seminars in January 2005 in the cotton-growing areas of the SKO. At these conferences, cotton manufacturers

tried to convince producers that it was necessary to improve the quality of their produce. One of the main problems cotton growers have to face is seed quality. Indeed, farmers often buy damaged or smuggled seeds to save money, but low-quality seeds reduce crop capacity and lead to low-quality products. Cotton manufacturers set low prices for these products, which provokes conflicts with the producers.

There are five elite seed-producing farms in the oblast, but their produce is not in demand. According to specialists, every region must grow its own, special kind of cotton. Cotton crop capacity is declining steadily and farms are breaking up into smaller entities. As land becomes smaller, farmers cannot observe crop rotation, and this is why farmers are advised to join into co-operatives.

In 2004, the quantity of harvested cotton in the SKO reached a record in absolute terms. Some 466,000 tons of cotton were collected (the previous record was in 2001 at 417,000 tons). Even at the current low cotton prices, farmers should earn some 16.3 billion tenge. However, this record was reached only because sowing areas were expanded and cotton was made a monoculture in a number of areas.

According to data from the oblast's Ministry of Agriculture Administration, the traditional types of cotton have lost their characteristics. The best quality seeds from specialized stations are mixed with other types of seeds and are stored in the same containers at processing plants. As a result, farmers are not sure what kind of seeds they grow, which in significantly affects the price of their production. Specialists deem it necessary for cotton-processing plants to be consolidated for the very reason that the cotton sector is negatively affected and SKO cotton loses its quality "because mini-processing plants, which are interested in a thorough cleaning of raw cotton and in keeping the different types of seeds and reproductions separate, are absent," said Islam Guseinov, a PhD candidate in agricultural science.

Out of the 7,000 tons of seeds that will be used in the oblast's cotton fields this year, not less than 2,500 tons are low-quality seeds smuggled in from Uzbekistan which can be bought for a low price on the market. According to the oblast's Department of Agriculture, cotton grown from such seeds is only suitable for the production of technical oil. To prevent the situation from worsening, the Department wrote a letter to farmers. Specialists admit, however, that the letters do not have much effect because the cheap price of Uzbek seeds overrides all the arguments related to future low crop capacity and the low quality of cotton.

Specialists from the oblast's Administration of Agriculture estimate that 80 per cent of all areas dedicated to cotton growing in the SKO are sown with domestic cotton seeds. Many farmers, however, currently buy cotton seeds of uncertain quality without any certificates. These seeds are brought from Uzbekistan and are often claimed to be the domestic brand "M-4005."

"The farmers are attracted by the cheap price," said the Director of the Mahtaaralsky experimental station for cotton growing, Ibadulla Umbetaev. "They do not know that our station is the only place that produces the true elite seeds of this kind," he said. After three years of experiments on seeds the SKO launched two new kinds of cotton three years ago, "M-3044" and "M-4005," which are produced by the 70-year-old local experimental station in the Maahtalsky area of the SKO. The new seeds are disease resistant and ripen fast, which is very important in "our most Northern zone in the world of risky cotton growing," said Ibadulla Umbetaev, a PhD candidate in agriculture and one of those responsible for creating the new seeds. The weight of the ripe cotton flower produced from the new seeds reaches 6 grams, and the cotton fibre is 39.3 per cent (compared to only 30 per cent for other types). The government subsidizes the purchase of locally made cotton seeds. If everyone were to use domestic cotton seeds, crop capacity would increase to 3.5–4 tons per hectare (againsst 2 tons per hectare now). Moreover, this would allow farmers to use water more efficiently. Apart from the Mahtaaralskaya experimental station, there are four other elite cotton-growing farms. However, they still cultivate cotton from the "C47-27" seeds, which were adapted in the SKO several decades ago and lost their purity line. According to Ibadulla Umbetaev, farmers from the southern zone of the Turkestan oblast are most interested in buying the new type of seeds, while the main producers of cotton in Mahtaaralsk show little interest in the new seeds. Yet these were used in this region to sow an area of about 40,000 ha (out of more than 100,000), which is twice the size of the area sown last year. The reluctance of farmers to use new types of seeds may be explained by their high price. The Turkestan zone is located much more to the North, where they require types of cotton seeds that more resistant to weather changes. This is why Turkestan farms have to acquire the "M-3044" and "M-4005" types of cotton seeds.

Conclusion

After the break-up of the USSR, Kazakhstan's cotton industry experienced a period of collapse for several years. However, the situation gradually stabilized as farms developed a rational economic policy based on trial and error which stimulated a rapid recovery process. During the first years of independence, cotton farmers sold all their unprocessed harvest at the lowest price abroad. In recent years, however, local cotton manufacturers have proved to be active players in this market. But as soon as the indutsry showed signs of become viable, new interests representing the authorities started to appear. According to analysts, the very cotton processing plants that helped the cotton sector to recover from the post-perestroika crisis period through their investment will now soon go bankrupt. Thsi explains why farmers are awaiting these changes with distrust.

9

The Dark Side of White Gold in South Kazakhstan

Daur Dosybiev

Southern Kazakhstan is the only region in the country where cotton is grown. More than 200,000 ha of arable land with an average productivity of 20–25 centners (one centner equals 100 kg) per ha belong to 1,500 small, medium and large farming households. All this arable land is located along the Kazakh-Uzbek border.

It is important to note that cotton growing is an attractive business opportunity. On 13 July 2005, at a press conference in Almaty, the chair of the Monitoring Council of the cotton company NIMEKS Corporation, Nurlan Kanybekov, declared that the cotton sector of Kazakhstan was worth more than US$250 million. However, using statistical data on southern Kazakhstan, it is important to remember that most data – to put it mildly – do not reflect reality. This is because during the Soviet period, the heads of cotton kolkhozes and sovkhozes used to intentionally understate the amount of land used for crops in their reports. This would allow them "to increase" productivity and part of the undocumented cotton would be sold without the state's involvement. I suspect that even today statistical data require corrections because "playing with data" allows farmers to avoid full taxation and profit from undocumented cotton.

During the communist era, university and high school students, state workers, officials, pilots and drivers used to be mobilized to gather cotton. Cities would literally empty out as a large part of the population were working in the cotton fields. Of course, today the situation is different. A smaller number of experienced workers is preferred to a huge army of unskilled citizens. This is all the more the case as there is no scarcity of such labour. The unemployed citizens of Uzbekistan gladly take jobs offered by Kazakh farmers with salaries three times lower than those offered to locals.

Uzbek labour migrants come to Kazakhstan for the beginning of the season in the Spring. They can be divided into three groups. The first and most well-off group are Uzbek farmers who year after year are employed by the same household (as a rule, these are farmers who have 15–20 ha of land). They work illegally, but they have confidence in receiving payment for their work and benefit from good working conditions. The second and largest group is made of those who come to Kazakhstan illegally in search of work, mostly from Uzbekistan.

They take jobs in small and medium households under conditions set by the employers and do not complain about living discomfort. Employers, aware of their illegal status, accommodate them in poor conditions. The third and smallest group of workers are those who do not have documents and agree to work for food and shelter. According to analysts and farmers, the proportions of migrants making up each group are respectively 30, 50 and 20 per cent.

It is impossible to count the number of labour migrants employed on cotton fields in the Southern Kazakhstan oblast because few of them register with immigration services. Besides, employers tend not to publicize the number of employees they hire as they would not be able to manipulate their data and minimize the tax they owe. The deputy chief of the Migration Police of Southern Kazakhstan Oblast (SKO) Baltabek Ablaev stated in an interview in August 2005 that more than 4,000 illegal migrants were detained on the oblast's territory. He believes, however, that the real number of illegal migrants is much higher. According to the Department of Employment Co-ordination and Social Programmes of SKO's regional government, more than 10,000 people arrived by legal means in SKO within the first six months of 2005. About 2,000 of them claimed that the purpose of their visit to Kazakhstan is to look for a job. The oblast's Department of Employment Issues records that 12,000 people take part in cotton harvesting without having a fixed workplace. Out of them, 2,000 have an official unemployed status. Saryagash rayon was a leader in attracting the unemployed to work on the cotton harvest – a total of 5,200 people. In Turkistan it is estimated that there are 2,000; in Mahtaaral and Shardarin rayons 1,500 and 800 people respectively were involved.

A 46-year old citizen of the Jizakh oblast of Uzbekistan, Yuldash Abdukarimov,[1] and two of his sons came to Kazakhstan legally for four years and were hired by farmers in Mahtaaral rayon. They are paid between four and five tenges (US$0.03) for every kilogram of cotton gathered. An experienced worker can earn up to US$200 for a month. For the same work, landlords pay Kazakhstani workers from between seven and ten tenges (US$0.06). "We live fine," smiled Yuldash when I interviewed him in August 2005. "We live in peace, we do not quarrel. The landlords give us food and we cook ourselves." For one season, the father and two sons take home around US$800. Given the fact that a normal salary in regions of Uzbekistan is around US$20, we can assume that the Abdukarimovs are quite happy. Obviously, they have not heard about insurance for hired workers. Nobody has explained their rights to them. They did, however, register as guests with state bodies as the landlord said that it would be preferable. "There are a few more people from our *kishlak* working in the neighbouring field," says Yuldash. "They do not register at all. The landlords told them that there would be fewer expenses that way."

Rustam is 26 years old. He is from the suburbs of Tashkent and this is his first

time gathering cotton in Kazakhstan. During our meeting he told me, "One of our neighbours worked here last year, he advised me to come and work for Kazakh farmers." He responds evasively to the question of how the hiring process took place – he crossed the border, got to the cotton fields, offered his work to the farmers. Consequently, he also did not register anywhere and the landlord does not pay taxes out of his salary.

Kazakhstani farmers do not hide their interest in hiring Uzbek workers. The status of labour migrants is not mentioned in Kazakh legislation; their employment is not regulated and the whole procedure of hiring is built on an oral contract between the employer and worker. One 30-year-old farmer who called himself Arman says that he does not care how a guest worker happened to be on Kazakhstan's soil, whether legally or not. "I take their passports," confessed Arman. "I give them back with the payment when the gathering is over. The advantage of using Uzbek labour is obvious for me. Firstly, their work is valued cheaper. Secondly, they do not drink. Thirdly, they do not demand any conditions, nor claim any rights." Arman responds to the observation that he has no right to take away their passports with a smile.

In fact, it is common for an employer, when he knows that workers live illegally in Kazakhstan, to turn them in to the police, as this frees him from paying for the completed job. Najmitdin from Jizakh who is of the same age as Arman described how he and six other workers from Uzbekistan were cheated on by a Kazakh farmer. "He took our passports, fed us poorly, and gave us an unfinished barn to live in," says Najmitdin. "Without documents we could not leave him. He also threatened to call the police. And when it was the time for payment, we were taken to police station, kept there till the morning and then taken to the border and let go."

Two citizens of Uzbekistan turned to the Turkestan city police office with a claim that they were hired for work in Kazakhstan by a man who brought them to Turkestan, took away their documents and put them with an employer. Soon, it became clear that as "guest workers" they were literally in slavery. Moreover, the victims claim that the payment for their job was taken by their recruiter. With great difficulties they managed to escape and turn to the police. Turkestan city police officers detained a 48-year-old citizen of Uzbekistan on suspicion of recruiting people for exploitation.

Thirty-three-year-old farmer Nurmahan justifies the requisitioning of documents with the claim that guest workers can commit a crime against employers. "Two years ago I hired two Uzbek unemployed persons," he describes. "They had no documents. At the end of the season they stole three rams and a cow and disappeared. I do not even know their last names."

Evidently, Nurmahan is not the only victim. There were cases when hired workers from Uzbekistan killed their landlord under the suspicion of being

cheated. In 2002 the police of Southern Kazakhstan oblast uncovered a criminal group consisting of foreign citizens who were in Kazakhstan illegally. This group consisting of Uzbek citizens committed crimes on Kazakh territory. The police detained five Uzbek citizens who committed forty burglaries and one murder. All detainees live in Tashkent.

Today, the border between Kazakhstan and Uzbekistan is open for unhindered passage from one country to another. However, as Uzbek citizens claim, before getting to Kazakhstan, they must bribe border guards who hold them up knowing that they are leaving to earn money. "There are no jobs in Uzbekistan," says Najmitdin. "If we are detained at the border, we can be left without work on Kazakh cotton fields. Therefore, it is better to pay a bit to a border guard in order not to waste time crossing the border."

Unfortunately, as is illustrated by the evidence, certain southern Kazakh farmers do not shrink from open slavery in exploiting workers. Thus, at the end of 2004, the police detained two brothers who live in Ordabas rayon because they were forcefully holding two men and a woman who were forced to do the most dirty work. Apparently, there could be no mention about payment for their job.

It seems that the "chaos" which prevails in the labour market of cotton growing regions is beneficial for everyone. The employers who hide the existence of their hired workers can save on taxes, payments and provision of good working and living conditions. Labour migrants, arriving illegally, do not pay taxes neither in Kazakhstan nor in Uzbekistan. The law enforcement officials close their eyes after having taken bribes from farmers. In a confidential conversation, an officer of the customs department told a story about when he was offered a bribe of US$1,000 not to check bus passengers's documents.

Farmers are not stopped even by the fact that most illegal workers have criminal records. But investigating terrorist attacks that occurred in Tashkent in August 2004, the office of Public Prosecutor of Uzbekistan openly declared that the terrorists were based on the territory of Kazakhstan. It is quite possible that they were hiding among hired workers in farming households.

The department of co-ordination of employment and social programmes of the Southern Kazakhstan oblast proposed the adoption of legislation on labour migration that would regulate the residence of hired foreign workers on the territory of the Republic of Kazakhstan. While the document is held up in bureaucratic machinations at different offices and authorities, labour migrants cannot protect themselves and their rights are violated by farmers, law enforcement officials and cheaters.

Unfortunately, the topic discussed in this article is not studied in Kazakhstan at all. Articles in the mass media are of informative nature and simply remark on when, where and how many migrants were detained and deported by the state. Meanwhile, illegal labour migration poses a number of problems that sooner or

later will press for solutions. As farmers claim, the cotton industry cannot function without additional labour, so labour migration from Uzbekistan is essential. It is impossible to estimate their impact in this industry because there are no objective statistics that give numbers for each household. Besides, the official size of farming households itself is not correct.

Speaking about the problem of illegal labour migration, it is important to consider the fact that the current situation paradoxically satisfies everyone, helping both employers and guest workers to avoid additional taxation. At the same time, all actors in this industry, including migrants, agree that it is time to legalize the status of Uzbek hired workers. Yet they admit that the market for illegal labour migrants will continue to exist regardless of any legislation.

Today the Kazakh authorities do not recognize the existence of this problem, and the rights of Uzbek citizens working on the cotton fields are not protected at all. Perhaps this situation could be alleviated by the creation of resource centres that could provide legal and information support to labour migrants that might prevent the abuse of their rights. An initiative group was established in Shymkent and it is planning to publish special brochures for illegal labour migrants that will include all Kazakh legislation on migrants, all the disadvantages inherent to their status, the difficulties they will have to face and some ways of solving conflict situations.

Note

1. Personal journalist investigation was used as a primary source.

10

The Emerging Actor of Decollectivization in Uzbekistan

Private Farming between Newly Defined Political Constraints and Opportunities

Tommaso Trevisani

In the late 1990s the transformation of the agrarian system in post-independence Uzbekistan presented a mixed picture. Ilkhamov described it as a three-tiered system in which *shirkats* (large, state-controlled farms, successors of the kolkhozes and sovkhozes, with little change in organizational structure and management style), small household-based *dehkan* farms, and, in between, "intermediate" private or independent farms (Uzb. *fermer xo'jaligi*) coexisted in a mix of elements of both command and market economy.[1] Ilkhamov called this system of agriculture, featuring a number of restrictive characteristics aimed at keeping the social and economic processes of the rural areas within the track designated by the government, the "Uzbek model" of agricultural reforms. Unlike the more successful Chinese model, in which small producers enjoyed freedoms that boosted productivity within a framework where the state remained predominant, in Uzbekistan the combination of reforms and state regulations did not allow the development of an analogous dynamism in the private farming sector.[2]

In Uzbekistan private farms were legally introduced in 1991. For many years they were few in number, covering a minor share of agricultural land, de facto remaining subordinate to the *shirkats*, and largely integrated into their production schemes. Although according to legislation, capable individuals can apply to lease land and establish a farm, the gradual expansion of the "private" farming sector was a top-down implementation process, as farms were introduced to fulfil centrally set quotas in every region. Table 1 illustrates this process in the Khorezm region. The Land Code of 1998 defines the restrictions and limitations of the status of private farms. Land ownership remains a state prerogative, private farms being only legally registered enterprises which lease plots of land on a long-term basis from the large state-controlled enterprises or directly

from the *hokim* of the district (*raion*/*tuman*).[3] Most of a private farmer's land is bound by the leasing contract to the cultivation of the state-order crops of cotton and wheat. Although subsidized through state-channelled inputs, farm profits on state-order crops are relatively low, as the government controls their retail and marketing.[4] Producers are obliged to sell all their cotton to state-controlled gins[5] at prices fixed by the government far below world market prices, resulting in low profit margins for the farms. Private farms materially depend on the state-channelled agricultural inputs they receive in an amount related to their share of the state crop quota. All accounting and expenditure passes through state-controlled banks, notorious for their reluctant disbursement of cash, which private farms cannot circumvent. In case farmers produce something other than requested, repeatedly fail to reach their assigned production target, or accumulate debts to suppliers and go bankrupt, farm leasehold contracts can be withdrawn. In such a case farm holders will lose their land leases, warrant and source of private capital. Moreover, as cotton and wheat are state crops of strategic importance, governmental officials monitor and interfere in the production process of a farm in all its phases down to plot-level activity. Given these characteristics, private farming still appears to be largely integrated and subordinated into the state production apparatus.

Since 2003, however, the pace of reform has brought the agricultural sector to a new watershed, as large state enterprises are increasingly being dismantled and replaced by smaller private farms. Constraints on agriculture are not lifted, but the opportunity for economic action in rural areas has been reorganized and presents a picture different from before. At the time of this research, *shirkats* had been disbanded in four experimental districts of the republic, and private farms had taken over the lands and the state-order production from the *shirkats*. The substitution of the *shirkats* by a multitude of newly established private farms follows the already described pattern of reform implementation for the introduction of the private farms: gradual, top-down implementation according to centrally set quotas. In future, private farms will gradually replace *shirkats* all over the republic. Although constraints on farmers' freedoms will continue, this decollectivization is gradually creating a new constellation, with the "*fermer*"

Table 1. **Farm Establishment in the Khorezm Region**

	end of 1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	1st half 2004
area (ha)	1416	3382	4839	6934	8467	9638	14221	30352	41545	55414	84774	113833
No. of farms	186	554	842	998	1132	1283	1559	2872	3617	4842	6533	7787
Aver. ha	7.6	6.1	5.7	6.9	7.4	7.5	9.1	10.6	11.5	11.4	12.9	14.6

Source: *Fermer* and *dehkan* Association, Regional department of Khorezm

(official Uzbek term for private farmer) at its centre. Compared to *shirkats*, *fermers* run smaller production units with more individual liberties and have more space for initiative during the production process than in the period of collective agriculture. Although at an embryonic stage, a new constellation is emerging, in which socio-economic dynamism, along with the opportunities and risks to which the newly defined actors of agriculture are exposed, will be higher than before. The break-up of the *shirkat* has made the *fermers* a distinct class of agricultural producers. But as a class, *fermers* are still in the making and very heterogeneous. In the districts, different views about their role in agriculture lead to conflict and incongruence between them and the agricultural authorities co-opted by the state, as well as between *fermers* with different backgrounds. The emerging new context has the beginnings of a more competitive and dynamic scenario, that so far the slow pace of the reforms during the 1990s has managed to contain.

In this paper, I would like to look at what it takes to be a successful player in the context of decollectivization, by focusing on private farming with all its contradictions and problems: the uneasy relationship with district authorities and the new, competitive situation farmers are confronted with at the beginning of a still restrained, but increasingly modern and dynamic agricultural scenario. After decollectivization, with the disbandment of the *shirkats*, the *fermers* are the emerging agricultural actors taking over the agricultural production. However, due to the peculiarities of the Uzbek agricultural reform context, they are neither market-oriented profit maximizers, nor subsistence-oriented producers. Following the rationale of the current reforms, *fermers* can be seen as the "heirs" of the kolkhoz. As such, they also are, as the kolkhoz before and the *shirkat* later used to be, a "building block" of the state system. Therefore, the logic of farming follows the very locally determined criteria of optimizing their integration into the still preserved command system, as well as trying to enhance the terms of usufruct[6] relative to the command production apparatus. Because of the persistence of heavy constraints on farmers' freedoms, both profit maximization regardless of the directives from above, as well as unquestioned conformity with these directives bear their own risks. Successful farming, then, is a balancing act between the two extremes.

Elaborating on this statement, I shall first of all discuss the setting of the reforms by examining how rural families relate to the context of state agriculture and to the changing rules of land usufruct available to them. In the following section I shall focus on the implementation of the reform in a pilot district of the Khorezm region in order to give an idea of the scope of the reform and of the emerging typology of new actors. The last two parts discuss the situation of the *fermers* from "within" a farm, and their relationship with the district authorities.

The Rural Family in the Context of State Agriculture

The organization of agriculture in Uzbekistan draws elements from both the state and the family. This twofold embedding can best be illustrated by considering the different scales of agricultural activity involved in the production of cotton. In rural settlements, the small-scale work, consisting of the heavy and burdensome manual work in the fields, is managed by resident peasant families. They materially care for the daily operations of cotton growing, irrigating, weeding, etc. over the growing period (roughly March to August, after which harvest starts), for which the large cotton fields are apportioned to smaller units that can be tended by families. Peasants involved in this work are also called "*gektarchi*,"[7] meaning those who care for one hectare of cotton. At the same time, on these very same fields but on a higher level of the agricultural production hierarchy, the local staff and officials organize and execute all necessary operations within the boundary of their territory and competences, including the use of tractors, the application of agricultural inputs, decisions on sowing, irrigation beyond the plot level, and the management of rural labourers. Further up, at district level, the apparatus culminates in the *hokim*, who is directly responsible for the accomplishment of the state plan and who supervises cotton production. This is steered by district- and *shirkat*-level executive staff whom he has either recruited or maintained in their positions.

The state-directed and family-based frameworks have different but complementary attributes. Production is organized along the lines of family structures, while rural families have adapted to the framework of state agriculture. This pattern was already well established during the Soviet period. In the kolkhoz, housing and labour were organized to suit to the needs of the extended families. Kolkhozes provided their members with big houses, built to contain more than a conjugal family. They always included a garden plot and a shed for cattle in the backyard, and had abundant storage space. Produce from the garden as well as livestock were important components of the rural families' income and nowadays are even more crucial to family subsistence. Cattle is doubly appreciated as a provider of dairy products and as a form of saving – something to give away when the household has to face major life-cycle expenditures, such as the dowry for the bride, wedding celebrations, or the building of a new house. Although Sovietization brought many radical changes to agriculture, it preserved the traditional family structure as the main unit of agricultural production by co-opting it into its agrarian system in a fairly unchanged form. While the traditional political structure above the family level had been liquidated and substituted by a new one, households were integrated into the productive system without altering their key features. With the post-independence reforms this pattern is preserved. From the collective agriculture of kolkhozes and *shirkats* to the more individual agriculture of the *fermers,* the legal definitions of the relations of land usufruct

have been rephrased several times, but the rural family has remained the essential unit throughout the reforms.

In the areas where I conducted my research,[8] the rural families are extended families including several generations. The extended family is a unit of consumption, distribution and production. Typically, it is organized around the figure of the patriarchal authority, to whom family members show reverence and obedience. The extended family is composed of the patriarch, his wife, his unmarried and married sons, the wives and children of the married sons, and of his unmarried daughters. In terms of status and authority, family members are ranked by age and gender. Through marriage, daughters change their family affiliation and therefore are no longer seen as family members in the same way sons are. This is reflected in the kin terminology, which differentitaes between maternal and paternal kin. In traditional families, sons and daughters get married early and the parents decide when and with whom. The extended family lives in a joint household. The sons of the head of the household will only move out of the house with wife and children long after the wedding, when the whole family has provided them with a new house in a nearby location. The founding of a separate household entitles the new family to apply to the local authorities for a subsidiary plot of 0.13 ha of irrigated land, called "*ko'shumcha tamorka*." Together with cattle and the fruit and vegetables grown in the garden around the house, this plot represents the economic basis of the average rural family. Even after the sons have moved out of the parental household, they maintain strong links with the patriarch, who still maintains his decisional authority in all important matters until his death. While elder sons progressively move out of the household of birth, the youngest son (and his family) remains with the parents and inherits the parental house.[9]

On the division of labour of peasant families, Krader wrote that "Silk raising, dairy production, gardening are women's tasks among farmers, the men are herdsmen, canal diggers and cleaners, house-builders. Cotton and grain raising are joint tasks among the farming peoples."[10] This gendered division of labour has been maintained until today. In the rural areas of Khorezm, technical jobs (tractor driver, engineer), management positions, leading positions in the administrative staff and in general decision-making in agriculture are largely a male domain, in which women are seldom represented.[11] Under the pressure of economic stagnation, however, the division of labour in the rural families has recently taken new forms. Rural unemployment has affected the traditional role distribution between genders, because many men leave their villages to seek work elsewhere. As a consequence, women have seen their share of the work in the fields increase. Also, they sometimes take over agricultural activities that used to be associated with males, such as looking after the rice paddies on the subsidiary household smallplots (*ko'shumcha tamorka*). Kandiyoti has drawn

attention to the feminization of poverty, which this process also entails.[12]

Rural Families and Forms of Land Usufruct

In the post-kolkhoz period, the extended rural family of the "*kolkhozchi*" has been relabelled as the "*dehkan*" family in the governmental reform jargon (Uzbek term for peasant). The main difference between the two is that since 1990 rural households registered in the territory of the former kolkhozes became entitled to a subsidiary plot. This was effectively a redistribution to rural households of land previously used for state crops in compensation for the shortfalls that families had to face after independence. At that time, wages decreased and state farms were unable to pay them regularly, and when they did pay them, it was usually in kind.[13] With 0.25 ha of irrigated agricultural land[14] the subsistence basis of the *dehkan* family is nevertheless fragile. In the context of Khorezm, the *tamorka* gives two harvests (winter wheat, harvested in June, is followed by a short season of fast rice growing) and *tamorka* plots usually have a high productivity compared to the large state crop fields. However, this is too small and insecure a basis to feed large households.[15] *Dehkan* households therefore engage in other agricultural and non-agricultural activities. Among agricultural activities, cattle rearing plays an important role. Cattle owned by households used to graze on the fields and orchards of the kolkhoz before these were privatized. After privatization fodder or grazing rights have to be purchased or acquired in return for labour on the *fermers*' plots. Beyond the *dehkan* household plots, families can engage in various arrangements of land usufruct in order to access additional sources of income. These are:

1. *Pudrat* (employment to work on a parcel of collective land cropped with state crops): the term comes from the Russian "*podryad,*" which means "contract." The *pudrat* land refers to the land administered by the *shirkat*, on which the *dehkans* work on a contractual basis. Under the kolkhoz – in which land grown with state crops was allotted to households to look after it – family-based brigades were already introduced to enhance productivity. This type of arrangement continued in the *shirkats*. The former brigade workers (now "*pudratchi*") agree on a contract with the *shirkat* chairman over the allocation of a specified plot of land. This contract usually is usually for one year but can be extended over three to five years. Average *pudrat* is 8–10 hectares, but size ultimately depends on the capabilities of the *dehkan* family (in cases of larger or smaller workforces, land would be arranged accordingly). In a *pudrat*, the head of a *dehkan* family is employed by the *shirkat* to grow the crop. The head of the *pudrat* further apportions the plot, in case different families are involved. The *shirkat* provides the *pudratchi* with seeds, fertilizers

and all necessary inputs. Work should be paid out as a monthly wage, but due to the cash shortage, salaries are usually paid out in kind from affiliates of state retailers. Their prices, however, are higher than those at the Bazar, resulting in an additional depreciation of the salary's value. In theory, a *pudratchi*'s salary is around US$10. This amount is, however, "virtual," as expenditures (gas, electricity, pension and communal services to the households) are deducted. The rest, made available in kind from retailers (wheat, cotton oil and sugar) has a market value of US$5–6 of monthly income. While *pudrat* work strictly means employment by the *shirkat*, colloquially it is also used for the work at the *fermers*, if workers are employed and their workdays are recorded on their employment card.

2. Tender (agreement to grow free marketable crops on collective lands): tender agreements were officially introduced under the *shirkat* in reaction to the fall in productivity caused by unattractive remuneration. *Dehkan*s acquire a plot of land (usually 1–5 ha), on which they grow crops on a sharecropping basis with the *shirkat* administration. Payment in cash is also possible. The difference with the status of the *fermer* is that the agreement lasts a maximum of four years and that *dehkan*s do not need to establish a farm. Typically, vegetables, watermelons and rice are cropped. This is an intermediate land-lease system that after the disbandment of the *shirkats* is gradually coming to an end as this form of land usage is not considered in private farming. After decollectivization, tender agreements remain in yet to be privatized orchards and vineyards on the reserve land of the Motor Tractor Parks (MTP), kept for future settlement.

3. *Ijara* (land leased on a long-term basis by the *fermers*): *ijara* is the Uzbek word for lease. In the reform context it refers to the land leased by *fermers*. Unlike the *pudratchi*, the *fermers* lease land for a long-term period. When farms were first introduced, leases usually lasted ten years. Nowadays, most land leases are released for 50 years, and are inheritable. The lease is bound to the cultivation of crops as specified in the business plan of the farm, with which the head of the farm has applied for farmland at the farm establishment commission (*fermer ho'jaliklarni tashqil qilish kommissiyasi*) of the *shirkat* or of the district (after the *shirkats* were dismantled). In the business plan the planned crops for the coming ten seasons must be specified. Changes in these crops require the authorization of the agricultural branch of the district *hokimiyat* ("*RaySelVodKhoz*"). *Fermers* sign yearly contracts with state-sanctioned retailers (district cot-

ton gin, "*Uzdonmachsulot*" for wheat) on the basis of which farms can obtain credit for inputs. Privileged credit for inputs (a 5-per-cent interest rate for cotton and wheat contracts) is granted. However it does not go through farm accounts but directly to input suppliers, so that farms are not directly involved. The farm's profits are calculated after harvest, with farm expenditures directly deducted from the farm's bank account, on the basis of harvest returns delivered to retailers. All prices are set by the government and are valid across the entire republic. The trade of state crops and inputs is prohibited.

4. Unofficial land use: current regulations prohibit the sublease of rights to land usufruct, which makes any transaction of land rights illegal. It is, however, a widespread practice. The common practice is to "buy" land to grow crops which are freely marketable on the bazaars or consumable for households, in exchange for cash or with a sharecropping agreement. These are agreements that are not legally registered, thus profits are immediately available to the contractors, without the mediation of the state. This "black market" occurs at different levels. It encompasses at least two distinct types of activities, one of which is oriented towards subsistence and the other which is more entrepreneurial. The first one is generally tolerated by the district authorities: private farm enterprises as well as *shirkats* usually have no cash to pay workers, so small land plots are given as payment for labour instead of cash. These plots are easily recognizable because they are small and usually located on the edges of the large fields grown with state crops. In a similar fashion, households with *tamorka* that are located too far away sell their usufruct for cash to those interested in the neighbourhoods that have excess labour. The second type of unofficial land usage is altogether different. In this case, larger plots of many hectares are sublet by large *fermers* or by *shirkat* officials to private agricultural entrepreneurs for cash or with sharecropping agreements. This "speculative" type of unofficial land usage is more risky as control is tight and sanctions are high. Therefore, it is not contracted overtly but in a hidden way. A significant amount of every *shirkat*'s land is cultivated without official agreements.

While all rural households are entitled to a subsidiary plot and housing ground, not all *dehkan* households engage in further agricultural activities. Of those who do, some are employed in *pudrats* by *shirkats*, some are employed by *fermers*, some have temporary "tender," some take lands with informal agreements after payments, some are *fermers* themselves. Some, although *dehkan*s, have loose links with agriculture, while some others again use the land to cultivate cash

crops, although their family is mainly employed outside of the agricultural sector. A mix of different forms of land usage is common, and goes together with the differentiated structure of extended families. For instance, in an extended family of 12, composed of two households and four sons, two of which were married, there were two *tamorka* lands available and a "*pudrat*" taken from a *fermer*. The family also had a "*fermer xo'jaligi*" of one hectare of orchard and some additional land to grow rice in the summer season, unofficially obtained from another *fermer* through a cash payment. Women were largely employed in the cotton *pudrat*, while rice was an altogether male domain. Men and women both worked on the *tamorka* and on the orchard. Overall, family resources were pooled and work was done jointly. I interviewed the family patriarch, a retired employee of the kolkhoz, shortly after the *shirkat* was privatized. He had decided that his married sons should not quit agriculture (although one of them was working as a taxi driver), as he considered that agriculture offered sufficient prospects for his family. This example, drawn from an exploratory survey I did in 2004,[16] refers to a recurring situation.

For *dehkans*, one of the effects of the elimination of the *shirkat* is that it poses constraints on the economic diversification strategy employed by households, so that families become more fixed on a single path of development. One year after the reform, the employees of a district branch of the FDA (*Fermer* and *Dehkan* Association) explained to me that in practical terms, for the working population, the main difference in farming before and after the decollectivization is the switch from the "*pudrat*" to the "*ijara*" terms of land usufruct. *Dehkan* households obtaining "*ijara*" farmland became *fermer* households. Families that did not become *fermers* have the choice of working for a *fermer* family[17] or looking for alternative sources of income outside agriculture (mostly trading and labour migration). This explanation, on the one hand, reduces the expectations of radical transformation associated with decollectivization; on the other hand, it shows that state policy has a significant effect on the ways in which households will relate to agriculture in the future. Before decollectivization, the differences between *fermer* and *dehkan* families in terms of livelihood and opportunities were rather insignificant as long as the scale of farming and the cropping patterns were similar. A *dehkan* farm with a good tender or some hectares of profitable land agreements was not different, in terms of economic performance, from a *fermer* enterprise. With decollectivization, the *fermers'* share of the land increases together with the duties attached to it. But this process also entails a reduction of the agricultural space for non-*fermers*, so that the ordinary *dehkans*' position has worsened. I will now illustrate this process by examining the outcomes of land redistribution to the *fermers* in a pilot district of Khorezm region.

Decollectivization in Yangibozor District

Yangibozor is a truly rural district, among the smallest and least developed in the Khorezm region. The district has a total of 19,500 ha of agricultural land. Conditions in Yangibozor, with its deteriorating agricultural infrastructure and living standards, clearly reflect the situation of stagnation which Kandiyoti has characterized as the "demonetization and reagrarianization" of the rural sector.[18] According to a district officer, Yangibozor has 65,000 inhabitants spread over eight village councils (*sel'soviet* + district centre): 32,000 are of working age and 24,000 work in agriculture, directly or indirectly. Of these, only an estimated 18,000 are actually in the fields, while the other 6,000 work in trade, construction and other services, and step in only when extra labour is required. With the exception of the district cotton gin which employs 200–300 workers during the harvest season, and a few very small brick factories, there are no other industries in Yangibozor. In 2003, according to the district department for agriculture, 84 per cent of the main agricultural surface of the district[19] was cultivated with state-order crops – cotton (68 per cent) and wheat (16%). In January 2003, when the 11 *shirkats* of the district were dismantled, 1,164 *fermers* took over most of the arable land and the rest of the agricultural workforce.

In Yangibozor, the Motor Tractor Parks were not privatized, but were reformed into a nominally autonomous, but de facto state-controlled leasing firm that provides services to the farmers. The MTP also retained a share of the *shirkat*'s land (between 5 and 10 per cent), which is in reserve for the future enlargement of the settlements, and small subsidiary plots. This is one of the bottlenecks of production as machinery is scarce. Moreover, the MTP is a pretext for maintaining the whole executive structure of the former kolkhoz, so that even after the dismissal of the *shirkats*, the "skeleton" of the kolkhoz system remains intact. Once there was a *shirkat rais* (before he was the kolkhoz manager), an agronomist, an engineer, a land measurer, a deputy *rais*, etc. Now these same people are affiliated[20] to the MTP and continue to supervise production, input management, harvesting and what the *fermers* really produce – making sure they do as the district *hokimiyat* has decided for them. The freedoms to which *fermers* are entitled by law are not entirely granted. Their cropping scheme is determined by the district authorities. A share of the consumable products that *fermers* produce (all their produce besides cotton), is withdrawn by the district authorities with the argument that it has to be used for various expenditures (renewal of schools, hospitals, stadium, etc.) in the district, for which the district budget appears to be insufficient.

Although land has not been privatized and constraints on the *fermers* remain, decollectivization is an important turning point for those involved in agriculture, because entitlements to land is passed on to individuals and land is redistributed to a minority of *fermers*, excluding the majority of former kolkhoz members who

remain without direct access to most of the formerly collectively-held land. In Yangibozor the *fermers* count as a privileged class, as manifested in the numerical discrepancy between those who became leaseholders (*fermers*) and the class of the subordinated farm workers. Nevertheless, the *fermers*, equal in their juridical status, are far from being a homogenous group and widely differ in terms of specialization, size of their farms and personal backgrounds. Tables 2 and 3 show how private farms vary according to their size and their crop specialization.[21]

As a first step of privatization, *shirkat* orchards were sold at auctions. Plots were apportioned in small parcels of land (one hectare), so that they could be distributed to a large number of *dehkan* households. Orchards represent the largest number of small *fermer* enterprises. They range between one and four hectares of land and are less dependent on the state-controlled input and retail structure. Their production is rather household-based and oriented. *Fermers* who got these plots often used to work on the orchards before, or were older, retired employees of the *shirkat* with a distinguished career. Orchards are attractive because they are exempted from state order and they enable their owners to lead a modest but peaceful life. Because of these peculiarities, they should be considered as a separate category.

In contrast, state crop farms had to be larger because they were required to suit the needs of the state crop agro-industry. State crop farms were established by ad hoc commissions in every *shirkat*. Suitable applicants could compete for previously delimited farm plots. The "cotton and grain" farms ("*dehkonchilik*") represent the most important farm category in terms of number of farmers involved. Of the 1,164 farms in the whole district at the time when of the data were collected, 713 dealt with "*dehkonchilik,*" that is to say with the "core business" of cotton, wheat, and rice. These are the crops that matter the most to the district authorities and to the government's budget, so control and interference are stronger in this sector. Although cattle farms and vegetable farms are not incorporated in the state-order system and therefore should in theory be attractive for farmers, thy share characteristics with cotton gins, as they have to sign contracts (*shartnoma*) for the delivery of meat with state-controlled retail enterprises and bazaars, and that their profitability depends on their terms of trade.

As shown in Table 3, the bulk of the *shirkat* farmland was privatized in a rush. After roughly one-third of land had already been transferred to *fermers*, the rest of the land was privatized at the last moment, and in larger plots. In the plan of the *hokim*, farm units should be much larger, but the shortage of suitable applicants forced authorities to create smaller farms. In order to preserve the capacity of the district, those who had a role in the production of cotton before were needed to become *fermers*. Immediately after the switch from the "*shirkat* system" to the "*fermer* system," these actors have to take on the double responsibility of looking after overall running of the *shirkat* and district-level production

Table 2. **Farm Specialization in Yangibozor District, April 2004**

	Total no.	Total size	Average farm-size
Cotton and grain farms (cotton, wheat, rice)	713	17,426.1	24.4
Orchards	331	645.6	1.95
Grape farms	31	44.9	1.4
Vegetable farms	26	87.9	3.3
Cattle farms	18	319.6	17.8
Silk farms	31	62.4	2
Fish farms	5	69.3	13.86
Farms in total	1164	18,656.8	16.02
MTP lands	(11)	1,339.5* (of which 12.5 orchards)	133.95

Source: Fieldword data, Tommaso Trevisani, 2004, based on district land measurement office

Table 3: **State Farms in Yangibozor District**

	2001		2004	
Size of farm	No. of farms	% of total farms	No. of farms	% of total farms
1–5	66	18.1	423 (91)*	37 (11.3)*
+5–10	90	24.7	78	6.8 (9.6)*
+10–20	135	37.1	269	23.6 (33.2)*
+20–30	50	13.7	161	14.1 (19.6)*
+30–40	10	2.7	104	9.1 (12.8)*
+40–60	11	3	85	7.4 (10.4)*
+60	2	0.5	22	1.9 (2.7)*
	Total no. of farms		Total no. of farms	
	364		1,142 (811)*	

* without orchards

Source: Fieldwork data, TommasoTrevisani, 2004

of state crops on the one hand and, on the other, of managing for their newly established farm, with a range of new liabilities.

Fermer Families: Risks and Opportunities

The founding of a "*fermer xo'jaligi*" is an important moment for families. If the state plan is not fulfilled, the family will run into debts which they must pay back out of their own pocket. This kind of liability is new for *dehkan* families because when *shirkats* accumulated debts on behalf of the shareholders (*dehkans*) during the period of collective agriculture, the households themselves were not directly liable. Therefore, in order to fulfill the district quotas in terms of reform accomplishment, the district officials had to push the economically capable and skillful families into private farming. Understandably, families are afraid of the risks involved, especially those with few assets. On the other hand, *fermer* households have the opportunity to make profits with state-order crops, provided they match production targets. This opportunity is not available to most rural families. Even in good years *dehkan* households make very modest incomes compared to well-run *fermer* households. So, in abstract terms, becoming a *fermer* is desirable.[22] But in Khorezm, as the harvests in 2001, 2002 and 2003 were bad while the prices of inputs steadily increased and the procurement price for cotton remained low, many of the newly established private farms accumulated debts. To them, the economic opportunities of private farming seemed to be out of reach, while the risks and constraints associated with their new status were obvious. In 2004, however, the harvest was good, so most *fermers* reached their target and made good profits.

From the point of view of most newly established *fermers*, decollectivization is perceived as a forced scaling-up of family farming. Decollectivization impacts family farming as a formalization of the diversified economic practice. It is an attempt to impinge the terms of "state farming" to the families, so that by becoming *fermer* enterprises, families get closer to the features and rules of the *shirkats*, but on a smaller scale. As a result, the *fermer* has to bear the contradictions of being a state-steered, but privately-owned and family-managed enterprise. I shall illustrate these statements by following Machmud Hursandbekov, de facto manager (*haqiqiy rahbar*) of "Hursandbek" farm[23] in Yangibozor district, in his daily work.

"Hursandbek" farm, named after Machmud's father, was established one year before the decollectivization of the *shirkat*, and then enlarged from four to 30 ha of land (including 23.3 ha of arable land) in the year of the reform. After returning to his home village from studying at the Institute for Irrigation and Agriculture in Tashkent (TIIAME), Machmud, now 45, worked as Komsomol secretary, *shirkat* land measurer (*zemlemer*), *sel'soviet* chairman (*shora*) before joining the Motor Tractor Park station (MTP) as an area supervisor of tractor leasing to *fer-*

mers ("*MTP uchastka boshligi*"). As an experienced member of the agricultural production hierarchy, Machmud's application for farmland was accepted by the farm founding commission headed by the then *shirkat* manager and now MTP manager ("*rais*"). However, according to law, employees of the state administration cannot be heads (*rahbar*) of private farms. Because of this, the farm contract is registered in the name of his wife, Ozoda. She has a bookkeeping job at the MTP, where the working papers ("*mehnat stajlar hisob deftarlari*") of the agricultural labourers are stored until they are transferred to the *fermers*. Besides Ozoda, ten workers are on the farm's payroll ("*shartnomaviy ishchilar*"). They qualify for pension schemes and can receive salaries from the farm account. The cropping scheme of the farm's 23.3 ha of arable land was decided byt the district agricultural department and imposed on Machmud: 19.3 ha of cotton and 4 ha of wheat. One year earlier, he had only 4 ha of wheat, a much more attractive and "easier" crop.

Machmud did not choose the land he got: most of the additional land he received in 2003 is saline, because a drainage water collector channel used to through it. However, land quality is considered to be high, which means that according to norms 2.9t/ha of cotton output have to be delivered a part of the production plan. Given the quality of the land, this is an unlikely figure for an average year. In order to enhance quality, expensive improvements to the soil are necessary. In the cool spring of 2003, cotton seeds had to be replanted several times, causing additional costs to the farm. The *hokim*, concerned that the district may not reach its target and following a directive from Tashkent, decreed that the fields must be cultivated with "*plyonka*" (plastic cover), which protects the sprouts from cold but constitute an additional expenditure for *fermers*.

Additional tractor work is needed, but the *fermers* have a limited stock of inputs related to their credit lines for their cotton and wheat contracts. All the tractors are old and consume more fuel than norms allow, so additional fuel and tractors have to be found at a time when everybody needs them. In 2003 the available tractors were working night and day. Machmud's younger brother Gulum works as a private tractor driver with a tractor bought at the *shirkat* auction and helps out (he and his wife are farm members). Currently extra fuel and a spare part for the tractor's gearbox must be bought in the capital bazaar in Urgench. Since Machmud may not meet the plan's target ("if the harvest is two tons per hectare I am bankrupt"), he diverts cash from workers' salaries to pay for these expenditures. Instead, the workers will be paid out in wheat at the end of the harvest. As it becomes more and more likely that the plan will not be matched, Machmud manages to change the terms of contract with the cotton gin and reduce the cotton order. For this, he needs permission from the district department for agriculture. Many of the *fermers*-cum-officials of the "state apparatus of agriculture" neglect their farms in order to undertake their primary task of co-ordinating and monitor-

ing the state plan at *shirkat-* or district-level. In exchange, turn a blind eye to the farms that are not performing well. As an official, Machmud's works 16–18 hour days in the spring, mainly co-ordinating tractors and receiving orders from his "*rais*," for whom he has to be available at any time. For Machmud, his employment at the MTP has no economic advantage (he spends more on fuel for his car than he receives as salary: two sacks of wheat after harvest). His motivation for working work is that it gives him small privileges and some protection from the bad terms of trade that are imposed on his *fermer* enterprise. For instance, he could get around the "*plyonka*," thus avoid taking additional credits. His role as de facto head of the family farm consists of dealing with paperwork, "birja"[24] and the district administration. He is involved in strategic decisions on farming and irrigation, the procurement of inputs, employees' wages, the marketing of crops and relations with the local agricultural production hierarchy which monitors and accompanies the farms through all the phases of cotton growing. For instance, if the irrigation pump upstream from the channel does not work, arguing with neighbouring *fermers* as well as MTP employees would be necessary and typical work for the "*rahbar*." This job is fully compatible with his official occupation, with keeps him constantly busy. In his extended family he is the only one with a car, without which he could not effectively manage either the farm or his job at the MTP. The management of the workers on the farm plots is a job accomplished by the farm's work supervisor ("*ish yurutuvchi*"), a role that exists in every medium- or large-sized farm. In Machmud's farm this work is done by his elder sister's 30 year-old "*kiuov*" (niece's husband).

The organization plan of Machmud's farm shows how his extended family, composed of four separate households, is deeply integrated into the structure of the farm (see Figure 1). A number of non-employed family members de facto take over essential tasks. The farm is perceived as a shared asset, to which the households contribute as best they can. Among the people related to the farm, there are officially and unofficially affiliated ones. In addition, within the farm there is a stratification between "members" who are affiliated to the extended family and employed farm workers that are not affiliated and do not share earnings and risks in the same way. Although this distinction does not exist on paper, Machmud draws a distinction between farm members ("*f.h. a'zolari*" or simply "*a'zo*") and simple farm workers ("*hismatchi*"). On paper, they all have the same status as farm employees ("*shartnomaviy ishchilar*"), but the relation between the *fermer* and the farm workers is hierarchical. The *fermer* can hire and fire workers as he pleases. In Machmud's farm there were six such "external" farm employees, all of which were fathers in their 30–40s, living in a close-by village. This means that these employees' families were also involved on the farm (they would step in when work was most required or if their husbands had other jobs). Additional seasonal workers ("*yollanma ishchilar*") are hired for the harvests,

Figure 1. **Structure of "Hursandbeck" *Fermer* Enterprise**

Households and persons registered: 10 registered employees, including four farm members

23.3 irrigated land in 2003		19.3 ha cotton / 4 ha wheat	
In Jumaniyaz's household (pensioner, 65) 1. Sobir (oldest son of Jumaniyaz, MTP tractor driver, non-member) 2. His wife (farm member) 3. Their children, occasionally at school	In Machmud's household (MTP sector manager) 1. Machmud (non-member but de facto farm manager) 2. His wife Ozada (farm titualr and Bookeeper in the MTP Admin) (Children not involved in farn activities)	In Baxrom's household (farm member, 45) 1. Baxrom (member) 2. His wife (member) 3. Their children, occasionally in school (Resident in distant village)	In Gulum's household (farm member, 40) 1. Gulum (member and owner of a private tractor as main activity) 2. His wife (farm member)

6 labourers with contract (*shartnomavi ishchilar*) of different families. Some of them are heads of households, some are married sons. All aged between 30 and 40. All reside in the village of the farm.

when *fermers* can access cash from their farm accounts to pay them. They are paid daily according to the number of kilograms collected. The relationship between *fermers* and their unrelated employees differs from farm to farm, but generally, in the switch from their employment with the *shirkat* to their employment with the *fermers,* their working conditions have clearly worsened, jobs having become more precarious and the workload heavier.

I have discussed this example at some length to show how complex the organization of *fermer* enterprises is. The structure and problems of Machmud's farm are typical for medium-sized "cotton and grain" farms which since decollectivization have been responsible for largest portion of the state-order production. Tractor shortage, cash shortage, uneasy working relations, exposure to environmental threats (and inability to react to them adequately because of the plan) and to the "threats of the plan" all make private farming a burdensome business. *Fermers* manage to cope with this burden thanks to their families, and partly by devolving it to their unrelated employees. In this context, the *fermers*' to the "state agriculture apparatus" has ambiguous traits – in a sense, it is both a burden and a relief. Legally (i.e. on farm papers or in court cases) the *fermer* is an individual involved in a leasehold relationship with the state. But in everyday practice, it is a family group in a subordinated relationship to another group, the state apparatus of agricultural production. In the process of accommodating the difficult circumstances of private farming, distinctions between different roles and tasks within farms have emerged. Extended families have adapted to them. This diversification within farms is explained by the complex setting in which farms are embedded. The example of Machmud Hursandbekov's family shows

how extended families were made to fit into state farming, and how families cope with this situtation.

Fermers, District Authorities and Struggles for Crop Growing

Fermers have a special relationship with the district authorities which is characterized by both antagonism and mutual support. The size of farms, the social stratification of the *fermers*, and personal ties with district officials all contribute to shaping the relationship. In the former *shirkats,* most cotton and grain farms are between 10 and 30 hectares in size, while only a minority of *fermers* (10 per cent or less) have significantly larger land estates (50 ha or more) (see Table 3). While small *fermers* were afraid of the risks of decollectivization and were often pushed into farming, large farmers, which belong to a privileged and economically capable class of rural notables, actively searched for a leasehold and for a role in agriculture as *fermers*. All the people I interviewed agreed that these "*katta fermers*" (large *fermers*) should be considered as a separate category. They are hardly comparable, in terms of economic status, assets, but often also in terms of their social, professional and educational background, to the mass of ordinary *fermers*. In Yangibozor, however, farms as large as 100 ha and beyond are still very exceptional; one can count only one or two in every former *shirkat*. Often they belong to a *rais*, a former *rais*, or are connected to some high state official.

However, some land estates appear smaller than they really are, and in this family links play an important role. Families are strategically mobilized as a vehicle for land control and profitable land arrangements. In the process of decollectivization, the family has rapidly adapted to the new context by recomposing preexisting social and power differences already at work during the kolkhoz. The scale of farming here is an important indicator. In the fairly average case of Machmud Hursandbekov discussed above, one extended family composed of different households copes with one farm. In an similar way, the patriarch of an influential extended family exerts de facto control over several *fermer* enterprises through his sons, other affiliated members or even unrelated "strawmen." As single farms, they have an unspectacular size. Put together, as they are effectively managed and owned, they represent a large land estate. Thus family linkages contribute to concealing the further concentration of land in the hands of few powerful estate holders. The actual relations of land distribution are more polarized than they appear in Table 3.

In Yangibozor, large *fermers* are agricultural notables that have high-ranking positions as public officers in the *hokimiyat* or in a MTP, or formerly leading members of the *shirkat* (i.e. agronomist, brigadir). They have a technical university degree obtained in nearby Urgench or in Tashkent. Others are doctors, militia officers, private businessmen, or more rarely university teachers or school directors. They are either related to the nomenclatura of the agricultural produc-

tion hierarchy, or to urban newcomers who have entered, because of the capital they earned in the cities, the agricultural scene. In any case, a decisive asset of the big *fermers* is that they can use their connections or "bureaucratic capital" to get good terms of usufruct from their leasing agreements. Furthermore, they can mobilize additional resources for their farms through their positions outside of agriculture.

Although current reforms have increased the liabilities of land use, this does not mean that land has altogether become a negative asset. Rather, the new risks and opportunities have been unequally distributed. The terms of usufruct negotiated with the authorities are crucial. Assuming that other limiting factors do not intervene, they will strongly predetermine the results of the farm's activity and tell if a *fermer* family is able to make a profit or if it will run into debt. Even if the *fermers* receive long term leases, their status is vulnerable because of the importance of tariffs, terms of usufruct, and other vital regulations over which they have no control. An advantageous definition of land quality[25] – that is a certification that a certain plot of land can be taken out of the state crop production because of the nature of its soil – means that more profitable crops can be grown without the risk of legal retaliation. This in turn has a significant influence on future farm profits and on the value of the farm. These factors increase the dependency of farms on the district apparatus, so that *fermers* follow directives from above to stay on the safe side with their leases. Especially crucial is the definition of the cropping scheme ("*yer balans*") of a farm, which in practice is determined outside and above the farm, despite the fact that the law states that district authorities should not interfere in the *fermers'* activities. Cropping arrangements are negotiated individually and differ from farm to farm. Agreements that include rice and other non-state order crops, which are attractive because they can be sold for cash on the bazaars, are confidential and concluded behind closed doors. State officials dealing with this information keep it secret because a comparative look on the cropping scheme of the farms of a former *shirkat* would reveal the mechanism of the remaking of power relations: an unequal treatment of farms.

In the process of the "repeasantisation of society,"[26] people's purchasing power has decreased and land has become the substitutive asset able to generate income. In Yangibozor, this does not necessarily mean that such people have lost in status contextually. Since decollectivization, access to leaseholds, and especially access to profitable terms of land usufruct, has come to substitute the adequate salaries which state employees no longer receive. When I visited Yangibozor, every MTP *rais* was also the owner of a large farm with profitable cropping schemes. But several *raises* I interviewed declared that they would prefer to resign from their positions and concentrate on their own farms and interests if this did not displease their *hokims*, who need them to monitor crop growth and

harvesting. With a monthly salary equivalent to US$20–30, not even enough to cover the fuel expenditure necessary to do their job, this is understandable considering the many tens of thousands of dollars they can potentially earn in a year as big *fermers*, if profitable arrangements are made and cultivation is done skillfully.

An important indicator of the social and economic status of the *fermers* is their share of land cultivated with rice. For this reason, rice is a political issue, upon which many conflicting interests compete. Among the crops that can be locally marketed, bypassing the intermediation of the state retail apparatus, rice is the most important one. This is because it can be cultivated on larger areas without much technical equipment or labour, and because of its market importance – being the ingredient for the staple dish *plov*. According to calculations I did with some *fermers*, the average profits of one hectare of rice paddy in the Khorezmian context can be eight to ten times higher than those obtained with cotton after expenses are deducted, especially if the cotton harvest was as poor as in 2003. An approximate figure for 2003/2004 was US$1,000 net earnings per hectare of rice. An important distinction to be made, however, is whether or not expenditures were low because of state subsidies or not (in cases where inputs were acquired legally, earnings will be lower). For the *fermers,* cotton is profitable when the plan is fulfilled. Many *fermers* express their desire to grow cotton because of the security it brings (lower profits are compensated by subsidized inputs, certain prices and sale-option at the "state" cotton gins). In a context in which, according to Rasanayagam, "the state is no longer conceived of as enveloping the whole society, providing jobs, housing and comprehensive social services,"[27] the state still retains a bit of this past all-round care for the cotton-growing *fermer*. For *fermers* the problem starts when district authorities push them into cotton growing on unsuitable lands, threatening the profitability of the farms.

The motives behind and constraints on rice growing are reminiscent of the "black market" for land which existed under *shirkats* and kolkhozes. One important difference is that the *fermers* that try to grow rice do it because there simply are more necessity-based and profit-oriented motivations to grow rice. I have shown that as cash shortage is a major problem for newly established *fermers,* they try to cultivate rice on part of their land with rice to make some money. On the other hand, agricultural "speculators" are attracted by the large profits which rice growing is promising. The lack of alternatives for lucrative investments encourages people with capital obtained outside of agriculture to invest in farming, with the idea of specializing in the cultivation of rice. District authorities try to contain this process with the argument that it only follows the logic of short-term profit-making and that it harms agriculture. This is the background of a struggle between profitable *fermers* and the district authorities. The year

after the decollectivization in Yangibozor a general rice prohibition fuelled the anger of many rice-growing *fermers* toeards the district authorities. The ban on rice production was not directed against the subsidiary smallplots ("*ko'shumcha tamorka*"), but against the large areas of those *fermers* who grow rice for commercial purposes. Quoting from an IWPR newsletter article that appeared online in July 2004:

> Uzbekistan's beleaguered farmers are facing new difficulties this summer after the authorities moved rice off the list of "strategic crops" grown in the republic. This move should have been a turning point for many farmers, who are now free to sell their rice harvest on the open market without having to worry about meeting quotas or accepting the low prices offered by the state. But many claim that local officials are now preventing them from growing rice in favour of cotton – the republic's biggest money-earner and the favoured crop. … Two northern regions have been affected more than most – Khorezm and the autonomous republic of Karakalpakstan, which have specialized in rice production for centuries. Figures released by the agriculture and water ministry suggest that these two regions alone were responsible for three-quarters of the 75,500 tons of rice Uzbekistan produced in 2003 … Kahramon Yuldashev, who heads the grain department at the agriculture and water ministry, told IWPR that the decision to remove rice from the strategic list was a positive move which would benefit farmers. "Famers will have more freedom," he argued. "Now they can grow rice without the control of the state and will no longer be obliged to hand over part of their harvest at government-set prices, as was the case previously." Yuldashev, who describes the farmers as "true professionals", told IWPR that he had no information of any threats or damage to the rice crops. But local people insist that these attacks are happening. Villagers claim that more than 140 rice-growing farms in Khorezm and Karakalpakstan have been visited by officials from the local authority and the prosecutor's office, and "persuaded" to abandon their rice crops. Kurbanai Jumaniazova, 40, who has operated a rice farm in the Yangibazar district of Khorezm for years, told IWPR that she had been warned to stop growing rice, and was told that force would be used against her if she refused. Jumaniyazova's farm was later visited by police officers, who allegedly used large tractors to crush the germinating rice shoots. Witnesses spoke of how the farmer threw herself in front of one of the tractors in protest, and was dragged to safety by policemen at the last moment. Officials from the Khorezm agricultural department argue that such a hard line is necessary in order to keep cotton production up, on soil that is deteriorating from increased salinity and lack of irrigation water.

What the news article did not mention is that the main reason for the rice ban was that *fermers* divert the subsidized inputs they obtain for growing cotton to the more profitable rice cultivation, thus endangering the plan. *Fermers* take advantage of this opportunity, which enables them to make a profit. (Water is almost free of charge, subsidized fertilizer and fuel quotas for cotton growing are also provided along with all-round services and facilities for cotton, as well as the land leases. Under these conditions farms profit in a way that is unattainable for the larger part of the rural population.) Rather than the ecological threat it is the threat that free-riding *fermers* represent to the plan that scares the authorities. This point was clearly made in an interview on the issue of ban on rice growing with another "*fermer*-cum-official" I had in Yangibozor in 2004:

> K: Shall I tell you the main point? You know the fertilizers for cotton? Well, these, the fuel supply [farmers get through the input supply agencies], instead of using them for the cotton, people put them on rice.
> TT: Does it really happen?
> K: Yes. It is a matter of material interest. For instance, say, I have two plots; on one I grow cotton, on the other I grow rice. According to the norms, I have to use one ton of fertilizer for each hectare of cotton; instead I will use only 500 kg! My profit from cotton is low; from rice it is high. This is money that goes directly into my pockets. I will use the fertilizer of one field on the other field. Taken from the one and put on the other!
> TT: Does this mean, this is the reason [for the ban on rice]. This has nothing to do with ecology!
> K: Beside this, it [ban on rice] has a link with ecology. Ecology is a very big problem here! For instance, one has to say the truth, if we get granted 5 ha of land, we try to grow [cotton] as if there were 100 ha! At the planning of the crop areas, the plan, when you get 5 ha to cultivate [without state order], they try to cultivate 100 ha! For instance it is forbidden to grow rice at a distance of less than 1km from the settlements. You shouldn't grow rice close to cotton fields, because then the groundwater rises [and the salty groundwater damages the cotton growth], we don't put these things into practice. Instead, we try not to grow cotton! … For instance, if at oblast level the plan is to grow 95,000 ha of cotton, in the end it falls down to 75–80,000 ha. The Uzbeks are like that!

The last part of the interview shows that strategic considerations in the cropping process are present on both sides (*fermers* and state authorities). Authorities overcharge *fermers* with the plan, while *fermers* cheat on cropping and subsidies if it enhances their profits. Around the quotas of production there is an ongoing bargaining process, and although the situation is clearly asymmetrical,

this may put in perspective the opinion that *fermers* are the victims of a despotic agricultural policy. Clearly, the decollectivization (or maybe rather "*fermerization*"?) of the agricultural sector is linked to the attempt to uphold the plan, and to achieve an enhancement of productivity by increasing the accountability of the producers. Parallel to this process, there is also an attempt on behalf of the district authorities to increase their control on the agricultural production process from the freer situation found in kolkhozes and *shirkats*. With decollectivization, the reparcelling of the agricultural land of the *shirkats* reduces the space for "hidden lands" and makes it easier for district authorities to control land use at the loacl level. While in *shirkats* and kolkhozes the units of production (brigades) were very large and accounting was done in an aggregated (*shirkat*-level) form, nowadays the *fermers* have to report their land use and production to the district statistical office and face legal harassment if they report wrong information. The district authorities' control over land usage by *fermers* is very strict and it has been more effective since decollectivization than in the past. A newly established special department of the district procurator's office deals with the monitoring of private farms' activities. Forms and structures of land usufruct that were hidden bvefore now "emerge" through the constitution of *fermer* enterprises and become visible to official statistics through the fermers' reporting.

Conclusion

With the decollectivization of agriculture, a process of "dynamization" of the agricultural sector, which was contained under the *shirkat*, has begun. While it is too early to say whether it will boost productivity and revitalize the stagnating rural economy, a first result is that a distinct class of agricultural entrepreneurs with strengthened interests and a sense of ownership will soon almost entirely take over the burden of state crop production in Uzbekistan. Decollectivization is leading to the emergence of a new class of producers who, in the long term, will see their property rights strengthened. Even if they have no full ownership so far, *fermers* are cofident that it will be the case in the future. Despite ongoing constraints and state interference, being a *fermer* is desirable because of the awareness that only *fermers* have a future in agriculture. Although they are not a homogenous group of producers, including in terms of their future chances of success, a commonality among them is rooted in their ambiguous relationship to the state framework of agricultural production, which generates specific patterns and strategies of farming.

The newly introduced reforms create a scenario different from the late 1990s in that they bring a degree of mobility into agriculture. Along with the strengthening of the *fermers'* further social transformations in rural areas can be expected in the near future. The redefinition of political, economic and social relations

in rural areas is at the beginning and has so far been an open process. It can be expected that farm units will grow and a number of rural people will move out of the agricultural sector. As the size of the farms increases and the number of the *fermers* decreases, the generation of *fermers* who were pushed into agriculture when the *shirkats* were dismantled certainly pay an unequally high price for having a place in the decollectivized system. They are the ones that carry the burden of enhancing agriculture and are most exposed to economic risks. Their future prospects remain uncertain.

A final consideration on the transformations of the rural sector has to be made concerning the future role of the government. Loosening the regulatory framework of agriculture, or even introducing full ownership of land, would represent a major threat to its capacity to extract wealth from agriculture. It could also undermine the government's capacity to contain threatening social developments, such as the emergence of an autonomous, economically capable and politically competitive class of new rural elites.

Notes

1 Alisher Ilkhamov, "Shirkats, Dekhqon farmers and others: farm restructuring in Uzbekistan," *Central Asian Survey*, 17 (4), 1998, pp. 539–60

2 Richard Pomfret, "Agrarian Reform in Uzbekistan: Why Has the Chinese Model Failed to Deliver?", *Economic Development and Cultural Change*, Jan. 2000, pp. 269–84.

3 Lease duration has, however, significantly increased. Land lease duration, determined in the leasing contracts, was set at up to 10 years at the beginning of the 1990s. Farms established later had longer leasing terms, usually of 30 years, and recently 50-year long contracts have been released. Moreover, according to officials interviewed at the Khorezm regional department for agriculture, expired leasing contracts can be further extended, which seems to be the usual practice. A newly published decree sanctions the inheritability of the leasing contract, thus strengthening the rights of farms with respect to their lease.

4 As for cotton, the government still controls 100% of the retail. According to law, farms can decide where to sell 70% of their harvest, but de facto in every district there is one only licensed cotton gin, and the result is a monopoly. Wheat producers have to sell 50% of their harvest to the government at fixed procurement prices, while they can sell the rest on the bazaars.

5 Although cotton gins have been turned into open shareholdings, in practice they remain under the control of the *hokim*.

6 Usufruct is a legal term referring to the right of temporary possession or usage of the property of another, in this case the state.

7 The term is used as a synonym to "*pudratchi*," the more official term referring to the employed work of the *shirkats*. I explain this later.

8 Fieldwork in the region was carried out in 2003 and 2004. My acknowledgements for support and funding go to the Centre for Development Research (ZEF) and to the German Ministry of Education and Research (BMFM, project No. 0339970A)

9 For a detailed ethnographic description of the Central Asian rural family see Lawrence Krader,

Peoples of Central Asia, Bloomington, Indiana University Publications, 1962.

10 *Ibid*., p. 145.

11 This appears to be an old pattern. Although it generally improved the condition of the women, the Soviet period did not manage to change this situation, as much as it did not manage to break the extended family. Snesarev writes about Khorezm in the 1950s:

"Women, at least in those localities where field studies were conducted, are poorly involved in social life, in spite of the fact that their laboring success are well known, and that in the cotton fields they are the main labor force. Women here have failed almost totally to be advanced to supervisory work in kolkhozy … However, they themselves refuse this, and also encounter obstacles in this regard placed by representatives of the male sector of the population: both relatives –fathers, husbands, brothers – and unrelated persons." (See G.P. Snesarev, "On Some Causes of the Persistence of Religio-Customary Survivals among the Khorezm Uzbeks," in Stephen P. Dunn and Ethel Dunn (eds.), *Introduction to Soviet Ethnography*, Vol.1, Berkeley, Ca, Highgate Road Social Science Research Station, 1974, pp. 226–27.)

12 Deniz Kandiyoti, "The Cry for Land: Agrarian Reform, Gender, and Land Rights in Uzbekistan," *Journal of Agrarian Change*, Vol.3, 2003, pp. 225–56.

13 Deniz Kandiyoti, "Poverty in Transition: An Ethnographic Critique of Household Surveys in Post-Soviet Uzbekistan," *Development and Change,* 30 (3), pp. 499–524.

14 In Khorezm, due to the high population density, this 0.25 ha of land also includes the house, cowshed, roads etc. so that the real agricultural surface directly available to the households is smaller, 0.19 ha.

15 According to calculations done together with staff of the *shirkat*, the average income for a good performing tamorka is approximately 120,000–150,000 soum (1,000 soum=1 US$) for the first harvest, and around 240,000–300,000 soum for the second harvest. This produce is usually for personal consumption, but sometimes it is also sold for cash.

16 Twenty households were randomly selected from the mahalla registry of a village. Sixteen were interviewed, two refused, and in two cases interview did not take place.

17 Families often became incorporated by *fermers,* who at the beginning had to take over the pre-existing *pudrat* agreements.

18 Deniz Kandiyoti, "The Cry for Land," op. cit., p. 251.

19 These percentages refer to the areas grown with the main crops. They do not consider lands allocated to the *dehkan* households.

20 Officially these officers are employed by newly created district-level organizations. In practice they are subordinated to the MTP manager, who can obtain their replacement as he wishes.

21 I am aware of the fact that the total number of farms in Table 2 and Table 3 differs. Sources explained to me that in Table 3 fish farms were excluded. Also, there were a number of farms which had the figure "0" in the "farmsize" column. The status of these farms was pending (i.e., recently established, or on the point of being closed down) and their situations were to be considered as exceptions. I therefore did not consider them in the database. In Table 3 the "size of farm" refers to the arable land and not to the total area of the farm.

22 All those interviewed in my small survey agreed that there will be a future in agriculture only for those who will go into private farming.

23 Names and figures are slightly changed to preserve anonymity.

24 *Birja* means "agricultural trade union." However, the name is misleading since it is the place where fertilizers can be bought legally, if the farm has used up the quantity received through the cotton and wheat contracts.

25 "*Ballbonitet*" is used both taxe and state crop quota (in tons per ha). Taxes have played a mi-

nor role so far. *Fermers* have a tax holiday of two years, then depending on the bonitet the tax amount ranges from 20,000 to 60,000 sum per year and ha.

26 Russell Zanca, *The Repeasantisation of an Uzbek Kolkhoz: An Ethnographic Account of Postsocialism*, Diss., Urbana, Illinois, 1999.

27 Johan Rasanayagam, "Market, State and Commiunity in Uzbekistan: Reworking the Concept of the Informal Economy," Halle/Saale (Germany), Max Planck Institute for Social Anthropology Working Papers, No. 59, 2003, p. 21.

11

The "Uzbek Agrarian Model" in Transition: Inertia, Dynamics and Unsustainability

Raphaël Jozan, Romain Florent, Samuel Martin, Olivier Munos and *Marie Panarin*

Sixteen years after the collapse of the USSR and the independence of Uzbekistan, the Soviet legacy on the agrarian system remains significant. The agricultural sector is still heavily controlled by the state and compulsory state deliveries still exist in two strategic crops, cotton and wheat. Moreover, the dismantling of the collective farms (former kolkhozes and sovkhozes) has been slow or tokenistic and land is still formally owned by the state, even if it has been partially distributed to so-called "private farms." Cotton remains Uzbekistan's main crop, both in terms of production and exports, contributing around 25 per cent of foreign exchange revenues and a significant share of the state budget.

The administered feature of the Uzbek agrarian system is compensated by a non-administered system, as was the case during the Soviet period. This system is dual, in the sense that the administered and non-administered systems are interdependent and intertwined, and exchange resources. Despite the remarkable stability of the Uzbek agrarian system's equilibrium, the balance between the administered and non-administered systems has been altered during the transition period. This dynamics has not received sufficient attention in the literature and will be considered in this paper. During the last two decades, the balance between the two systems has gone through different crises induced by external and/or internal changes, and has been stabilized by various policy initiatives by the government of Uzbekistan.

Alisher Ilkhamov questioned the stability of this duality in 2000.[1] We are revisiting this issue seven years later and three years after two crucial government decrees were adopted with the aim of solving some financial and technical failures of the dual system. First, a new agrarian policy was initiated by the government to accelerate the dismantling process of the collective farms. Second, local authorities have restricted the access to the means of cultivating a second crop, which had been informally produced after the harvest of wheat and had partly alleviated underemployment in rural areas for a decade. Those two policies have had major impacts on Uzbekistan's rural economy and society. Consequently, policy makers and development practitioners are raising the following questions:

is the new agrarian policy able to stabilize the "Uzbek model" of agriculture? Is this system still socially, financially and technically sustainable almost 20 years after the collapse of the Soviet Union? To answer these questions, we put forward the hypothesis that the formal triptych hirkat/fermer/dekhan used by most scholars is not reliable and that we should consider the informal economy.

Most studies focused on Central Asian economies reveal a significant discrepancy between actual economic characteritics, on the one hand, and the formal functioning suggested by formal norms, legislations and bureaucratic procedures, on the other hand. This has been especially well expressed by a recent ADB report written on the Tajik agricultural sector. "A cursory study of Tajikistan's legislation would lead the observer to the conclusion that farmers in the country have been liberalized and the land distributed with tenure based on long term lease right. (…) However, the study of the situation uncovers a picture far different from that painted above."[2]

A similar statement could be made concerning the Uzbek agricultural sector, where formal blueprints are not a reliable guide for describing and explaining the actual economy. This assertion is particularly valid and obvious in the case of the formal categories of farms proposed by the Uzbek legal framework. Therefore, to explore these questions, we need an approach which enables us to grasp the role of the informal economy, the diversity of farming systems, the duality of the agrarian system and its evolutionary processes.

In this paper, we shall rely on the "farming system approach" (FSA), which has been recently incorporated into the World Bank's rural development strategy.[3] This approach has never been implemented in post-Soviet Central Asia. We applied it in the Ferghana Valley in 2005 during a six-month survey led by five agronomists specialized in agricultural economics. The paper reports some of the results and analyses raised by this study. In the first part of this article, the path of Uzbek agrarian transition will be examined in order to incorporate the issue of stability/dynamics into an historical perspectives. Then, we shall explain why it is crucial to go beyond the legal and formal farm categories and why the FSA is an appropriate tool for doing so. A new farming system typology that is able to characterize and quantify the informal interdependencies between the administered and the non-administered systems will be proposed. Finally, we shall focus on the factors of instability which have developed despite the new Uzbek agrarian policy.

The Dynamics of the Dual Agrarian System During The Transition Period

The Uzbek agrarian transition path is described through the lens of the administered vs. non-administered dichotomy, on which the farming systems typology is built. Since independence, the equilibrium of the dual agrarian system has suffered many phases of destabilization due to internal and external crises.

The Soviet dual agrarian system in the SSR of Uzbekistan

Uzbekistan's dual agrarian system was set up in the 1930s after the collectivization process and in the context of the command economy. In the Soviet division of labour, Uzbekistan was mostly devoted to cotton production, which was exported to other Soviet Republics for processing, like Russia and Belarussia. Until the demise of the USSR, the cotton sector remained Uzbekistan's main economic sector and accounted for two-thirds of all the cotton produced in the Soviet Union.[4]

From the 1930s until the collapse of the Soviet Union, cotton was produced by state farms (sovkhozes) and collective farms (kolkhozes) which had to meet delivery quotas and were supplied with inputs[5] distributed by the state. Alfalfa was the chief rotation crop for cotton, produced to feed cattle and to prevent a decline in soil fertility.[7] Private property was abolished, but shareholders of collective farms were allowed to keep a personal plot on which they could produce crops for their own.

As stated by D. Kandiyoti, there was "a 'symbiotic' relationship between the large farm sector and smallholders [that] worked to the advantage of the former through the deployment of an underpaid (…) workforce in cotton operations."[7] In exchange, shareholders of the large farms could get a salary and inputs for their personal production. The surplus was sold on kolkhoz markets (*dekhan* bazaar). A significant part of the food needed was produced locally by the non-administered farming systems. Food sufficiency was insured by subsidized imports of grain from other Soviet republics like Kazakhstan.

The dual agrarian system faces an external crisis: the demise of the USSR

In 1991 Uzbekistan faced an external crisis with the unexpected breakdown of the Soviet Union. The Republic was totally unprepared for the rapid dissolution of the USSR and suffered heavily from the disruption of trading links between the Republics and from the cessation of financial transfers which used to cover state expenses.

During the first decade of transition, the government, led by president I. Karimov, had to deal with four main issues with implications for Uzbekistan's agrarian system.

1. Uzbekistan had to find new financial resources to cover state expenses.
2. Food self-sufficiency had to be guaranteed for the country to seek political and economic independence in the international arena. Uzbekistan is a landlocked country, and growing tensions with neighbouring countries had a negative impact on its trade.
3. The government had to face a critical demographic pressure, artificially maintained in rural areas during the Soviet era to supply manual labour for the

cotton harvest. The high rural demographic pressure[8] made the government weary of a possible rural exodus which would have led to social disorder. In 1991, the Uzbek economy was overspecialized in raw cotton exports and the other economic sectors were not able to absorb the labour surplus of the rural areas. The Uzbek economy had to be diversified. Until then, Uzbekistan's rural population had to be retained in the countryside.

4. The last issue was the increasing demand for economic liberalization and land privatization. The government of Uzbekistan was faced with a popular pressure to get access to land resources and with an international pressure to privatize and liberalize the agrarian economy. The Uzbek dual agrarian system was heavily criticized: according to the international community and even to I. Karimov, the former first secretary of the Communist Party of Uzbekistan, the agricultural sector was overspecialized in cotton production which almost led to slavery and had contributed to the Aral Sea disaster.

Post- independence agrarian policy maintains a recombined dual agrarian system (1994–2000)

During the first decade of transition, the government chose to initiate a gradual economic reform under the control of the government. As a result, the Uzbek agrarian system remained dual despite recombination processes.

Two strategic crops (cotton and wheat) continued to be controlled and administered by the state to cover state revenue and ensure food self-sufficiency. Implicitly and explicitly taxed by the state, cotton remained the main crop produced, contributing to 25 per cent of foreign exchange revenues.[9] By the end of the 1990s, food self-sufficiency was achieved thanks to the wheat production policy adopted in 1994. From 1991 to 2004, wheat cultivation expanded from 553,000 ha[10] to 1 471,000 ha[11] as a result of a decrease in the acreage of cotton and alfalfa (forage).[12]

Gradualism was also the prevalent philosophy in the agricultural policy. The government adopted a new agrarian legal framework: state farms were transformed into collective farms, and a new legal framework was adopted in 1998. Uzbek legislation recognized three different farm categories: the collective farm (*shirkat*), the private farm (*fermer khohajaligi*) or "peasant farm," and the smallholding (*dekhan*).[13] But the new legal framework had a relatively negligible impact on farm structure. The collective farm remained the main productive actor of the dual system until the early 2000s. Regarded by the government as the most efficient structure, it was protected through the financial stabilization programme.[14]

Nevertheless, Uzbekistan is far from being a non-reforming country. In order to respond to popular concerns, a significant part of irrigated areas was allocated to private use. First, subsidiary plots were distributed to households. Second,

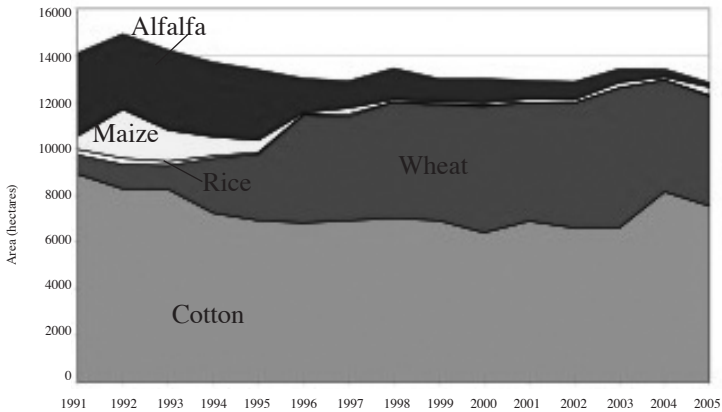
livestock farms, vineyards and orchards of the former collective farms were auctioned off by the end of 1995 and others in the late 1990s to early 2000s. Moreover, thanks to the increase of wheat acreage (see Figure 1) and to the extended growing season, a second crop could be cultivated after the wheat harvest. As will be explained below, this second crop is distributed to workers as a wage in kind. The second crop has also prevented a rural exodus. Regarding the liberalization of the agricultural market, crops other than cotton and wheat are no longer administered and most cattle-breeding farms are run by non-administered farming systems.

This dual agrarian system was maintained until the late 1990s.[15] Inexpensive labour was sufficient for cotton singling and cotton harvest[16] thanks to the second crop. Nevertheless, the Uzbek dual agrarian system was different from the Soviet period. Two main discrepancies should be underlined: the second crop and the cropping pattern. The Soviet alfalfa/cotton rotation was replaced by a wheat and maize/cotton rotation (if the second crop is considered).

The internal crisis of Uzbek agrarian system (2000–2003)

Unlike the 1991 crisis, the second crisis was progressive and was related to the decrease in the state budget caused by the decline in cotton revenue. This decline was due to three main factors: (1) the reduction in cotton acreage; (2) the drop in cotton prices on world market in the middle 1990s and in the early 2000s; (3) the decrease in cotton yields caused by soil fertility problems.

Figure 1. **Evolution of the Official Cropping Pattern of the Administered Farming Systems in Namangan District (1991–2005)**



Source: Computed data from the Official Statistical Bulletin of the District Agricultural Office

As a result, public earnings became insufficient to sustain the state budget, the operation and maintenance of public irrigation networks and the financial stabilization of unprofitable *shirkats*. The number of unprofitable collective farms increased during that period, mainly because of a lack of investment in drainage and irrigation rehabilitation, increasing misappropriation of collective resources by officials and *dekhans*, and soaring electricity costs to operate irrigation water pumps.[17] Consequently, many collective farms went bankrupt and could not be viable without the financial stabilization programme.[18]

Furthermore, the future of soil fertility was no longer secured. Unlike alfalfa, one of the few crops that stock up available nitrogen in the soil, the crops produced only consume organic and mineral materials contained in the soil. As stated above, cattle-breeding was privatized and transferred to the non-administered farming system, so the manure is only spread on the household plot, where most of the cattle is concentrated all year round, producing a sharp decrease in organic material.[19]

Consequently, in 2003, the Uzbek agrarian system was no longer in equilibrium. Cotton yields were decreasing and a growing number of collective farms (*shirkats*) became bankrupt.

The turning point of Uzbek agrarian policy

The state developed two main policies to stabilize the dual model. On the one hand, the dual agrarian system and state control over cotton and wheat were maintained; on the other hand, the shift towards more profitable structures was initiated and unprofitable collective farms were abandoned by the state.

In 2003, the agricultural policy changed radically, as stated in the Presidential Decree No. YII -3342, dated 27 October 2003 on "the conception of farms' development for 2004–2006". The decree scheduled the reorganization of 1,022 unprofitable and unpromising *shirkats* into private farms. These profitable private farms were hailed to "become the main actor of agricultural production."[20]

From then on, the dismantling of *shirkats* accelerated and the number of "private farms" grew substantially (see Figure 2). For instance, in Namangan Province, 80 per cent of land and assets were distributed to "private farmers" between 2003 and 2006. Officials deem that the process should continue in the future.

Moreover, soil fertility and water resources were protected by state restrictions on the access to the second crop plot. The first restrictions took place in 2004 and 2005 in the Ferghana Valley. Local authorities informally permitted second crops only on 25–30 per cent of the irrigated area freed by the harvest of wheat. In 2007, no second cropping is formally or informally allowed.[21]

Going Beyond the Legal and Formal Farm Typologies

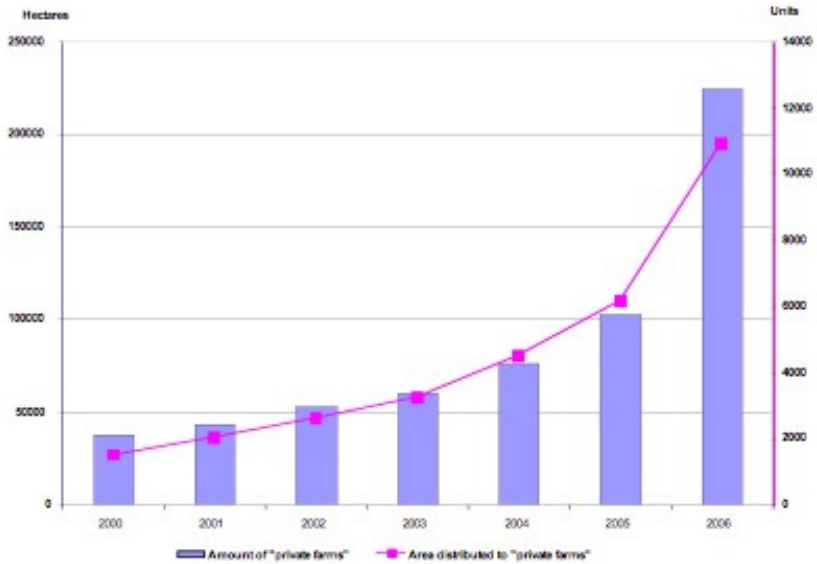
What are the consequences of this new Uzbek agricultural policy? How has the

agrarian system reacted to the measures implemented since 2003? Can the Uzbek dual agrarian system be sustainably stabilized? To answer these questions, we have followed a methodology based on the *farming system approach* (FSA). In this section, we shall explain how this approach is able to grasp the dynamics of the Uzbek agrarian system. The main advantage is its ability to integrate the informal economy and the dynamic processes.

Discrepancies between formal and actual economies

Uzbek legislation recognizes three different farm categories: the collective farm (*shirkat*), the private farm (*fermer khohajaligi*) and the smallholding farm (*dekhan*). These were chosen by the government out of ten existing farming statuses and types of ownerships to establish a clear and simple framework for the agrarian sector.[22] The facts on the ground prove that the framework is not clear at all. Indeed, formally, *fermer khohajaligi* are considered by the government as new market-oriented production units. Moreover, according to the farm law of 1992, private farmers are fully independent from local authorities and *shirkats* in organizing agricultural production. But, as stated by the Rural Enterprises Support Projects (RESP)[23] reports and by most authors,[24] "the term private farm is in

Figure 2. **The Privatization Process in Namangan Province**



Source: Farmers Association of Namangan Province

a sense inappropriate."[25] Private farms have to produce state-ordered crops; they "are given production targets ('contracts') by the state and beyond the amount stipulated by law."[26]

Three main inadequacies of the* shirkat/fermer/dekhan *triptych

At least three main inadequacies of Uzbek legal categories have been identified. Firstly, they do not account for the coexistence of an administered and a non-administered agriculture, associated with the paradoxical regularities that have been described by authors as a quantity- and price-driven economy,[27] a hard and a soft budget constraint; a high and a weak responsiveness to prices. The duality of the system has been underlined by Alisher Ilkhamov, Michael Thurman, Peter Bloch, Max Spoor and others. Alisher Ilkhamov talks of a divided economy: "the first economy is centered on the production of exports or import-substitutes, such as cotton, grain and some other products, while the second one is oriented primarily towards domestic markets, and primarily the production of food."[28] Both systems are related to different economic characteristics with respect to the mode of co-ordination (market-based vs. bureaucracy-based modes of co-ordination). Therefore this duality should be apparent in the farm typology used in our analysis.

Secondly, Uzbek legislation is not able to incorporate the heterogeneity of actual farms into its "*shirkat/fermer/dekhan*" framework. The level of diversity is high and depends on many variables. Among others, we can mention the range in size, the localization and the combination of tenures of the land used. "There is a substantial variation in the size distribution of private farms, which can range in size from 5 to over 200 ha."[29] As stated by Deniz Kandiyoti[30] and by the RESP report, existing farms are in between formal farm categories, based on the combination of types of land tenure. Almost all private farms (99,6 per cent) and all *dekhan* produce crops on a household garden plot, while 29 per cent of *dekhan* farmers and 17 per cent of private farmers hold an additional garden plot. Moreover, some private farms are oriented towards administered production and others are not constrained by compulsory state deliveries.

Thirdly, formal categories are not able to tackle the informal dimension of the agrarian system. As underlined by most scholars, the informal dimension of Uzbek agriculture is critical. Informality is involved in accessing state resources and negotiating state production quotas. For instance, as Michael Thurman notes, the quality and size of [land] often depends upon the strength of the farmer's informal connections. Also, a significant amount of production and land use is not registered in official statistics despite their crucial role in the Uzbek economy. For instance, the second crop plot is a widespread informal type of land tenure that has a major impact on the social acceptability of the agrarian system and on the competitiveness of the Uzbek cotton production on the international market.

Up to 30 per cent of Uzbekistan's irrigated land is freed from state contraints from June to November, after the wheat harvest. During this period, a second crop[31] (rice or maize) is sown. The production and the land tenure are informal: not a single official statistical bulletin refers to this production; moreover, officially these fields belong to the collective farms and to the farms contracted for wheat production by the state, but in reality most of them are distributed to peasants, either rented or assigned as a wage in kind. The existence of such production has been noted by authors[32] but has never been quantitatively appraised until this study. Practically, it is not possible to detect and integrate informal transfers of land tenure using formal categories of accounting.[33]

Even if most authors have acknowledged the duality of the Uzbek agrarian system and the informal transactions on which it depends, they have been constrained by formal categories and have considered them as adequate to be used in their surveys. For instance, Alisher Ilkhamov proposes the "three-tiered rural economy" model. He attests that the Uzbek agrarian system had a "three-level structure" relying on the three juridical categories, the *shirkat*, the *fermer* and the *dekhan*. Even if some authors have obtained interesting results from their critical approach, they all refer to the formal triptych and cannot integrate the formal economy into the financial analysis of the farming activity.

Relying on formal categories, authors sometimes propose misleading static assessments of the agrarian transition path in Uzbekistan. While ICG stated in 2005 that "land reform has been blocked," Peter Block wrote in 2002 that "the agrarian sector looks on the surface very similar today to what it looked like in 1991."[34] To solve this problem, we use the Farming System Approach (FSA), detailed below with a view to quantifying the informal economy.

The Farming System Approach applied to Uzbek agriculture

According to J. Dixon et al., the concept of "farming system" is the "closest representation we have of how farmers think and make decisions. And the experience over the past half a century has shown, convincingly, that without that information, agricultural development programs can go badly awry."[35] Farming systems are defined "as populations of farms that have broadly similar resources bases, enterprise patterns, household livelihoods and constraints, and [with] similar development strategies. (…) They consist of inter-dependent productions and gathering components concerned with crops, livestock, trees. (…) Non-farm income, which makes a significant contribution to the livelihoods of many poor rural families, is also considered.[36] (…) The analyses of farming systems is an interdisciplinary approach which is able to integrate analyses of production processes and their relationship to resources, technologies, markets, services, policies and institutions in their local cultural context.!"[37] Farming systems are groups of relatively homogeneous farms based on two types of criteria: (1) bio-physical

criteria, such as the available natural resource base (water, land, grazing areas), climate, landscape, farm size and tenure, in relation to access to different resources; (2) socio-economic criteria, such as land tenure, dominant farm activity, technologies, off-farm activities, the integration of crops and livestock, the farm management and organization (family, corporate, co-operative).

Nonetheless, it would be illusory to think that one can escape formal categories. In fact, formal categories grasp realities, duties and rights enforced by the state that cannot be underestimated (or negated), such as formal land tenure.[38] During our survey in Namangan province, we adopted the following approach: after the characterization of the national economic, political and social framework, a farm typology was built through an analysis of the farming system.[39] It has been developed through both inductive and deductive approaches, back and forth between the actual farms and their production processes, on the one hand, and the formal framework of Uzbek agriculture, on the other. Therefore, the farm typology was assimilated into a broader framework related to the Uzbek agrarian duality: the administered system and the non-administered system, with different political regime(s), property right regime(s), mode(s) of co-ordination and economic regularities.

The field surveys were carried out in three provinces of the Ferghana Valley (Andijan, Ferghana and Namangan), where interviews were conducted between 2003 and 2005 (See Figure 3). Around 90 farmers were interviewed two or three times. The survey also relies on official data focusing on cropping patterns, the agricultural products and the registered farms in the district.

The agro-financial analysis was made in a district of Namangan province, which has the following features:

1. Hydraulic conditions: upstream localization within the hydraulic system of the Syr Darya River basin. Water is widely available all year round. The irrigation network is partially maintained but still fully operational.
2. Soil conditions: the soil is very fertile (mostly composed of silts). This enables some of the highest yields in the country: the average yield is around 3.2 tons per hectare while the national average is around 2.3 tons per hectare.[18] Very light and localized problems of soil salinity and of water logging have been observed.
3. Demographic conditions: high demographic pressure (690 inhabitants/square km). This implies (in the context of underemployment) an abundant availability of labour and important pressure on land resources (household plots given to the population do not exceed 0.06 ha per family).
4. A progressive and slow dismantling of the collective farms: in 2005, 50 per cent of the land was distributed to private farmers.

Figure 3. **Location of the Ferghana Valley in Central Asia**

Informal Interdependency of Farming Systems

Let us describe briefly the typology emerging from the *farming system analysis* carried out in the Ferghana Valley. The administered system and the non-administered system are intertwined. Their interdependency is based on continuous exchanges of resources (labour, property and use rights, access to land or water, inputs, etc.). These exchanges are mostly informal. Their impact can be systematically and quantitatively identified thanks to the farming system approach, which will be discussed in the last part of the paper.

The administered system (see Table 1, p. 178)

Four basic features characterize the administered system (or "command-based system"):

1. The farming systems associated with the administered system are the collective farms and the individual commercial (or business) farms. Formally, administered farming accounts for 70 per cent of Uzbekisan's irrigated land, around half of which is transferred to the non-administered system between June and November for second cropping.
2. It is centralized and administered, which means that: (a) the production is planned and made compulsory by the state: each year, cotton and wheat production plans are distributed to each farm by the local administration; (b) inputs are managed by the state or by quasi-state organizations. The Ministry of Agriculture and Water Resources and the government co-ordinate the

quantity and the type of inputs distributed to producers according to scientific norms or political decisions. Inputs are only distributed to farms producing cotton and wheat; (c) the marketing of products is mostly ensured by the state: all the cotton and 60 per cent of the wheat production is seized by the state;[40] (d) the prices of inputs and outputs are administered and set by the Cabinet of Ministers. In general, the price of cotton is fixed at around 70 per cent of the world market price. Most inputs are subsidized; fertilizers and other chemical products cost around 70 per cent of the world market price. The use of water and land can be considered free of charge; (e) the state intervenes directly in the day-to-day production processes in different ways (prescriptions, proscriptions, agro-technical norms, production quotas, nominations and its cadre policy, etc.).

3. The administered farming systems are almost exclusively oriented towards the production of two strategic crops, cotton and wheat with the following pattern: 60 per cent of land acreage is devoted to cotton and 40 per cent to wheat. All other crops not included in the state order are prohibited.
4. Technically, the administered system has been described as mainly mechanized,[41] except for cotton picking and singling that are done by hand. The Soviet-style equipment owned by the administered farms is old but sufficient. Specific activities such as sowing, ploughing or harvesting are done by the MTP, the district's agricultural service supply agency, which is controlled by the state. The hiring of labour follows state norms set by the State Norms Office.
5. Administered farming systems use wage labour and a household contract system (*pudrat*).

The non-administered system **(see Table 2, p. 179)**

1. Non-administered farming systems officially cultivate 30 per cent of Uzbekistan's irrigated areas. After June, this figure rises from 50 to 65 per cent, if the second cropping is included.
2. The farming systems are focused on highly intensive productions (fruit, vegetables, cattle) mostly assigned to (a) self-consumption, (b) sale on local markets (*dekhan* bazaars), (c) the local and district micro agro-industry, and (d) export.
3. "Non-administered" means that the production is free from state delivery obligations and that it can be sold freely at market prices. The only constraint placed by the state concerns the "orchard" farming systems (see below): they have to keep and renew the fruit trees on their land. Input distribution is not managed through official channels. Farmers buy the inputs on the bazaar (seeds) or on the black market (fertilizers, chemicals).
4. Technically, non-administered production processes are mostly performed

manually. Unlike the administered farming systems, non-administered farming systems rely only on family labour.

5. Non-administered farming systems are not necessarily micro-farms or household plots. Some farms, formally categorized as "private farms," are fully oriented towards non-administered productions. This is the case of those that have inherited the orchards and the vineyards from former kolkhozes and sovkhozes.

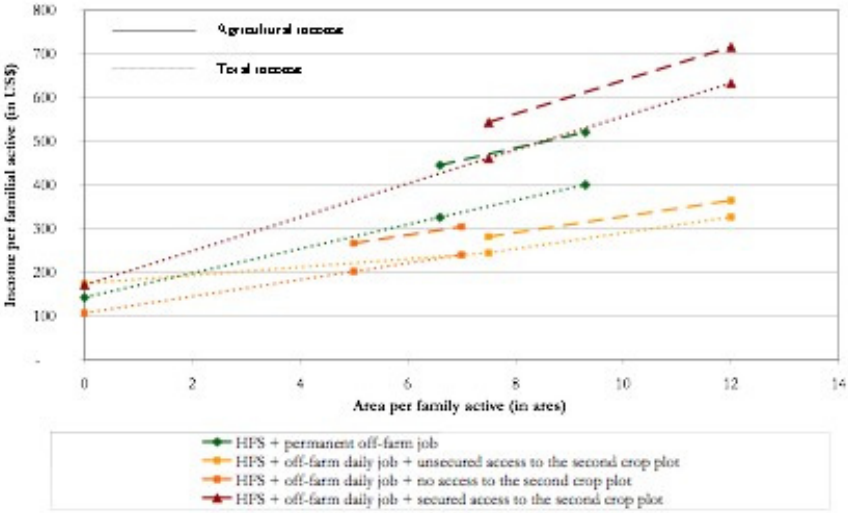
Two groups of non-administered farming systems have been identified: the orchards and the micro-farms, spread respectively on 5 and 25 per cent of the irrigated area in the Ferghana Valley. Five different types of micro-farm have been distinguished according to (1) access to an off-farm job[42] (day-labourer – *mardikor* – or permanent employee); (2) access to the "second crop plot" and to a subsidiary plot; (3) connection to the public gas network that enables the construction and the operation of greenhouses on the plot.

- *Household farming system No. 1: micro-farm + external permanent worker.* Since the labour force is limited, (one or two labourers working outside the farming system) there is no acquisition of an additional plot and the second crop plot in June. The system is characterized by small-scale breeding (poultry, rabbits, one cow and its calves) and the plot is oriented towards fodder production (maize) to feed the cow during the winter. [43]
- *Household farming systems No. 2 and 3: micro-farm + external day labourer.* The systems are characterized by two active labourers who do not sell their labour force outside the system of production, except during cotton harvests. Labour is widely available in the system, which induces a strong incentive to get access to the second crop plot. On the plot (*agarot*), two (or three) kinds of crops are cultivated: a vegetable crop all year round; a maize crop all year round and a nursery of rice transplanted in the "second crop plot" in June. Those farming systems have no guaranteed access to the second crop plot. Then, two options have been described: 1) No access to the second crop plot (because of legal prohibition, high rents, lack of cash). In order to maximize labour, vegetables are sometimes pulled up to plant rice on the plot (because it is more profitable). This change of production may be harmful to income. 2) Access to the second crop plot. The rice is transplanted from the nursery into the second crop plot (around 1,000 square metres), the rent of which is around US$2 per 100 square metres. Even if rice growing is prohibited, many farmers take the risk of growing rice in order to maximize their income. If they do not manage to plant rice, they grow maize or vegetables on the second crop plot.
- *Household farming system No. 4: micro-farm + external permanent worker + secure access to the second crop plot + cattle and sheep breeding (plot +*

house yard garden, + second crop plot). This farming system employs three active labourers, one of whom has a complementary external job (in a collective farm or in an individual farm). This external job guarantees a wage in kind as well as access to the second crop plot. Unlike household farming system No. 2 and 3, the access to the second crop is secured. This allows the development of a small cattle and sheep breeding system (nursery breeding/fattening breeding).[44] Most of the land is cultivated with maize to ensure enough fodder for the winter.

- *Household farming system No. 5: the micro-farm with a greenhouse*. This farming system is found in villages connected to the public gas network, usually aroung the main cities of the Ferghana valley such as Andijan, Namangan and Ferghana City (400 ha in the whole Ferghana valley according to the Private Farmers Association). The greenhouse is built in the garden in order to grow non-seasonal vegetables (tomatoes and cucumbers) that are then sold on the local market or exported to Russia. In this farming system, no second crop plot is sought: the labour force is fully needed for the greenhouse. The financial results of this farming system are set out in Figure 4. This system leads to very high profits (up to US$2,000/labourer), despite the small scale of the cultivated area. For 500 square metres, the profit is equivalent to that of a 25-ha commercial farm. Nevertheless, this farming system is very special-

Figure 4. **Impact of the Access to the Second Crop Plot on the Agricultural Income and the Total of Smallholding Farming Systems**



ized and thus independent from the Russian market and not reactive to price volatility.

Two types of orchard farming can be distinguished: sharecropping orchard farming and individual orchard farming system:

- The sharecropping orchard farming system is directed towards animal breeding. The formal landowner allows sharecroppers to use the land in return for a share of the crop produced on the land. The landowner has good social connections to get access to the inputs paid and used by the sharecroppers. This farming system is oriented towards fodder for intensive husbandry. The fruit tree plantation is not maintained even if trees are physically kept in the field for legal reasons;
- The orchard run by the owner has a diversified cropping system. The fruit plantation has been renewed and the farming system is oriented towards fruit production. It is associated with a complex and varied crop rotation. Fodder is used to breed a few cows and maize to breed a few sheep. This farming system is more labour intensive than the previous one. It is more reactive and adaptable to commercial and climatic changes thanks to its crop diversity. Moreover, an important part of its production is consumed internally (part of the production is distributed to the workers as wage).

There are further discrepancies between the two systems. The most important one relates to the farming systems' financial objectives: non-administered farming systems are oriented towards the maximization of productivity per unit of area (gross value added [GVA] = US$6,526 per ha for household farming system [HFS] + permanent off-farm job; US$3,823 per ha for orchards run by the owner. Administered farming systems maximize the profit per active worker as well as per unit of capital invested (annual income [AI]: US$100 per ha for the individual farming system and US$90 per ha for the collective farming system). Indeed, most non-administered farming systems run their activity on small-scale plots (0.06 to 0.18 ha) and generate small profits (US$400–800). The limiting resource is access to land. Conversely, administered farming systems have large-scale production areas and generate higher profits (US$1,500–2,000 on average), with the exception of micro-farms with greenhouses. The GVA per ha indicator gives another point of view. Obviously, the non-administered farming systems are on average more productive per unit area than the administered farming systems (US$350 per ha for the private farming system).

Moreover, each system is characterized by specific economic characteristics related to those described in Janos Kornai's work on the capitalist and the socialist economic systems.[45] The administered system is linked to: soft budget

Table 1. **The Administered Farming Systems (simplified)**

Farming system	Legal form	Land Tenure(s)	Average Size (ha)	Form of labour	Manpower /ha	Add. Value / ha Agricultural -- income/ha US$
Collective farm	Co-operative (*Shirkat*)	Collective, permanent possession	500–1000	Allotment of land and inputs to families according to contracts (pudrat). The benefits are shared.	1	AV/ ha : 320 -- AI/ha : 90*
Private farm	Private farm (*fermer khohajaligi)*	Long term lease (10 to 50 years) + Household plot	15 – 20	Family workers + hired labour	0,95	AV / ha : 350 -- AI : 100

* The private farming system has approximatively the same added value per hectare as the collective farm (320 US$ for the latter and 350 US$ for the former) and the same agricultural profit (90 vs. 100 US$). The main difference lies in organizational issues. According to farmers and to authorities, smaller farming units like the private farm prevent the misappropriation of resources distributed to farmers for cotton and wheat production. The added values have been calculated as follow: US$450/ha for cotton, US$300/ha for winter wheat and US$350/ha for maize. If we include the maintenance of the equipment and the relative acreage of each crop in the crop rotation, the general added value is estimated at around US$350/ha. For Shirkats, the added value of US$320/ha.

Table 2. **Non-Administered Farming Systems**

Farming Systems groups	Legal form	Farming system	Land Tenure(s)	Size (ha)	Form of labor	Surface per active (ha)	Man-power	Agricultural income / active (US$)
Household farming systems (HFS)	*Dekhan* farm	HFS + permanent off-farm job	Household plot (Lifetime possession)	0,06	Familial	0,065 – 0,093	1-2	325 – 400
		HFS + daily off-farm job	Household plot	0,06	Familial	0,05 – 0,07	2	200 – 240
		HFS + daily off-farm job + unsecured access to second crop plot	Household plot + second crop plot (informal land tenure)	0,12	Familial	0,075 – 0,12	2	240 – 325
		HFS + permanent off-farm job + secured access to the second crop plot	Household plot + subsidiary plot + second crop plot (informal land tenure)	0,18	Familial	0,075 – 0,12	3	460 – 630
		HFS with greenhouse	Household plot	0,06	Familial	0,025 – 0,05	2,5	1000 – 2100
Orchard farming systems	Private farm (*fermer khohajaligi*)	Sharecropping	Long term lease (10 to 50 years) + Household plot	1,50	Family workers Sharecropping	0,2 – 0,44	1.7 / ha	700 – 1500
		Run by the owner		2,00	Familial + hired laboor	0,24 – 0,82	3 / ha	1000 – 2900

constraint (especially true for collective farms); weak responsiveness to prices; plan bargaining; quantity-driven economy and chronic shortage economy. These characteristics are typical of the socialist economic system and of the bureaucratic co-ordination of the economy. On the contrary, the non-administered system is associated with the characterictics of the capitalist economic system (such as hard budget constraints, high responsiveness to prices, etc).

Despite the divergences of the systems presented above, neither one dominates the other: they are intertwined and interdependent. Streams of exchanged resources between both systems have been identified and quantified.

Streams of inputs and of *second crop plots* circulate from the administered system to the non-administered system. The first stream concerns the inputs. No input (except water) is formally distributed or attributed to the non-administered farming systems. Until 2004–05, there were no private shops where farmers could freely get access to inputs. Therefore, non-administered productions could get inputs only if they had been diverted from state-controlled productions (i.e. cotton and wheat). According to our survey, up to 20 per cent of the inputs are usually diverted, both in collective farms and in individual business farms. Thus, non-administered productions can get inputs and administered farming systems can get the sufficient cash flow needed for expenses such as daily workers' wages. The second relevant stream is the informal transfer of the right to use *shirkat* land to plant a second crop plot. Generally, second crop plots are given as a wage to permanent workers hired in administered wheat and cotton productions. These plots may also be informally rented or kept and used by the *shirkat* for their own profit (the latter case is rare, but has been observed). The last stream, which should not be overlooked, is the grazing of stubble fields. In relation to the second crop and to the grazing of stubble fields, we may also consider that soil fertility is transferred from the administered to the non-administered system. Maize forage is mainly produced on the second crop plot. It feeds the domestic animal husbandry. The forage is transferred to the household plot and the manure is kept on the household plot.

These interdependencies mean that one system cannot survive without the other. Thus, administered farming systems are financially profitable thanks to inexpensive labour. Underemployed labour is retained in rural areas as a result of the wage in kind, as the second crop plot is distributed to *dekhans* in June. Financial analyses show that agricultural income per worker in the household farming systems raises from US$200–240 per year to US$460–630 per year due to the second crop, depending access to second crop plot is secured or not. Underemployed, smallholders seek daily jobs for specific types of work such cotton harvest and cotton hand-singling for which they get a small salary (US$1 per day) .

The relations between the administered and the non-administered systems

are mainly mediated by informal exchanges. The turning point of the Uzbek agricultural policy will change not only the formal framework but also informal regularities. We have shown that some of those informal exchanges are vital both for the administered and the non-administered systems. Therefore, we give here a prospective assessment of what will occur after governmental measures have been implemented. It appears that the new agricultural policy, which was meant to solve some failures of the agrarian system, has created new tensions in Uzbek rural society that could be far more destabilizing: underemployment, increases in inequities of wealth distribution and a rural exodus to Russia and other destinations.

Sources of Instability in the Uzbek Agrarian System

The mardikor phenomenon

The shift from collective farms to private farms has increased the proportion of daily workers and reduced the share of permanent workers in the administered farming system. Surpisingly, we found that private farms are not more labour effective than collective farms. The main difference to be considered is the type of labour used: officially "private farmers" have no quotas to meet in terms of quantity of labour hired[46] and are not forced to take on permanent workers. Moreover, they find themselves under less social pressure to hire people than collective farms since their permanent employees are kin, friends or neighbours.

Consequently, it has been observed that some of the private farmers (*fermers*) are hiring only daily labour. The number of casual workers has increased substantially over the last five years, which is a reflection of the expansion of "private farms." This is apparent when visiting the Ferghana Valley countryside. In many villages, in the morning labour markets are spontaneously organized along roads. There, *mardikor* (Uzbek term for "daily workers") are waiting for employers. According to our interviews, the daily wage is around 1,200 sum (US$1).

The dismantling of collective farms also contributes to the dismantling of the "solidarity groups" identified by Olivier Roy.[47] Kolkhoz members, whose extended family have not been able to get a share of the collective farm's assets, feel ashamed and often leave their villages. It has been found that *mardikor* prefer to seek casual work in private farms resulting from the dismantling of the former collective farms. Feeling humiliated, they prefer to seek work in the nearby collective farms or even in a neighbouring district.

Restrictions of access to the second crop and the rise of underemployment

Access to the *second crop plot* is a key issue for the employment of available labour in the rural areas of the Ferghana Valley, as the financial results of the household farming systems show.

If we compare the agricultural income of the household farming systems No.

2 and No. 3, with respectively no access and (insecure) access to the second crop plot, it appears that each able-bodied member of the farming system No. 2 would work half as much as in No. 3 and is therefore underemployed. On the contrary, working members from the household No. 3, with the second crop, are fully employed and only seek off-farm income during the cotton harvest (see Figure 4). The income is above the survival threshold and household members do not have to leave the countryside to look for another job.

Without the second crop plot, the agricultural income of most households decreases below the survival threshold,[48] which means that household labourers have to find non-farm incomes to earn a living. This has been particularly critical in dismantled collective farms, since individual farms give access to the second crop plot only to their permanent employees – often neighbours, kin, children – and not to the *mardikor*.

Hundreds of thousands of underemployed people seek jobs in other sectors, like the construction sector, or try to find opportunities in the capital, Tashkent. As settlement in Tashkent is strictly controlled by the state to prevent a rural exodus, unemployed people have to leave the country and temporarily emigrate to Russia and Kazakhstan. Seasonal migration is a critical issue in the Ferghana Valley. In the villages of the dismantled collective farms, an incredibly high number of young people (up to 80 per cent) leave their families for many months. The second crop restriction issue is particularly sensitive compared to other regions of Uzbekistan. On average, people own 1.3 plots, which is very little compared to the national average of two to three plots.[49] This means that one-third of households have a subsidiary plot in addition to the household plot. In some villages, only women and old men are not emigrating, which partly explains the high proportion of women working in the fields.

Increasing territorial inequities

The repercussions of the new agricultural policy vary throughout the country. When travelling in the Ferghana Valley, it is obvious that there are social and technical differences between districts and even between villages.[50] Our survey found that these inequalities create tensions between private farmers and officials regarding the compulsory production targets of cotton and wheat. Under Soviet rule and until the dismantling of the collective farms, the substantial sums invested in the maintenance of the irrigation network and the soft budget constraints could balance the diparities between territories. This is no longer the case. Nevertheless, in more and more disadvantaged territories, private farms have to take part in the national effort of cotton production, even if it is known to be unprofitable. This situation might not be sustainable because private farmers are personally responsible for their farm's activities.

Linked to agricultural profitability, the speed of the dismantling process has

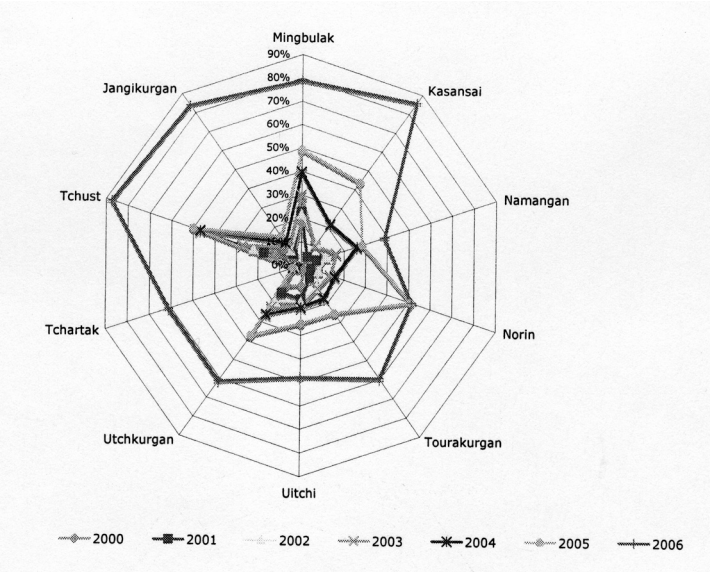
been found to be an interesting indicator to identify variables of inequalities between territories, both on the scales of the province and of the district of the Ferghana valley. As stated below, those inequalities are related to land productivity and production costs.

At the level of the three provinces of the Ferghana Valley, it is obvious that two territorial areas were particularly quick in the decollectivization process. These areas are those with less productive land where irrigation was developed by the Soviet authorities during the 1970s and 1980s. Improving soil quality was increasingly necessary[51] and further water transfers were necessary, using vertical pumping to bring vast quantities of water up dozens of metres.

The first area is located in the centre of the Ferghana Valley, around the Sarsankum desert, irrigated by the end of the Great Andijan Canal and the Akhunbabaeva Canal, and drained by the Sarsyksu collector and the Northern Bagdad collector.[52] In Namangan province, this area covers the district of Mingbulak (see Figure 5). There, farmers make little or no profit, because of the salinization and water-logging issues that arose with the collapse of the drainage system during the transition period. Moreover, water requirements are higher in this area than in other parts of the valley, because of its sandy soil.[53]

The second area is located in the hills surrounding Ferghana Valley, around

Figure 5. **Impact of the Access to the Second Crop Plot on the Agricultural Income and the Total of Smallholding Farming Systems**



Source: Farmers Association of Namangan Province

the towns of Kasansai, Tchartak and Tchust (see the districts around those towns in Figure 5). There, water management is particularly expensive since the major part of the water used needs to be pumped. The pumps used are either private (owned by the collective farms and then by the water users associations created after the dismantling of the *shirkat*), or owned by the state (see Table 3). If a pump is privately owned, electricity costs are charged to the farmers. If the pumps are owned by the state, water supply is not optimized in amount and in time. Indeed, even if the state invests important financial resources to maintain the pumps and the irrigation systems, some breakdowns occur.[54]

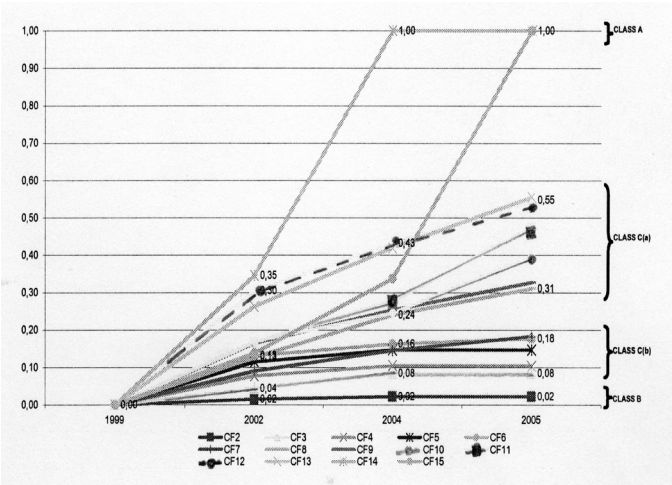
We made a similar assessment at the level of the district studied, where we identified heterogeneous decollectivizations (see Figure 6). In 2006, two collective farms had been fully dismantled (those from Class A: CF 14 and CF 15). Unlike all other collective farms, they were supplied by privately owned pumps, with very high operation and maintenance costs. They were not profitable and were dismantled in 2003–2004.

The speed of the dissolution process is not only related to the technical characteristics of collective farms. Most people interviewed stressed that the managerial dimension of the collective farm is a crucial element of the dissolution path chosen. The "strength" of the collective farm director (social networking) has been considered by most of the local actors as the first variable explaining the technical and financial health of the collective farm during our survey. Those who manage to strike a balance between the administered and the non-administered farming systems, and who use their good connections with the state apparatus to get resources, such as inputs and water, are considered "strong directors." Collective farms from Class B and Class D had such directors. Surprisingly, we found that the collective farms that have not been dissolved at all (except for the sale of their orchards and cattle) are in good financial health and get the highest yields amongst the districts studied. Some collective farms may well continue to

Table 3. **Areas irrigated by public and private pumps in Kasansay and Tchortok Districts**

	Chartak District		Kasansay District	
	(ha)	(%)	(ha)	(%)
Area supplied by private pumps	4275	23%	2875	12%
Area supplied by State owned pumps	10469	56%	8775	38%
Total irrigated area of the district	18700	100%	23400	100%

Figure 6. **Heterogeneous Dismantling Process of the Collective farm in Namangan District (1999–2005). Percentage of Irrigated Area Transferred to Private Farms per Collective Farm**



Source: Farmers Association of Namangan Province
Note: In this figure, each curve represents the dismantling process of one single collective farm (CF). Fifteen collective farm's decolllectivization processes are presented (from CF1 to CF 15). The curves have been drawn according to the percentage of the irrigated area ransfered to ivates farms in 1999, in 2002, in 2004 and in 2005. Four classes of collective farms have been identified. Class A: the collective farm has been completely dismantled. Class B: the collective farm has not been dismantled at all. Class C: dismantling in process. Class D: dismantling process stopped.

exist during the next decade. Locals want them to remain as they are better than individual private farmers at distributing the wealth produced (employment, access to the second crop plot, etc.).

Conclusion

The farming systems approach proved to be more appropriate than approaches relying on formal and legal farm categories. It has enabled us to grasp the dynamics of the Uzbek agrarian system both within and outside the formal framework. The crucial role of informal exchanges has been emphasized and quantified. More precise data makes it possible to identify the dynamics of agrarian transformation and to challenge the path taken by agrarian transition in Uzbekistan.

The government of Uzbekistan is currently trying to solve the financial and technical failures of the agrarian sector. It seems that the measures initiated in 2003 will not resolve the ongoing decline. Technically, the deterioration in soil

fertility is not solved: manure is not spread on the wheat and the cotton fields and new crop rotation patterns are depleting the soil minerals and organic substances. Financially, the administered system has been progressively moving from a non-profitable configuration, in which collective farms dominate, to a profitable configuration, dominated by private farms. Nevertheless, economically, the new configuration might not be sustainable.

Uzbek migrants's remittances might stabilize the system. These remittances may palliate the lack of income caused by the restrictions on the second crop. People who have not emigrated may continue to accept to work on cotton fields for low pay and Uzbek cotton may remain competitive on the international market and a source of income for the state. If this situation changes, the state will have to stop taxing the agricultural sector to give farmers incentives to increase their income. In any case, Uzbekistan's economic and political stability is dependent on the continuing demand from Russia and other countries for Uzbek labour.

Acknowledgement

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Notes

1 A. Ilkhamov, "Divided Economy: Kolkhoz System vs. Peasant Subsistence Economy in Uzbekistan," *Central Asia Monitor*, 4, 2000, pp. 5–14.

2 The World Bank and the Swiss Secretariat for Economic Affairs (SECO), *The Cotton Sector in Tajikistan*, 2006.

3 J. Dixon, A. Gulliver and D. Gibbon, *Farming Systems and Poverty: Improving Farmer Livelihoods in a Changing World,* Washington D.C., Organisation des Nations Unies pour l'alimentation et l'agriculture/World Bank, 2001. The FSA framework is said to help policymakers and development practitioners set their priorities for investment in food security, poverty reduction and economic growth.

4 In the early 1990s, 8 millions tons of raw cotton were produced in Central Asia. This represented 17% of the total world production and 90% of the whole USSR's cotton needs.

5 Fertilizers were fully available, produced locally in Uzbekistan (Nitrogen) or imported from neighbouring countries like Russia or Kazakhstan (Potassium and Phosphate).

6 The manure produced by the collective farm's breeding system was generally spread on the cotton fields.

7 D. Kandiyoti, "The Cry for Land: Agrarian Reform, Gender and Land Rights in Uzbekistan," *Journal of Agrarian Change*, 3, 2003, pp. 225–256.

8 Over 60 per cent of the population lived in rural areas. Density reached 900 inhabitants per square km in some districts of the Ferghana Valley (Andijan Province).

9 Maurizio Guadagni, Martin Raiser, Ann Crole-Rees and Dilshod Khidirov, "Cotton Taxation in Uzbekistan: Opportunities for Reform," Environmentally and Socially Sustainable Development

Working Paper No. 4, Washington, D.C., World Bank, 2005.

10 Max Spoor, "Transition to Market Economies in Former Soviet Central Asia: Dependency, Cotton and Water," *The European Journal of Development Research*, 5 (2), 1993, pp. 142–58.

11 According to FAOSTAT, http://faostat.fao.org/default.aspx

12 From 1990 to 1996 the cotton area has been reduced from 44% to 35% and the area sown in forage crops from 25% to 13%, while the area dedicated to cereals cultivation increased from 24% to 41%. Peter C. Bloch, "Agrarian Reform in Uzbekistan and Other Central Asian Countries," Madison: University of Wisconsin (Land Tenure Center – An institute for research and education on social structure, rural institutions, resource use, and development), 2002.

13 The statuses are defined by three decrees of Cabinet of Ministers of Uzbekistan N° 600-I, 602-I, 604-I of 30 April 1998. See Peter Bloch, op. cit. The *shirkats* are collective farms, considered to be the "legal successors of former kolkhoz and sovkhoz."

14 To solve the financial difficulties of the collective farms, the government launched in 1998 a process of financial stabilization of indebted collective farms. The Law on the "financial stabilization of agricultural enterprises" was adopted in 1997 and the programme of financial stabilization was run and promoted until 2003.

15 "Until late in the decade, the agrarian structure remained a dual one, with on the one hand the strictly controlled collective farm enterprises, and on the other hand the very small-scale household plots." Max Spoor, "Uzbekistan's Agrarian Transition," in M. Spoor, S. C. Badu and S. Djalalov, *Policy Reforms and Agriculture Development in Central Asia*, Boston, Springler, 2006, p. 6.

16 Despite the increasing need in manual labour resulting from the demechanization of agrarian production processes during the transition period. Pomfret explains the demechanization process by the low opportunity cost of labour. See Richard Pomfret, "Agrarian Reform in Uzbekistan: Why Has Chinese Model Failed to Deliver?", *Economic Development and Cultural Change*, 48 (2), 2000.

17 These are owned privately by the collective farm; the others are owned by the state.

18 The maximum agricultural profit of the collective farming system (excluding informal flows of inputs above 20%) is US$90/ha and it decreases dramatically into negative figures if the informal flows of inputs are included. If informal flows of inputs are not controlled, the collective farming system becomes not viable without state subsidies. As far as the individual commercial farming system is concerned, the average income (without the farmer's wage) is US$100/ha. Business farms have generally bigger capitalization abilities.

19 This could explain the current spread of crop diseases in the Ferghana Valley.

20 Predidential Decree No. УП-3226 of 24 March 2003; Decree of the Cabinet of Ministers No. 476 of 30 October 2003.

21 This measure has been initiated to prevent the escape of inputs (fertilizers, water, etc.) from the administered to the non-administered system and to insure sufficient water for cotton production.

22 Peter C. Bloch, "Agrarian Reform in Uzbekistan and Other Central Asian Countries," op. cit.

23 Mike Thurman, "Agriculture in Uzbekistan: Private, Dehqan, and Shirkat Farms in the Pilot Districts of the Rural Enterprise Support Projects," World Bank, 2001; Mike Thurman and Mark Lundell, "Agriculture in Uzbekistan: Private, Dehqan, and Shirkat Farms in the Pilot Districts of the Rural Enterprise Support Project," Tashkent, World Bank, 2002.

24 However, studies show that private farms also have to produce state ordered crops. See Deniz Kandiyoti, "Agrarian Reform, Gender and Land Rights in Uzbekistan," United Nations Research Institute for Social Development, 2002.

25 M. Thurman,. "Agriculture in Uzbekistan: Private, Dehqan, and Shirkat Farms in the Pilot Districts of the Rural Enterprise Support Projects," op. cit.

26 *Ibid*.

27 A. Ilkhamov, "Divided Economy : Kolkhoz System Vs Peasant Subsistence Economy in Uzbekistan," op. cit.

28 *Ibid*.
29 M. Thurman, "Agriculture in Uzbekistan: Private, Dehqan, and Shirkat Farms in the Pilot Districts of the Rural Enterprise Support Projects," op. cit.
30 D. Kandiyoti, "Agrarian Reform, Gender and Land Rights in Uzbekistan," United Nations Research Institute for Social Development, 2002.
31 A second crop is a crop succeeding one already harvested during a growing season; either a regrowth of the harvested crop, or a newly planted crop.
32 It is worth noting that there are very few references to the second crop plot in the international literature.
33 Alain Desrosières, "Décrire l'Etat ou explorer la société: les deux sources de la statistique publique," *Genèses*, 58, March 2005, pp. 4–27.
34 Peter C. Bloch, "Agrarian Reform in Uzbekistan and Other Central Asian Countries," op. cit.
35 Dixon, J., et al, *Farming Systems and Poverty,* op. cit.
36 This statement is critical for smallholders, since a great majority of them have an off-farm activity, such as cotton harvesting, which makes up a significant share of their annual earning. This income is almost never included in the financial analyses produced by scholars.
37 *Ibid*.
38 Alain Desrosières, "Entre réalisme métrologique et conventions d'équivalence: les ambiguïtés de la sociologie quantitative," *Genèses*, 43 June 2001, pp. 112–27. Moreover, it is somehow difficult to work without formal categories, since they sometimes refer to official data based on a *statistical coding* relying on juridical categories.
39 The agro-financial diagnosis itself follows five different stages. The boundaries of the studied area have been chosen in order to select a homogeneous geographical and hydrological unit with enough sources of variability to test variables impacting the production processes and the financial results of the systems of production. The agro-pedological, hydrological and climatic features of the selected units are appraised on the basis of landscape observations and the gathering of historic data collected by administrations or by scientists. In the second stage, a historical analysis is conducted in order to identify the main developments of the local agricultural system. This is mainly done through interviews with retired or active rural actors and the reading of available literature and documents produced by the state (laws, decrees, official data). Then, during the third stage, a first set of archetypes of farming systems is established according to the geographical characteristics of the studied area and its historic evolution. A second wave of interviews is carried out in the fourth stage to describe and clarify the agricultural production, the means of production, the characteristics of producers and the relations between them. Producers are interviewed (semi-directed interviews) a minimum of two or three times in order to get a full confident relation with them. Progressively technical and financial information is gathered. Finally, in accordance with the first set of archetypes and with the additional information, each farming system of a second typology is independently described and analyzed. Financial results are gathered and financial indicators are built using a simple linear model (added value, agricultural income, profit, added value per ha surface or per labour unit). Then, the farming systems are compared.
Gross Product (GP) = ∑ (Quantity of products * farm gate price);
Intermediate consumptions (IC) = ∑ (Cost of production * farm gate price);
Gross Added Value (GAV) = GP – IC ;
Amortization (Amt) = ∑ (amortizations needed for the functioning of the farming system) ;
Net Value Added (NVA) = GAV – Amt ;
Agricultural Income (AI) = NVA – wages – loan interests – rents – taxes ;
Total Income (TI) = RA + income of the external remunerated jobs + other financial incomes
40 40% of the wheat produced is free of any state obligation and is usually sold on the market (US$110/quintal) or given to workers as a wage in kind.
41 The production processes are mainly mechanized.
42 This off-farm job can be supplied by a *shirkat* or by an individual commercial farm.

43 The cow is fed by fodder plus some cotton oil cake and wheat bran bought on the local market. The cow is an easily usable capital since it is sold when the family needs money. After the maize, a cash crop is grown on the plot (rice, if enough water is available, or vegetables).
44 The cattle: two cows with calves, some bulls bought on the markets, and fed during 6 to 12 months with cotton oil cake and wheat bran and sold on the market; some ovine bought on the market and fed with maize during 6 to 12 months.
45 Economic regularities: "the economic agent's behaviours" and the "typical and durable economic phenomenon."
46 For collective farms, employment must follow the norms set by the State Norms Office.
47 Olivier Roy, "Groupes de solidarité au Moyen Orient et en Asie Centrale," *Les cahiers du CERI*, 16, 1996; O. Roy, *The New Central Asia: The Creation of Nations*, New York, New York University Press, 2000.
48 The agricultural income decreases from US$250–325 per active to US$200–240 US$ per active.
49 Peter C. Bloch, "Agrarian Reform in Uzbekistan and Other Central Asian Countries," op. cit.
50 In some villages, only women remain working in the field, in others men are still very present. In some areas, salinity and water-logging problems occur with dismantled drainage and irrigation networks. In other areas, public irrigation and drainage network are working correctly.
51 Robert Lewis, "The Irrigation Potential of Soviet Central Asia," *Annals of the Association of American Geographers*, 51, 1961, pp. 99–114.
52 The main cities of this first area are Mingbulak and Iesevan.
53 The public irrigation network is hardly maintained there and farmers have to invest in private pumps to pump underground water or water from collectors.
54 In 2006, the operation of the state-owned pumps consumed 1,1 billion KW. The Pumping Administration of Namangan Province was charged 36,5 billion sum – 82,5% of the whole budget allocated by the central state for irrigation water management in the province. See Raphael, . "Improvement Water Management Skills of Local Farmers in Namangan Oblast - Final Report," Tashkent, UNDP, 2006.

12

Demonstration and Advisory Services Activities for Cotton Growing: A Case Study in Ak Altin, Uzbekistan

Ian Houseman

The importance of cotton to the economy of Uzbekistan cannot be underestimated. Cotton growing is the mainstay of the rural economy supported by the production of wheat. This importance is characterized by a high level of Government intervention in the growing, marketing and processing of both crops. Since the collapse of communism in the former Soviet Union (FSU), agriculture in many states has struggled to adapt and change to a market-led environment. Some countries have adapted better than others but in Uzbekistan there has been a reluctance to move quickly towards a free market for cotton and wheat and to the supply of inputs. Consequently the move from a system of *shirkat* farms (sovkhoz/kolkhoz) to a system of small private farmers in Uzbekistan has not led to improved physical and financial performance of the agricultural sector. The new farmers have found it difficult to take on their new role as rural entrepreneurs for a number of reasons:

- few of them have experience of running a farm business;
- the debts of the *shirkats* have been passed on to the private farmers;
- the research base and its outputs are rooted in the Soviet past and it is unable to meet the needs of the new farmers;
- the farms are undercapitalized, they own very little equipment, the land is only leased and access to credit is limited to short-term working capital requirements;
- security of tenure is not guaranteed and the state still exercises a large amount of control over agriculture through the Oblast and Rayon Hakims (governors); and
- farmers are uncertain about their legal rights and obligations.

Given this background, the state has encouraged the development of rural business advisory centres (RBAC) to assist farmers to adapt to the new situation and this paper will use the Ak Altin RBAC as a case study example. It should be noted that Ak Altin Rayon is the beneficiary of the Ak Altin Agricultural Devel-

opment Project (AAADP), which aims to rehabilitate the whole of the Irrigation and Drainage (I&D) network of Ak Altin. This is a US$72 million project funded jointly by the Government of Uzbekistan (GoUz) and the Asian Development Bank (ADB). The ADB loan is around US$36 million and aims to fund the rehabilitation in three packages of civil works covering Ak Altin Rayon. Part of the support of the GoUz and the ADB has been for the formation and operation of the RBAC and an associated demonstration programme.

The Ak Altin Rural Business Advisory Centre

The RBAC was established in 2002 with the following proposed staffing:

- Team Leader/ Farm Planning expert
- Science Co-ordinator/ Trainer
- Two irrigation and drainage engineers
- Agronomist
- Entomologist
- Economist
- Accountant
- Lawyer
- Secretary

In fact the RBAC has never achieved a full staff profile at any time during its existence and there have been several changes in RBAC personnel which have hampered staff development and limited its impact amongst farmers. A case in point is the weakness of the RBAC to provide support for the formation and development of Water Users' Associations (WUAs). Prior to the advent of the TA project none of the RBAC staff had received any training in WUAs support.

The current staffing of the RBAC is as follows:

- Head of RBAC
- Vacancy – Research Co-ordinator
- Agronomist/Entomologist
- Economist/Business Planner
- RBAC Accountant and WUA Financial Adviser
- I&D Engineer/WUA Development Specialist
- Irrigation Engineer
- Lawyer
- Secretary

The RBAC, with the help of the TA Team, has been responsible for the devel-

opment and management of a demonstration programme on three farms with a total area of about 200 ha. In addition the RBAC provided technical and business advice to farmers on an individual and group basis, it ran seminars for farmers and WUA staff, it produced publications such as leaflets and newsletters and it produced material for the mass media (press, radio and television). Most of this activity was focused on the cotton and wheat crops but a substantial effort was put into informing farmers and WUAs about the plans and progress of the AAADP.

The RBAC's annual budget was around US$40,000 but was found to be inadequate on the side of its running costs. Frequently there was a lack of basic consumables such as paper, access to photocopying, technical and business material from research and trade, and poor transport facilities (one car, part-time). In addition, the remoteness of its office and a single, analogue telephone line meant that the RBAC had no access to the Internet.

In Ak Altin the closure of the *shirkats* led to the formation of around 920 new private farms with an average irrigated land area of about 40 ha. To meet each farmer on a face-to-face basis just once a year would mean that the staff of the RBAC would have to meet 18 farmers every week. Clearly this would be a major logistical task even if it was feasible and the RBAC had the necessary resources to work in this way. The result is that much of the time the RBAC staff are dependent on farmers coming to their office for consultations. This diminishes the impact of the advisers and limits their ability to gather information from the field and truly understand the constraints and problems affecting agriculture.

The RBAC Demonstration Programme

The total irrigated area of Ak Altin, as of 1 January 2004, was 42,057 ha. Of this only 498 ha were in good ameliorative conditions, 32,167 ha were in satisfactory conditions and 9,932 ha were in poor conditions. There is an area of some 2,931 ha with a high groundwater table. The area of irrigated soils affected by salinity (with a medium and high level of salinity) is 2,314 ha. The total area with a high groundwater table and seriously affected by salinity is 4,147 ha.

Due to boundary changes which occurred within Syrdarya Oblast in 2004, two villages: Istiklol and G.Gulyam, were added to Ak Altin, which resulted in changes of the area of irrigated land, which is now 43,767 ha.

There are two gins, gas-, electric-, and running water- supplier companies and banks in Ak Altin

The living standards of local population and level of economic development are directly linked with the agricultural production of Ak Altin.

In the 1980s of the cotton yield was 3.5–4 t/ha but nowadays it is only1.1–1.3 t/ha. One of the reasons for such low yields is the unsatisfactory ameliorative condition of the areas under the cotton crop, and also failure of irrigation system (particularly flumes, which need to be completely replaced). Vertical drainage fa-

cilities are also out of order in Andijan, Fergana, S.Siddikov villages. No collector cleaning activities have been conducted in recent years, which resulted in the rise of the groundwater, which in turn, resulted in enlarging the area of irrigated soils affected by salinity. According to scientific research, the yield on medium salinized soils is typically 15–20 per cent lower, and on highly salinized – 55–60 per cent lower. Therefore, a high priority is to improve the condition of the soils and increase yields. Fortunately, the joint ADB and Gollz AAAD Project envisaged the rehabilitation of I&D system of Ak Altin, which should dramatically improve the situation.

Demonstration Sites

For the demonstration site plots, which were established in 2003, the AAAD Project makes provision for seeds, mineral fertilisers, chemical weed-killers and/or pesticides including biological control methods. The aim is to demonstrate the advantages of new and improved agricultural techniques.

Purpose of the demonstration programme

The main purpose is to demonstrate effective agro techniques and irrigation regimes, which will ensure the achievement of high yields in Ak Altin conditions.

The main tasks to be accomplished are as follows:

- select and test high yielding and economically effective varieties of cotton and wheat, acceptable for Ak Altin;
- rehabilitate the I&D networks on the demonstration sites;
- to test optimal economic use of mineral and organic fertilizers, taking into account estimated yield, crop development phases and maintaining the nutrient balance of the soils;
- demonstrate agro-technical activities aimed at achieving high yields;
- demonstrate efficient irrigation techniques.

The activities to be conducted on the demonstration sites are the following:

- assessing ameliorative conditions of areas under crops;
- sowing several varieties of wheat (for instance Palovchanka, Kroshka, Chillyaki, Dustlik and others) on small plots with identical natural conditions;
- identifying optimal level of using of mineral and organic fertilizers;
- applying several types of herbicides against weeds in growing wheat;
- using materials produced in biolaboratories, and herbicides and pesticides and analysing the outcomes;

- using modern tillage techniques in growing cotton;
- identifying and implementing the optimal timing and irrigation techniques with due consideration to local relief and plots soil conditions;
- monitoring the activities and crop growth on the demonstration sites; and
- assessing the outcomes of the demonstration activities.

Management of demonstration activities

In the beginning soils and ameliorative conditions of the demonstration sites were assessed. Each field was sown with different varieties of crops and soil samples were taken. A chemical analysis was made in a laboratory of the "Oblast Hydro Module Expedition." Also, for the assessment of water-physical and agrochemical characteristics of soils, the soil survey materials of "Uzgipromeliovodkhoz" ((Uzgi) were used.

During October 2004, small plots with identical amelioration conditions were sown with different varieties of wheat. Treatment and processing of wheat varieties was to be the same.

Based on soil-survey materials of "Uzgipromeliovodkhoz," optimal amounts mineral and organic fertilisers were applied and the nutrient level of each demonstration plot's soils were assessed.

Potential and estimated yields were assessed. The necessary amounts of mineral fertilisers were applied taking into account soils' provision with nutrient elements and estimated yields.

Trials to identify rational amount of herbicides to be applied were set up and different types of spraying were assessed. Based on those tests' outcomes, the recommendations were worked out, which were to be used in workshops for farmers.

In order to conduct "between irrigations soils treatment," during growing of cotton on the demonstration sites, a cultivator developed by M.Usmonaliev was used, which helped to conduct close soils treatment around cotton plants and to get rid of weeds.

Tensiometers were used for the purpose of identifying of optimal irrigation times. By means of software and considering local relief conditions and soil permeability of each demo plots, the elements of optimal irrigation techniques (furrow lengths, furrow charges, periods of irrigation) were calculated.

Permanent monitoring of groundwater table and its mineralization was conducted. Four inspection wells were placed on each of the demonstration sites for the purpose of monitoring the groundwater regime.

Measurement of water charges on the demonstration sites boundaries and on outlets to every demonstration field were conducted.

Monitoring of agro-technical works was arranged using forms developed in the TA Project.

Based on the monitoring results, the yields of different crop varieties, expenses versus other production inputs (seeds, fertilisers, water, herbicides, pesticides, machinery and labour) were assessed.

Dissemination of achieved results:

- the outcomes of the activities on the demo sites were to be disseminated in workshops and in the form of booklets;
- recommendations on selecting acceptable cotton and wheat varieties for this region;
- recommendations on different pest and weed management methods;
- recommendations on best economic options of mineral and organic fertilisers;
- recommendations on the most efficient irrigation regimes;
- publication of booklets on using effective methods of growing agricultural crops.

Cotton and Wheat Gross Margins 2003 to 2005

The TA Team along with the staff of the RBAC and farmers calculated gross margins for the cotton and wheat crops for 2003, 2004 and 2005. The Gross Margin summaries are set out in the tables below and the full gross margins are attached in the Appendix to this paper (see pp. 202–207).

2003

US$/ha	Cotton	Wheat
Gross Output	240	175
Variable Costs	219	233
Gross Margin	21	–58

2004

US$/ha	Cotton	Wheat
Gross Output	336	270
Variable Costs	395	322
Gross Margin	–59	–52

2005

US$/ha (Estimate)	Cotton	Wheat
Gross Output	491	358
Variable Costs	435	309
Gross Margin	57	49

Overall, during the three years under review, yields, prices and costs have all increased. Most notable is the 2004 harvest year when, although yields and prices increased the cost of inputs, especially fertiliser, seed, fuel and machinery and harvesting costs all increased resulting in negative gross margins for both cotton and wheat. Between 2003 and 2005 the gross output of cotton and wheat both doubled and whilst cotton variable costs also doubled, those for wheat rose only by about 40 per cent. Fortunately the Government of Uzbekistan increased the prices of both cotton and wheat for 2005 and this should give some confidence to farmers that their cotton and wheat production will be profitable.

Cabinet of Ministers Resolution 153 – An Analysis

These comments relate to the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 153, dated 30 March 2004. The resolution relates to the approval of normative-legal documents covering to the economic activities of agricultural enterprises participating in ADB and IBRD projects.

The Resolution has five Appendices as follows:

- Appendix 1 deals with the issue of cost recovery from participating farmers and sets out the role of WUAs;
- Appendix 2 gives details of the methods to be used in calculating cotton and grain quotas for farms;
- Appendix 3 describes how production over quota can be financed by means of credits;
- Appendix 4 covers the sale of over-quota cotton including export;
- Appendix 5 describes the determination of the price of over-quota cotton to be sold to the state.

The Resolution also contains a model agreement on financing and repayment of the investment including a list of the agricultural enterprises (farms), a schedule of the repayment of the investment by farms and a schedule of the repayment of the investment by WUAs. The model was used as the basis of the agreement with Package 1 farmers.

It should be noted that Appendices 4 and 5 of Resolution 153 deal with cotton only and there is no guidance on how over quota wheat can be sold, nor on how the price for over quota wheat sales to the state will be determined.

Analysis of Options

The Resolution contains, within its Appendices, descriptions of different ways in which cotton and grain production can be financed and sold. The following table analyses these options and describes potential roles for the RBAC (see table of options oppposite).

Appendix	Options	Comments
Appendix 1- Cost Recovery	Acceptance, or not, of the completed works (acceptance of machinery).	Farmers (and WUAs and the EA)* can ask the opinion of the RBAC as to whether or not the completed works correspond to the accepted design. The completion report is to be the basis for final adjustment of the costs (and repayments).
Appendix 2 – Quota calculation	There appears to be only one accepted method for this calculation.	The calculation is based on average production over the period from 1997 to 2001 and the volumes for districts (rayons) calculated according to Resolutions 201 and 461.
Appendix 3 – Financing over-quota production	Option 1 – direct preferential crediting (the current method – Res. 476) for **quota** production (tranche) – but see paragraph 10 of Appendix 4.	The RBAC should compare these options, especially options 2 and 3, to help farmers understand which is the most beneficial for them.
	Option 2 – credit from commercial banks for **over-quota** production.	Farmers may need to submit business plans to commercial banks and the RBAC could provide this as a fee-paid service (say a small percentage of the loan value – 1 to 2 %)
	Option 3 – credit from the purchaser for **over-quota** production.	The loan is repaid from the harvest at the agreed prices.
Appendix 4 – Sales of over-quota cotton	Option 1 – sale through the auctions of the stock-commodity exchange.	The RBAC should analyse these four options for sale to see which offers the most beneficial prices (and terms and conditions) for farmers.
	Option 2 – sale through Uzauktsion-avdo	Farmers have to repay the costs of ginning, cleaning, storage, transport etc.
	Option 3 – sale for export through a) trading companies, or b) Uzauktsion-avdo	
	Option 4 – sale to the state at agreed prices	
Appendix 5 – method for price determination for sale of over-quota cotton to the state	The method of price calculation appears to be standardized but there are differences according to quality standards achieved.	The RBAC should prepare a table showing the impact on prices of different quality standards in order to inform farmers and assist them to achieve better prices.

* The EA is the Executive Agency for the AAADP and is the Rural Restructuring Agency (RRA) of the Ministry of Agriculture and Water Resources (MAWR).

Resolution 153 only makes one direct reference to consulting centres in Appendix 1 (Cost Recovery) at paragraph 9. This states that the EA, WUAs or farmers can seek the opinion of consulting centre specialists as to whether or not the completed works are in accordance with the agreed design. Additionally paragraph 10 of Appendix 1 describes the use of a completion report to assess the final costs of the works. It is possible that the RBAC could be heavily involved in this activity, in particular representing the best interests of farmers.

Other Comments

Paragraph 3 of the Resolution states that a proposal on the further improvement of the mechanism for organizing raw cotton production will be made by the Ministry of Economy, the Ministry of Finance and MAWR by 1 November 2004. This proposal is to set out how increased production targets are to be achieved following the rehabilitation. It is not known whether this proposal has yet been made.

WUAs are charged with collecting loan repayments, interest and commissions from the farmers every six months – this may conflict with the collection of Irrigation Service Fee (ISF). In addition, it has cash flow implications for farmers and the RBAC will need to take account of this in their business planning work with farmers.

Paragraph 3 of Appendix 2 states that quotas will be recalculated taking into account the increased area under production and any improvements in land quality and the succeeding paragraphs describe the procedure for setting quotas. It is possible that UzGi and/or the RBAC could become involved in this process. The quotas for newly organized farms are to be set by 1 July each year – for the following year's production. Paragraph 6 of Appendix 2 states that the quotas will be set for the whole period of the project but other parts of the Resolution imply annual quota setting.

Analysis of Options for Wheat for 2005

The situation for wheat in Ak Altin Rayon for 2005 was as follows:

- the sown area of wheat (planned and actual) was 14,900 ha;
- the overall forecasted production for the rayon was 57,000 tons;
- the total State Plan, i.e. total quota was 33,000 tons (58 per cent of the forecast production);
- the state quota (Quota 1) was 12,500 tons (22 per cent of the forecast) which the state buys at a low price;
- the state also has a further quota, the State Plan (Quota 2), which it calls "Above Quota," through which it buys wheat at a higher price. This is 20,500 tons (36 per cent of the forecast) and has a state price incentive of plus 20 per cent;
- farmers were able to sell on the free market an amount of 24,000 tons (57,000 minus 33,000 tons), which is 42 per cent of the forecasted production.

- Quota 1 is 38 per cent of the State Plan.

The forecasted rayon production is an estimate based on the previous year's performance and the planned area to be sown.

It should be noted that Resolution 153 makes no reference to a two tier quota system nor does it set out how the two quota prices for wheat or cotton are to be determined.

The forecasted yield for Ak Altin for wheat for the 2005 harvest is 3.83 t/ha. Last year the rayon averaged 4.1 t/ha and there is every prospect that the 2005 harvest will be just as good. A yield of 4 t/ha on 14,900 ha would give a total production of 59600 tons, which could mean that farmers will have 26,600 tons of over quota wheat to sell (45 per cent of forecasted production).

The prices proposed for the 2005 harvest are as follows:

- Quota 1 – 78,000 sum per ton (US$72 at 1,083 sum per US$1)
- Quota 2 – 95,000 sum per ton (US$88)

The "free" market price is not yet known for 2005 but it is claimed that last year buyers came from the south of Uzbekistan where there were grain shortages and paid up to twice the quota price (around US$150 per ton). The TA Team and the RBAC constructed a wheat gross margin per hectare based on the 2005 production plan using an off-quota price of 108,300 sum per ton (US$100).

Farmers have a limited choice as to their markets, as well over half of the forecasted production will have to be sold to the state. The possibilities of selling on the free market depend on the availability of buyers and the ability to store the grain on the farm (usually in sacks). However, any storage losses and interest charges that may accrue also need to be taken into account when deciding how much and when to sell.

Clearly, in the management of the wheat crop, there is a need to match the inputs, especially fertiliser, to the expected return from the crop (yield x price). Farmers would expect to apply more nitrogen fertiliser, for example, to a wheat crop if it was going to realise a price of US$150/ton compared to one that would only be sold for US$72/ton. There is a dearth of information on the *economic* return to inputs, which is hampering the RBAC staff's ability to advise farmers on the best level of inputs to use. There is still a reliance on the old state "norms." There is here also a conflict of interests between farmers and the state. The state wishes to meet its production plan and, in particular, its quota needs (for wheat, presumably on the grounds of food security), whereas farmers need to generate profits after meeting their costs, in order to provide an income for living and for reinvestment in their farm businesses. Also, in keeping a low quota price the state is, in effect, using farmers to subsidise the price of grain (and hence bread) to the consumers.

Analysis of Options for Cotton for 2005

The situation for cotton in Ak Altin rayon for 2005 is as follows:

- The sown area was planned to be 22,425 ha. Progress on sowing was good and drilling started 9 days earlier than in 2004 and so the planned sowing area was achieved;
- The overall production plan for 2005 was 44,725 tons (1.99tons/ha);
- The state quota for 2005 was 17,000 tons (38 per cent of the plan);
- If the plan is achieved, farmers will have 27,735 tons of over quota cotton to sell (62 per cent of the plan);
- However, if the yield is only 1.6 tons/ha, the total production will be 35,880 tons and the quota will represent 47 per cent and farmers will have 18,880 tons to sell over quota (53 per cent);
- In any case all the cotton a farmer produces has to go the local state gin.

The planned yield for Ak Altin for 2005 is 1.99 tons/ha whereas the actual yield achieved in 2004 was 1.54 tons/ha. The 2004 crop suffered from a late attack of bollworm, which dramatically reduced yields in some areas. The earlier drilling this year should have helped the crop to develop more strongly and this planned extra yield might be achieved. The anticipated prices for cotton for the 2005 harvest are 237,000 sum (US$219) per ton for quota cotton and 284,000 sum per ton (US$262) for over quota cotton. The over quota price is about 20 per cent higher than the quota price. The differential between the two prices will not have as strong an influence over the amount and timing of inputs. However, there still may be a case for investigating further the *economic response* to fertiliser, especially nitrogen.

A gross margin showing the effect of the 2005 plan and prices was constructed by the TA Team and the RBAC. Again there is a conflict of interests between farmers and the state. The cotton production always goes to the state gins and farmers have no real alternative outlet for their cotton. The internal quota (and off-quota) price is below the world market price and this allows the state to buy, process and sell cotton, especially for export, and make a handsome profit, yet another example of farmers subsidizing the state. This in turn leads to depressed incomes in rural areas with no opportunity for farmers to invest in their businesses. However, it should be noted that world prices for cotton have fallen back in recent months and this will reduce the state's margin on cotton sales. It was understood that auctions of bales of processed cotton (900 tons) were planned by the RRA and RBAC in late April or May in Tashkent. The RBAC will take a 1 per cent commission on the sale for its part in the auction process. This could become a significant source of income for the RBAC in the future.

Resolution 153 makes specific provisions on the financing of over quota cotton and wheat and also for the sale of non-quota cotton. The RBAC has produced some brochures for farmers on these new changes and what it means for farmers.

The RBAC has also commenced a service offering to develop business plans for farmers. These plans use the MAWR forms, which were reviewed by the TA Team earlier in the project.

A Farm Case Study

Further information on the impact of Resolution 153 on farmers marketing activities was collected at a meeting with Andijon farmers on 25 April 2005. The farmer in question (Farmer A) has a farm of 33 ha and he grew 20 ha of cotton and 13 ha of wheat in 2004. The wheat averaged 3.54 tons per hectare giving a total production of 46 tons. The cotton averaged 2.3 tons/ha giving a total cotton production of 46 tons.

The marketing of the wheat and cotton was accomplished as follows:

2004 Harvest	Total production (t)	Quota 1	Quota 2	Off Quota
Wheat	46	14 t sold at US$67	13 t sold at US$81	19 t used to pay workers in kind and valued at US$81
Cotton	46	17	No Quota 2 for cotton	20

The Quota 1 and Quota 2 wheat was sold through the state grain collecting point. The balance of 19 tons was stored in sacks on the farm and was given in-kind to the farm workers in lieu of wages and valued at the higher state price. Thus Farmer A achieved an average price of US$76.74 per ton. Farmer A stated that he could have sold his off-quota production on the open market to local people or through a bazaar or to other buyers in Uzbekistan e.g. from Samarkand, or even buyers from other countries and probably achieved a price of US$150 per ton.[1]

All the cotton was sold to the local gin at an average price of US$237 per ton. There is virtually no choice of outlets as far as cotton is concerned. The farmer was not able to differentiate the price achieved for his Quota and Off-Quota production but usually the state pays plus 20 per cent for off-quota cotton. At the time of the interview the farmer had received about half of his net income from the gin paid into his bank account (about 2 million sum out of an expected payment of 4 million sum – US$1,850 out of US$3,700).

Note

1. The farmer quoted costs for wheat of 25,000 sum/ha for ploughing and 53,000 sum/ha for harvesting from the Agricultural Machinery and Tractor Park (AMTP) – a total of 78,000 sum/ha or US$72. These two costs alone mean that he needs to grow one ton of wheat per hectare just to pay the AMTP.

APPENDIX: COTTON AND WHEAT GROSS MARGINS FOR AK ALTIN 2003, 2004, 2005

ADB PROJECT – ISSAD, AK ALTIN RAION

GROSS MARGIN – COTTON

Advisers' estimate – 2003 harvest — **US$ Per hectare** Average for Ak Altin Rayon

Gross Output	**Amount**	**Units**	**Price per Unit**	**Total US$**
Yield x Price	1.2	tons	200	**240**
Variable Costs				
Seed	50	kg	0.25	12.5
Fertiliser				0
Nitrogen	250	kg	0.07	18
Phosphate	150	kg	0.18	27
Potash	100	kg	0.07	7
Biological control	1		10	10
Herbicide				0
Fungicide				0
Pesticide				0
Water	7000	m^3	0.0021	15
Machinery Park costs	1		43	43
Fuel	500	litre	0.102	51
Labour for harvesting	1200	kg	0.03	36
Total Variable Costs				**219**
Gross Margin				**21**

GROSS MARGIN – WHEAT

Advisers' estimate – 2003 harvest	**US$ Per hectare** Average for Ak Altin Rayon			
Gross Output	**Amount**	**Units**	**Price per Unit**	**Total US$**
Yield x Price	2.5	tons	70	**175**
Variable Costs				
Seed	250	kg	0.205	51
Fertiliser -				0
Ammo Phos	200	kg	0.184	37
Silistra	400	kg	0.071	28
Kali	100	kg	0.067	7
Herbicide	20	g	0.408	8
Fungicide				0
Pesticide				0
Machinery Park costs incl. fuel	1		71	71
Water	4000	m^3	0.0038	15
Labour	1		15	15
Total Variable Costs				**233**
Gross Margin				**–58**

GROSS MARGIN – COTTON

Advisers' estimate – 2004 harvest	**US$ Per hectare** Average for Ak Altin Rayon			
Gross Output	**Amount**	**Units**	**Price per Unit**	**Total US$**
Yield x Price	1.6	tons	210	**336**
Variable Costs				
Seed	50	kg	0.25	12.5
Fertiliser				0
Nitrogen	250	kg	0.2	50
Phosphate	150	kg	0.3	45
Potash	100	kg	0.3	30
Biological control	1		15	15
Herbicide				0
Fungicide				0
Pesticide				0
Water	7000	m^3	0.005	35
Machinery Park costs	1		60	60
Fuel	500	litre	0.15	75
Labour for harvesting	1600	kg	0.045	72
Total Variable Costs				**395**
Gross Margin				**–59**

GROSS MARGIN – WHEAT

Advisers' estimate – 2004 harvest	**US$ Per hectare** Average for Ak Altin Rayon			
Gross Output	**Amount**	**Units**	**Price per Unit**	**Total US$**
Yield x Price	4.1	tons	72	**175**
Variable Costs				
Seed	250	kg	0.22	55
Fertiliser -				0
Ammo Phos	200	kg	0.35	70
Silistra	400	kg	0.17	68
Kali	100	kg	0.067	7
Herbicide	20	g	0.8	16
Fungicide				0
Pesticide				0
Machinery Park costs incl. fuel	1		71	71
Water	4000	m^3	0.005	20
Labour	1		15	15
Total Variable Costs				**322**
Gross Margin				**–27**

GROSS MARGIN – COTTON

Advisers' estimate – 2005 harvest	**US$ Per hectare** Average for Ak Altin Rayon			
Gross Output	**Amount**	**Units**	**Price per Unit**	**Total US$**
Yield x Price	0.76	tons	219	166
Yield x Price Non-Quota	1.24	tons	262	325
Total Gross Output	2	tons	245.7	**491**
Variable Costs				
Seed	30	kg	0.25	24
Fertiliser				
Nitrogen	353	kg	0.2	49
Phosphate	154	kg	0.3	46
Potash	100	kg	0.3	30
Biological control	1	ha	10	10
Herbicide	1	ha	15	15
Fungicide				0
Pesticide				0
Water	7000	m^3	0.005	35
Machinery Park costs	1		60	60
Fuel	500	litre	0.15	75
Labour for harvesting	1600	kg	0.045	90
Total Variable Costs				**435**
Gross Margin				**57**

GROSS MARGIN – WHEAT

Advisers' estimate – 2005 harvest	**US$ Per hectare** Average for Ak Altin Rayon			
Gross Output	**Amount**	**Units**	**Price per Unit**	**Total US$**
Yield x Price Quota 1	0.9	tons	72	65
Yield x Price Quota 2	1.4	tons	88	123
Yield x Price Non-Quota	1.7	tons	100	170
Total Gross Output	2	tons	89.5	**358**
Variable Costs				
Seed	250	kg	0.235	59
Fertiliser -				0
Ammo Phos	154	kg	0.3	46
Silistra	323	kg	0.14	45
Kali	100	kg	0.13	13
Herbicide	20	g	0.6	12
Fungicide				0
Pesticide				0
Machinery Park costs incl. fuel	1	ha	90	90
Water	4000	m^3	0.005	20
Labour	1	ha	24	24
Total Variable Costs				**309**
Gross Margin				**49**

13

The Cotton Sector in Tajikistan: From Macro-Economic Impact to Social and Environmental Consequences

Nargis Halimova

Tajikistan is a mountainous country located in Central Asia to the west of China which shares borders with Afghanistan, Kyrgyzstan and Uzbekistan. The country is 143,100 square kilometres, with 93 per cent of its territory consisting of mountains and 7 per cent of arable lands, most of which are located in the southwest Vakhsh Valley, extending from the capital, Dushanbe, to the border with Afghanistan. Tajikistan has a continental climate. Temperatures range from between –8°c to –61°c (in the high mountains) in winter and +22°c to +49°c (in low-lying areas) in summer.

The country consists of four regions: the *nohiyas* (districts) under republican control, and the *oblasts* (provinces) of Khatlon, Sugd and Gomo-Badakhstan Autonomous Oblast (GBAO). The total population is 6.34 million. At the beginning of 2001, the majority, 4.65 million, lived in rural areas and 1.67 million resided in urban areas. The predominant religion is Islam (about 90 per cent of population) and the official language is Tajik. Russian is widely spoken in business and government affairs.

Tajikistan's transition to a market economy has been protracted, but reform efforts are continuing to be made. Tajikistan encountered significant challenges in the development of its economy. There is a need to ensure transparency in three key areas of the economy: agriculture, banking and energy.

Household incomes are on the rise, especially from remittances, and there is evidence of declining poverty. The private sector has grown and the banking system has been liberalized and strengthened. The remittances of labour migrants are growing rapidly and small-scale exports have become a major source of household supplemental income.[1]

Tajikistan's Macro Economic Performance

Macroeconomic performance has improved significantly. In 1997–2001, the economic growth averaged about 7.5 per cent and accelerated between 2001 and 2005 (9.2 per cent growth on average since 2001 and 8.6 per cent year on year

in the first half of 2003), supported by increased production of key commodities (mainly aluminum and cotton) and increasing remittances from Tajik labour migrants working mainly in the Russian Federation. Improvements are revealed in fiscal management, the fiscal deficit having been reduced from 3.8 per cent of GDP in 1998 to 0.1 per cent of GDP in 2001 with a surplus of 1 per cent of GDP in 2003. The exchange rate has been relatively stable. Foreign trade regime and prices are liberalized in Tajikistan, besides public utility services. Since independence, the legislation of Tajikistan has undergone dramatic changes. New laws and policies have been developed to meet the requirements of the market economy and the modern socio-economic life of the country.

Poverty

Poverty reduction has been a central concern of government policy. In 2003, 64 per cent of the Tajik population lived below the poverty level as defined by the World Bank (See Table 1).[2] In June 2002, to alleviate poverty and increase the social and economic status of the population, the government adopted the Poverty Reduction Strategy Paper developed with the contribution of the international community in Tajikistan. The country strives to achieve the goals of this strategy, which is focused on improving the living standards of citizens, ensuring the rights of all people to a life free of poverty, hunger and disease, and aiming to attain gender equality.

Extremely low incomes and widespread unemployment in the country have resulted in a high rate of labour migration, as domestic employment with low remuneration does not meet basic household needs, which are measured at US$2.15 per person per day.[3] Labour migration (mainly to Russia) remains a serious issue in Tajikistan. According to unofficial data, the number of migrants in the Russian Federation with Tajikistani citizenship is around one million.

Table 1. **Summary of Poverty Data (adjusted for regional prices)**

Region	Population	Overall Poverty rate 2003	Share of Poor	Decline in poverty rate 1999–2003 %age points	Inequality
GBAO	197,000	84%	4%	–13	0.30
Sugd	2,123,000	64%	32%	–15	0.32
Khatlon	2,169,000	78%	40%	–13	0.35
Dushanbe	630,000	49%	7%	–12	0.37
RRS	1,553,000	45%	17%	–26	0.31
Total	6,672,000	64%	100%	–18	0.35

Source: World Bank, "Tajikistan Poverty Assessment Update," 4 November 2004.

Table 2. **Seed Cotton Production and Yields in Central Asia**

	Kyrgz Rep.		Kazakhstan		Tajikistan		Turkmenistan		Uzbekistan	
	'000 tons	Yield t/ha	'000 tons	Yield t/ha	'000 tons	Yield t/ha	'000 tons	Yield t/ha	'000 tons	Yield t/ha
1992	52	2.44	246	2.21	513	1.80	1290	2.27	4129	2.48
1993	49	2.42	198	1.81	524	1.91	1341	2.31	4234	2.49
1994	54	2.02	208	1.90	531	1.88	1283	2.30	3936	2.56
1995	75	2.24	223	2.08	412	1.52	1293	2.13	3934	2.63
1996	73	2.30	183	1.77	318	1.39	436	0.84	3350	2.25
1997	62	2.50	198	1.93	353	1.62	635	1.10	3639	2.40
1998	75	2.46	162	1.41	383	1.56	707	1.21	3206	2.09
1999	87	2.51	249	1.77	316	0.98	1300	2.37	3600	2.37
2000	88	2.60	287	1.87	335	1.38	1030	1.79	3006	2.11
2001	86	2.60	420	2.27	453	1.67	1800	2.34	3300	2.30

Source: Cotton in Central Asia, a Review of Policy and Technology in Central Asia, December 2002, p. 17

The Cotton Sector

To a certain extent, the spread of synthetic fibres has caused a decline of cotton in the textile market. However, cotton remains an important fibre of which China, the United States, India, Pakistan and Uzbekistan are the main exporters. Cotton production on irrigated land remains a mainstay of Tajikistan's agricultural economy although the yields remain low by international standards. Table 2 provides data on seed cotton production and yields in Central Asia.[4]

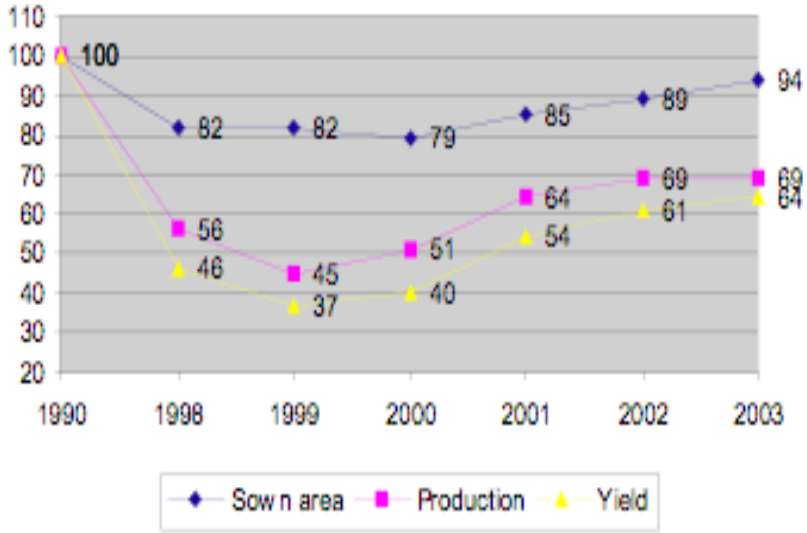
Seventy-three per cent of the population of Tajikistan relies on just 7 per cent of the country's arable lands. The predominantly rural population is heavily dependent on agriculture for subsistence. The agricultural sector, while employing 52 per cent of the total labour force, contributed 21.6 per cent of GDP in 2004. The agriculture sector of Tajikistan is a cotton monoculture and, along with other products like aluminum, electricity, mineral products and precious stones, cotton is one of the country's main export products.

From Macro-Economic Impact to Social and Environmental Consequences

Tajikistan was one of the largest cotton-producing republics in the Soviet Union with a production level of up to one million tons in 1980. In 2004, Tajikistan produced 556,991 tons of cotton (91.3 per cent of target), of which 60 per cent was grown in Khatlon oblast, 30 per cent in Sugd oblast, and the remaining 10 per cent in the districts under republican control.[5] This yield did not reach the production target of 610,000 tons. The average yield per ha in 2004 was 1.9 ton, which is very low by world standards.[6] Figure 1 provides data on cotton growing in Tajikistan for 1998–2003.

Cotton export earnings fell because of the drought in 2000 and a 35 per cent

Figure 1. **Cotton Growing in Tajikistan, 1998–2003 (1990=100%)**



Source: Database of Commodity and Raw Exchange of the Republic of Tajikistan, March 2005

fall in prices in 2001. Nevertheless, cotton and aluminum are the country's two main exports and account for 70 per cent of GDP and over 70 per cent of total export earnings.[7]

Cotton dominates as an export crop and its production is a government priority. In 2004, 284,367 ha of arable land were planted with cotton. Agricultural land, which is mostly occupied by the cotton sector, is of low productivity. A number of factors contribute to this and reduce the profitability of cotton farms. The global rise of prices for inputs, like fuel, and the decline of cotton fibre prices have had a significant impact on the profitability of Tajik cotton farms. Moreover, the internal factors mentioned below are critical in reducing farm performance in Tajikistan. Other factors, including the lack of increased capacity, management, mechanization, adequate irrigation and drainage system, etc. also result in decreased farm productivity and profitability. Consequently farms fail to pay loans on time and become indebted. Debts grow and farmers' harvests only go towards paying debts. Moreover, the debts of reorganized large farms are inherited by newly formed farms together with the land title.[8]

Other constraints on private farming include high transport costs, border taxes and delays, and the reluctance of smallholders to act in concert to improve their conditions after generations of government domination.

According to the statistics of the National Bank of Republic of Tajikistan, the debt of the cotton sector to private companies amounted to US$186,016,155 on 1 September 2004.[9] Accumulated farm debts threaten the sustainable growth of agriculture and rural livelihoods. The World Bank and Asian Development Bank committed substantial funds and resources to the farm-restructuring process and to the resolution of farm debts. The World Bank has developed pilot projects including the Farm Privatization Support and Farmers Ownership Model projects, while ADB is undertaking a project for the rehabilitation of irrigation systems.

Debts inherited from the kolkhoz became a huge problem that is being discussed at high government and donor level in Tajikistan. In May 2005, the Government of Tajikistan adopted the Strategy for Cotton Farms Debt Resolution.[10] As farms need to pay their debts, they have few resources for the payment of wages. New land tenures are imposed with the debts of reorganized farms.

The rural population, who is generally composed of the poorest people in the country, provides most of the manpower to the cotton fields. However, cotton revenues do not reach the farms and farmers' households, which consequently worsens their state of poverty.

Gender issues are unavoidable in the cotton sector. The majority of the male labour force leaves the country as labour migrants in search of comparatively well-paid jobs. Although women make up about 90 per cent of manpower in the fields, especially in the cotton-growing districts, a number of factors contribute to deprive women of their civil rights. However, article 17 of the Constitution of the Republic of Tajikistan establishes the equality of all people before the law; the state guarantees the rights and freedom of everybody regardless of their nationality, race, sex, language, beliefs, political commitments, education, social and property status. A number of other laws and normative acts, such as the Civil Code of the Republic of Tajikistan and the Land Code of the Republic of Tajikistan, guarantee equal ownership rights to citizens regardless of their sex.

Tajikistan has ratified a number of international conventions and treaties on human rights, and has been a member state of CEDAW since 1993. The establishment at a constitutional level of legal and socio-economic measures for the protection of women's rights is represented by a number of normative acts and laws. At a national level the Government of Tajikistan adopted a number of laws and normative acts to promote women's role and status and ensure gender equality in Tajik society.[11] Despite these efforts, in practice, it is hard for Tajik women, especially in rural areas, to claim these rights, particularly with regard to accessing economic resources. In January 2004, out of 7,173 *dehkan* farms[12] in Khatlon Oblast, only 240 or 4 per cent were run by women. In Sugd Oblast, out of 4,725 *dehkan* Farms, women ran 239 such farms or 5 per cent.[13] Rural women, in particular female-headed households, have to take their children to the field to meet household demands. In Tajikistan, in the mid-1980s, over 300,000 students

were commandeered for periods of up to two months for cotton picking.[14]

Cotton growing is a key industry in the country's economy. Despite the tremendous efforts of civil society, including representatives of the international community which are active in Tajikistan, the country cannot turn away from cotton in the near future. The cotton sector is the key agricultural industry which brings stable foreign currency earnings to the country and is constantly in demand on the world market. Cotton as an export product is a government priority and dominates agricultural production. Although cotton growing in Tajikistan is a large industry, the current situation of the sector is degrading the economic and social environment for the people, has an unfavourable impact on the environment and threatens security.

The Adverse Effects of Cotton

The latest poverty assessment revealed that the poverty rate declined to 64 per cent in 2003 from 80 per cent in 1999. Still, measured by the standard of US$2.15 per capita per day for consumption, Tajikistan remains the poorest country in the former CIS.[15]

Studies reveal links between cotton and poverty. Most of the poor reside in rural areas, in particular in two cotton-growing provinces, Sughd and Khatlon. The poverty rate is 78 per cent and 64 per cent in Khatlon and Sugd compared to 49 per cent and 45 per cent in Dushanbe and the districts under republican control respectively (see Table 1).

In 1996 Tajikistan began land reform, including the reorganization of large collective and state farms (kolkhozes and sovkhozes). Members of reorganized farms are acknowledged as shareholders by law and are given land plots with inherited land use rights.[16] Cotton ginning in Tajikistan was officially privatized in 1998 and all state-owned gins were sold to the private sector by 2000.

While the relevant laws of the country envisage farms as independent entities,[17] in practice the authorities interfere in the activities and decision-making processes of farms. Central Government sets state targets for agriculture and cotton production. Farmers can receive "recommendations" to plant 70 per cent of the farm to cotton. The target for 2004 was 600,000 tons of cotton.

Although there is a market for cotton, due to inequitable business partnerships between cotton buyers and producers, and unjust rent-seeking by "futures" companies and gins, cotton revenues do not reach farmers.[18] Consequently, farmers lose interest which in turn affects yields and increases poverty. This largely affects female-headed households and children, and causes high labour migration rates.

The Ecological Implications of the Cotton Sector

The cotton sector creates ecological problems as well. For the last 15 years the growing of cotton as a monoculture without practices of crop rotation has caused

widespread soil degradation. Soil degradation has captured about 97.9 per cent of the territory of the republic. Annually about 50,000 hectares of cultivated lands are exposed to varying degrees of desertification.[19] Cotton requires considerable irrigation but the poor functioning of irrigation and drainage systems results in soil salinization and waterlogging where arable lands become bogs and increases the risk of ecological refugees.[20]

Having no access to drinking water from pipelines, the rural population uses water from canals which are polluted with fertilizers. This causes a number of water-borne diseases and affects the health of the rural population.

The poor irrigation and drainage networks, as well as excessive water use, lead to rising water tables and extensive salinization of irrigated land. Growing cotton as a monoculture without following the crop rotation techniques leads to the destruction of soil structure and fertility. The intensive overuse of fertilizers and chemicals during Soviet times, salinization caused by poor irrigation systems and wind and water erosion result in widespread land degradation.

The absence of a classification system to judge cotton quality is a major impediment to the assessment of Tajik cotton on the world market and, along with other above mentioned factors, is one of the causes of reduced revenues which damage the country's economy and the people's welfare.

Notes

1 IMF Executive Board Concludes. Article IV Consultation with the Republic Tajikistan, Dushanbe, 2005.

2 World Bank, *Tajikistan Poverty Assessment Update*, Dushanbe, November 2004.

3 *Ibid*.

4 Cotton in Central Asia, a Review of Policy and Technology in Central Asia, December 2002, p. 17.

5 State Statistic Committee of Republic of Tajikistan, *Sel'skoe khoziaistvo (*Agriculture), Dushanbe, 2004, p. 138

6 State Statistic Committee of Republic of Tajikistan, *Khlopkovodstvo* (Cotton growing), Dushanbe, 2004 .

7 "Cotton in Central Asia, a Review of Policy and Technology in Central Asia," December 2002, p. 39.

8 According to the Presidential Decree No. 542 dated 25 December 2003 on "the adjustment of debts of reorganized and to be reorganized farms and agriculture enterprises." However, this is inconsistent with the Civil Code of the Republic of Tajikistan.

9 Statistics of National Bank of Republic of Tajikistan disseminated during the donor's meeting in January 2005, in Dushanbe.

10 For more details, see "Farms Debts Resolution Retreat through Teamwork and Co-operation," 22–24 June, 2005, Dushhanbe. Facilitated by Cloverdale Organization Inc.

11 The Presidential Decree on "Enhancing the status of women in the society of Tajikistan" was adopted in 1999. The Government of Tajikistan approved the "National Action Plan on enhancing the status and role of women during 1998–2005," and the "Main directions of state policy on

guaranteeing equal rights and opportunities for men and women for 2001–2010" on promotion of gender equality. In May 2005 the Government of Tajikistan adopted the Law "on Gender Equality".

12 *Dehkan* farm refers to a farming entity which can be of three types : Individual *Dehkan* Farm, Family *Dehkan* Farm and Collective *Dehkan* Farm, depending of the decision of land shareholders according to the Law "on *Dehkan* Farms", Dushanbe, May 2002.

13 Amendments on Access of Rural Women to the mentioned State Programme on "Main directions of state policy on ensuring the equal rights of women and men in Tajikistan for the year 2001–2010".

14 "Cotton in Central Asia, a Review of Policy and Technology in Central Asia," December 2002.

15 World Bank, Tajikistan Poverty Assessment Update. Dushanbe, November 2004.

16 According to the Constitution of Republic of Tajikistan (RoT), land is state ownership.

17 Land Code of RoT, Land Reform Law of RoT, Law about *Dehkan* (Private) Farms of RoT.

18 "Futures" companies provide in-kind credit; when supplying inputs they inflate the prices, cause delays in the delivery of inputs, and fail to deliver inputs of an acceptable standard. Gins, which are mostly owned by "Futures" companies, apply unfair business approaches with cotton producers: cotton producers are not paid for their produce, their cotton sort is often downgraded, ginning takes about 180 days which reduces the quality of cotton. Unfortunately, farmers have little power to claim their rights through the judicial system.

19 National Action Programme to Combat Desertification in Tajikistan, Dushanbe, 2000.

20 For instance, in Kolkhozobod, Yovon, Bishkent, Vakhsh, Asht districts. Interview with Shukurov Rahmon, Land management specialist, Candidate of agriculture sciences. Dushanbe, Tajikistan, July 2005.

14

The Role of Children in Uzbekistan's Cotton Harvest

Elliott Cannell

Selling over 800,000 tons of cotton fibre every year, Uzbekistan is the world's second largest cotton exporter.[1] These sales generate over US$1 billion annually[2] and represent around 60 per cent of the country's hard currency export earnings.[3] Yet despite its position at the forefront of global cotton exports, Uzbekistan's methods of cotton production remain among the least sophisticated in the world. While other major exporters, such as Australia and the USA, have entirely mechanized the harvest of the cotton they produce,[4] the Uzbek regime has continued with the Soviet policy of recruiting schoolchildren and students to pick the cotton by hand. Labouring in often appalling conditions, and for little financial reward, youths and students in most rural areas are mobilized by their government and forced to spend the autumn months working in the cotton fields.

Despite the seriousness of this exploitation of children, and the fact that Uzbekistan is a signatory to the UN Convention on the Rights of the Child, the realities of the Uzbek cotton harvest receive little scrutiny from the global media, outside governments, intergovernmental bodies, international financial institutions, or major clothing retailers. Indeed awareness of the issue is so low that the government of Uzbekistan has adopted the position of denying that the problem even exists. When asked about the use of children in the cotton harvest, an official spokesperson for the Uzbek embassy in London told EJF, "We do not use children's labour."[5] This sentiment is echoed by many of the companies involved in purchasing cotton from the Uzbek administration. One major cotton trader based in Switzerland recently claimed to be unaware of the use of child labour in the region, saying, "We buy our cotton from government agencies and don't know what happens out in the fields."[6]

Uzbekistan's denial of its use of children as manual cotton harvesters, and the severe restrictions placed upon the country's media, mean that reports of forced child labour are often partial, or circumstantial. The situation is further complicated by the fact that cotton production is not centrally organised, but placed under the control of regional officials. This paper brings together information published by various organizations, and evidence collected during interviews conducted by the Environmental Justice Foundation (EJF) in Uzbekistan in Oc-

tober 2004, in order to provide a broader picture of the use of forced child labour under President Karimov. It includes a brief analysis of the different policy options available in seeking to end the involvement of Uzbek children in cotton harvesting.

The Orchestration of State Sponsored Child Labour

Officially the government of Uzbekistan denies using forced child labour in the autumn cotton harvest.[7] However, this claim is contradicted by statements made by Uzbek NGOs: 18 of which signed a 2004 petition urging the world community to boycott Uzbek cotton on the basis that it is produced in conjunction with forced child labour.[8] Their assertion is confirmed in numerous reports from highly credible sources. According to a recent document from the United States Department of State, the large-scale compulsory mobilization of youth and students to help in the cotton harvest occurs in "most rural areas."[9] This concurs with UNICEF estimates that in 2000, almost one quarter of children between 5 and 14 worked at least part-time, primarily in the cotton harvest. Photographic evidence obtained by numerous independent photojournalists and by EJF also show fields of young children picking cotton.[10] In October 2004, EJF interviewed children in the regions of Ferghana, Namangan and Tashkent, all of whom where being forced by their government to pick cotton. One child told EJF, "My teacher brought me here and told me to pick cotton."[11]

Whilst a substantial body of evidence exists to demonstrate Uzbekistan's use of forced child labour, it is probably impossible to ascertain the precise number of children coerced into picking cotton. Certainly no official figure is available. Most existing estimates relate only to one of the country's 13 administrative regions. The only statistic known to the authors which attempts to relate a national figure is that produced by UNICEF, which estimates that in 2000, 22.6 per cent of Uzbek children ages 5 to 14 worked at least part-time, primarily in cotton harvesting. This figure equates to over 1.4 million children involved in child labour.[12] While this number does not relate exclusively to those children coerced into harvesting cotton, a figure of this magnitude would not appear out of line with historical or contemporary data. According to statistics from the Soviet era, in 1986 and 1987, 650,000 to 700,000 schoolchildren, and 140,000 college and vocational school students harvested cotton in the Uzbek republic.[13] In the same years the proportion of cotton harvested by machine stood at 42 per cent and 45 per cent respectively. Since then the degree of mechanized cotton harvesting has fallen substantially; one Uzbek human rights activist interviewed by EJF reported that as little as 10 per cent of Uzbekistan's cotton harvest is now gathered by machine.[14] Data relating to specific regions include an estimate produced by human rights defenders in Ferghana region, stating that in 2001, 198,055 school children were working in cotton fields in that region alone[15]; an area whose cot-

ton quota represents less than 10 per cent of the overall national figure.[16] A similar estimate suggests that in 2004, 60,000 children and students were picking cotton in the province of Jizzakh.[17] Reports also suggest that the use of children in picking cotton has increased in recent years. One NGO worker interviewed by EJF explained "It's getting worse and worse. Before they sent children from 9th to 11th classes, but now they're sending third class children as well. Children nine years old have no lessons and are also involved in cotton campaigns."[18] While none of the above statistics offers an clear insight into the extent to which children are currently used in cotton harvesting, together they point towards an annual figure running into hundreds of thousands.

The circumstances under which schoolchildren are made to work during the cotton harvest are not fully documented. This relates in part to the organization of Uzbek cotton production. For while the country's central government is responsible for issuing regional cotton production quotas, it is Uzbekistan's provincial governors who are charged with the actual organization of cotton production and harvest. Because of this it is likely that measures taken to motivate children vary throughout the country. Attempts to investigate the mobilization of children are further complicated by the fact that these orders tend to be given orally at the local level, so that written evidence is difficult – or impossible – to obtain.

The official government line is that students picking cotton do so out of loyalty to their parents or their community. But the notion that schoolchildren partake in the cotton harvest on a voluntary basis is severely undermined by reports that outline state orchestrated strategies which leave children little alternative but to work. According to a study by International Crisis Group (ICG), during the cotton harvest government officials order the closing of schools and universities. This practice is also documented in a report by six journalists from the Institute of War and Peace Reporting (IWPR). The study, described as a "wide ranging investigation' found that many schools, both senior and junior, are closed until December.[19] The paper states that having shut down the schools, regional officials charge headmasters with the responsibility of ensuring that students pick the required daily amount of cotton. Pupils who fail to deliver their quota of cotton or who pick a low quality crop are reportedly punished with detentions and told that their grades will suffer. And those who run away from the cotton fields, or who refuse to take part, face expulsion.

While local children are known to return home in the evening, older children, and those conscripted to work in more remote areas are reportedly housed in makeshift barracks, often with extremely poor living conditions. A teacher from the Syrdarya Province interviewed by ICG reported that schoolchildren were taken to a farm 25 kilometres from their home village, where they slept on the floor of an abandoned kindergarten and were fed low quality food. Other students are accommodated in farm storehouses, without glass in the windows or doors.

As one Uzbek human rights defender interviewed by EJF explained, "According to our monitoring, we found that in the cotton fields the living conditions are bad and the food quality is very low. We have reported this to the appropriate state bodies, but it is clear that nothing has changed." Others suggest that the quality of food provisions has deteriorated since Independence. A human rights defender interviewed by EJF explained, "You saw what they eat. They don't even have hot food. Even in Soviet times there was hot lunch for the cotton pickers. Here they have bread and tea in plastic bottles". Access to drinking water is also a problem. An investigation conducted by the Karshi city branch of the Uzbekistan Human Rights Society found an almost complete lack of clean drinking water in the Nishan region. Other documents report cases where children lack access to drinking water in the fields, and thus resort to drinking contaminated water from open irrigation ditches[7]. These claims were confirmed by a Jizzakh-based human rights worker interviewed by EJF.

As a result of arduous work and poor living conditions, many children are known to suffer illness and malnutrition. Others experience chronic diseases such as intestinal and respiratory infections, meningitis and hepatitis.[20] Inadequate clothing leave some susceptible to rheumatism and conditions associated with exposure to damp and cold conditions. In the most extreme cases children die during the harvest. One human rights organization confirmed the deaths of eight Samarkand children and students while picking cotton over a two-year period. According to independent journalists, local authorities are so desperate to hit regional production targets, that they are reluctant to even send sick children to hospital: while their labour is much needed, their health is given a low priority.

Perhaps the most serious reported health risk centres around children forced to handle potentially dangerous chemicals. In June 2004, IWPR journalists documented the case of children in the Rishtan district of Ferghana who were set to work spraying the cotton crop with pesticides.[21] One student described how she and her friends were issued with plastic water bottles filled with chemicals. The containers had holes drilled into the caps so that the children could go up and down the rows spraying the plants. One child complained that "Its so hot in the fields and the chemicals burn your skin if they touch it." Other children complained of the smell and that their hands turned white.[22] The chemical constituents were not revealed to the children or their families, but one government scientist insisted that dilution meant that children would suffer no ill-effects. IWPR reports of children forced to apply pesticides were confirmed by Uzbek NGO workers interviewed by EJF.

Attempts to establish the level of remuneration received by Uzbekistan's child cotton harvesters reveal a range of rates of pay. One human rights defender put the rate of payment at 35 sum per kilo (US$0.03). But in interviews conducted by EJF in October 2004, children picking cotton described various pay-

ment regimes. Those in Ferghana claimed to work from 7am to 5pm in return for between 100 sum (US$0.8) and 200 sum (US$0.16).[23] Others in the same region said they were paid around 42 sum per kilo (US$0.035). In Namangan EJF heard reports of children receiving 30 sum per kilo (US$0.025), 50 sum per day (US$0.04), and 180 sum for five days work (US$0.15). Low levels of payment are further depreciated by the fact that many children are expected to underwrite the costs of food supplies they consume. Some claim to receive nothing once these deductions are made and parents note that payment often falls far below the cost of replacing clothes damaged.

Policy Solutions

Those best placed to address the problem of forced child labour in the Uzbek cotton harvest are the members of Uzbekistan's ruling elite. While politicians at the centre of the administration are not directly involved in the mobilization of school children, they do hold the power to prosecute those regional officials responsible under the UN Convention on the Rights of the Child. In response to the substantial evidence documenting the exploitation of children during the cotton harvest, Uzbekistan's central Government should declare its intention to implement the Convention and charge those officials found to be involved. The government should further underline its commitment to eradicating child labour by ratifying ILO convention C138 on the "Worst Forms of Child Labour," and by inviting international organizations such as the OSCE to monitor and report on labour conditions in the cotton harvest.

Unfortunately Karimov and those close to him are unlikely to take any measures to curb the problem, not least because they have a tremendous financial disincentive to act. Given this situation, action should be taken on the part of international cotton traders, textiles manufacturers and retailers to exert influence over the government of Uzbekistan. These businesses could take steps to address the problem by undertaking an independent review of their cotton suppliers to seek assurances that cotton is produced under international labour norms. Where such assurances cannot be provided, cotton traders, textiles manufacturers and clothing retailers should seek alternative sources. In addition members of the business community should work with civil society organizations to develop an effective product labelling system guaranteeing that neither child nor forced child labour is used at any stage of the production process, and whereby consumers are informed of the origins of all cotton products.

National governments should also take steps to exert pressure to end Uzbekistan's exploitation of children. Both individual governments, and government organizations such as the EU, should seek to implement an immediate ban on the import of goods produced under child labour. Governments should then instigate the creation of legal mechanisms by which those importing products

made by children could be identified and prosecuted, and work within the WTO to introduce conditions on trade that would punish producers and manufacturers who use child labour at any stage of the supply chain. Specific trade sanctions against Uzbekistan should also be considered until such time as the country can demonstrate that cotton production is not associated with child or forced child labour.

Effective measures are also available to ordinary consumers. By demanding that all cotton products are clearly labelled, stating the country of origin, and that they have not been produced under child labour, consumers could use their spending power to motivate retailers into investigating their cotton supply chains. Where retailers find themselves unable to guarantee that cotton products do not derive from child labour, they would then be forced to find alternative sources or risk the adverse economic consequences of being linked to child labour.

Conclusion

While there has never been an exhaustive study into the use of forced child labour in Uzbekistan's cotton harvest, a substantial body of credible evidence now exists to demonstrate the scale and severity of the problem. A large number of children, probably hundreds of thousands, are mobilized by government officials and forced to labour in the cotton fields. These students are exploited financially: many endure unacceptable living conditions, are provided with low quality food, and commonly given no access to clean drinking water. In some regions children may be placed in close contact with hazardous chemicals. Given the gravity of the situation, immediate action should be taken by a variety of constituencies including Uzbekistan's central government. Western governments, corporations and consumers should implement measures designed force Uzbekistan's government to act.

Notes

1 This figure represents a ten year average (1995–2004) using data taken from United States Department of Agriculture (Foreign Agricultural Service), *Cotton: Production, Supply and Distribution*, 2005.
2 United States Department of Agriculture, *Cotton and Wool Yearbook*, 2004.
3 Economist Intelligence Unit, *Uzbekistan: Country Profile*, 2004.
4 R. Pomfrett, "State-Directed Diffusion of Technology: The Mechanization of Cotton-Harvesting in Soviet Central Asia," *Journal of Economic History*, 62(1), 2000, pp. 170–188.
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Appendix

Summary of Papers Presented at the Conference

The purpose of the conference was to raise public awareness and build the capacity of civil society to participate in policy evaluation by developing its expertise and ability to make policy initiatives in the cotton sector. Papers focused on the political economy of cotton production and the nexus of economic, political, social, environmental and legal issues surrounding it. The conference aimed to build a network of local and international experts concerned with cotton as a commodity chain (from production to intended market destination). Furthermore, it is hoped to develop the network's professional capacity and reach by equipping advocacy campaigns with the necessary intellectual capital and to help mobilize civil society in the pursuit of genuine development goals.

The conference was comprised of seven panels covering issues from macro- and micro-economy, investigating the commodity chain from the domestic procurement system to international markets. How is property in land regulated? What types of issues of labour control does cotton agriculture pose? How are natural resources mobilized, and what are the implications for environmental resource management? How are the benefits of the cotton sector redistributed? What is the potential for vertical linkages with industries which have the capacity to absorb labour and generate new employment? These are some of the issues which were discussed by different panels of the conference.

The **Panel 1 "The Cotton Sector in Development: Asset or Liability?"** was opened by Deniz Kandiyoti whose presentation highlighted the conceptual link between the cotton sector and issues of development in Central Asian nations. She noted that despite an acknowledgement that Central Asian countries have emerged from the break-up of the Soviet Union mainly as primary commodity producers, there is relatively little work on the political economy of transition in the region. The type of comparative work we see coming out of East/Central Europe such as Stark and Bruszt's *Postsocialist Pathways: The Relationship between Politics and Property*[1] is still quite exceptional in the context of Central Asia and the Caucasus. Yet, it is a matter of great urgency, in both academic and policy terms, to have a more robust engagement with the implications of the different pathways adopted by the countries of the region as they fall back

on their own resource bases and reform their institutions (or fail to do so) at different paces. When it comes to primary commodities, oil and gas have received disproportionate attention. Both in the broader political economy literature (on oil economies and regime types), and in regional studies, they are often seen through the prism of global and local corporate interests in the oil sector. Yet agricultural commodities and cotton present a range of extremely complex problems with important implications for the livelihoods and well being of ordinary people. The cotton sector includes a wide variety of institutional arrangements around cotton as an export commodity – from the way labour is deployed at the farm level to the global market networks for cotton – that have a decisive bearing on whether (to paraphrase the title of the first paper) cotton represents a developmental opportunity or a curse.

Finally Kandiyoti expressed a hope that having a group of policy makers, academics, and members of Northern and local NGOs would initiate and facilitate a policy dialogue on a critical topic upon which the livelihood and welfare of many ordinary citizens in Central Asia depends.

The introductory word was followed by Max Spoor who in his paper "Cotton: Curse or Foundation for Development in Central Asia?" opposed the report on the cotton sector in Central Asia issued by the International Crisis Group in 2005. He argued that, despite all its deficiencies, the cotton sector in Central Asia, especially in Uzbekistan, played a significant role in smoothing the hardships of the transitional period after the dissolution of the Soviet Union. In his dispute with ICG the matter is the perception of reality: is the glass half empty or half full? Spoor belongs to the second camp: for him the cotton sector is in principle an engine or foundation for development and growth, and in practice it has indeed played such a role in recent years in Central Asia. He regards the option of 'Down with cotton, long live the orchards' as unrealistic, and argued that a drastic reduction of cotton production is not the solution and in fact creates other problems (unemployment for example). Spoor suggested that cotton will remain a fundamental part of Central Asian economies, but the challenge is to improve the social conditions, productivity, water losses and environmental impact. Cotton can even become an engine of agro-industry led growth, and the first sign of that is increased FDI in the textile industry.

Mike Thurman in his paper "The Role of International Financial Institutions in the Production and Marketing of Cotton in Central Asia" questioned the motives of IFI initiatives and investments in the cotton sector in Central Asia. He outlined these motives as: economic development – recognizing the prominence of the sector within national economies; environmental amelioration and social and human development – tackling the widespread environmental and social maladies associated with irrigated cotton cultivation; and poverty reduction – harnessing the potential for more significant improvement in rural incomes

accrued from efficient, sustainable cotton production than from the cultivation of other field crops. Thurman pointed out the following **policy recommendations** for improving the cotton sector by IFIs: 1) stabilization; 2) privatization, liberalization and marketization; 3) decentralization; 4) amelioration, 5) alleviation. In order to improve the investment climate in the sector the following measures are suggested: 1) remove subsidies, 2) target distortions, and excessive transfers; 3) provide reform land rights; 4) restructure production co-operatives into private farms; 5) eliminate production quotas/goszakaz; 6) introduce alternative input supply; 7) introduce integrated pest management; 8) liberalize input and farm-gate prices; 9) establish farm-gate linkage with world markets; 10) improve classing of cotton; 11) privatize and refurbish cotton gins; 12) reform and create banks and credit; 13) encourage collateralization; 14) improve water management practices; 15) rehabilitate water management infrastructure; 16) facilitate Irrigation Management Transfer (WUAs); 17) reform agricultural institutions; 18) make research and extension responsive to user needs.

Panel 2 was devoted to **Export and the International Environment.** John Baffes presented a paper entitled "Cotton-Dependent Countries in the Global Context" which provided a useful introduction to the current international institutional environment of the cotton market. Special attention was paid to the dispute within the WTO between the USA and developing countries over US subsidies to American farmers. The solving of this dispute on a global scale (including the European subsidies to farmers) for the sake of developing countries is expected to result in the depression of world cotton by 10–15 per cent that would benefit producers in the third world, including Central Asia.

Alisher Ilkhamov, in his paper "Cotton and Textile Fair Trade and Labour Standards: Implications for Central Asia" took up the issue of the redistribution of cotton trade revenue on a global scale by raising the question: who would then benefit from this redistribution within developing countries like Uzbekistan, farmers or a narrow circle of elites controlling the cotton sector? According to Ilkhamov, fair trade assumes not only the removal of barriers for free trade but also liberalization of national cotton sectors and observance of core labour standards. Uzbekistan doesn't observe these standards and has still not signed the ILO covenants No.132 and 182 on the abolition of child labour and No.87 on freedom of association and collective bargaining. Two possible strategies can be applied internationally to convince the government of Uzbekistan to observe these core standards: fair trade labelling campaigns and using key international institutions and players – WTO, ILO, United States and European Union. Ilkhamov suggested a five point policy agenda in this respect: 1) remove trade barriers; 2) abolish subsidies to national farmer sectors; 3) comply with core labour standards; 4) avoid arbitrariness; 5) use trade sanctions selectively and

in a limited format, distinguishing between comparatively wealthy (Asian) and poor (African) developing countries.

The last speaker on this panel was Mavlyuda Kulikova in whose paper, "The Legal Framework of Uzbek Cotton Procurement and Export," three stages of the evolution of the cotton procurement and export was considered. The paper demonstrated that despite a number of measures on marketization and liberalization of the cotton sector, the government has always kept strict control over exports.

Panel 3 switched attention to **The Role of Domestic Policies.** The first speaker, Sandjar Djalalov, presented in his paper "Implicit Taxation of Uzbekistan Cotton Sector: Estimation and Policy Consequences" some statistics comparing the procurement systems for cotton and grain. Although both sectors are highly centralized, cotton output is wholly purchased by the state, while in the case of grain half of the output is left to producers for their own consumption and marketing. In 2003, the state purchased cotton from farmers at 39 per cent of the world price, and in 2004 at 75 per cent. Low purchasing prices have contrasted with input prices. As an immediate measure removal of the state-order system is suggested. This will lead to elimination of indirect taxation. It is supposed then that tax revenues will increase and the state will receive required profits thanks to an increase of the land tax or export duties, as well as of productivity.

Alexander Kim presented a paper "Abandoned by the State: Cotton Production in Southern Kyrgyzstan." According to his data, in the post-Soviet period the cotton-sector has expanded: land under cotton increased by 78.8 per cent, yields for raw cotton – by 92 per cent, and production of cotton fibres – by 151.3 per cent. But the lion's share of the gain has fallen into the hands of the cotton gins controlled by a narrow group of private business. Farmers have barely made ends meet. Due to the small land plots used by most farmers (the average size less than one hectare) and their low incomes, farmers were not able to use machinery during the harvesting period to develop a modern agronomy.

Similar issues were met by Kazakh farmers, as Olga Dosybieva reported in her paper "The Cotton Sector in Kazakhstan: The Thorny Way to the Market Economy." On the one hand, the cotton sector in southern Kazakhstan has been expanding (from 323.6 thousand tons in 1990 to 466.1 thousand tons in 2004) and proved to be profitable for all parties: farmers and cotton gins. The relations between them were even more harmonious: the owners of cotton gins served as loan providers not only for production-related purposes (as futures deals), but in a wider scale – for emergency occasions, like weddings and funeral ceremonies. After years of disregard from the state, when the cotton sector not only survived but started to grow, the state finally began paying attention and interfering in the sector. The government decided to increase the size of cotton farms and restrict

the activity of the cotton-gins. Farmers and gins fear that behind the recent initiatives of the governments stand the power interests of elites who may try to impose the redistribution of the cotton revenues of producers.

Discussions during **Panel 4** provided deeper perspectives on the **Organization of Production,** looking particularly at issues of **labour and productivity**. Tommaso Trevisani's presentation based on his field work in the Khoresm region of Uzbekistan, "The Emerging Actor of Decollectivization in Uzbekistan: Private Farming between Newly Defined Political Constraints and Opportunities." charted the emergence of a new farmer class. He qualified the emergence of private farming in Uzbekistan as decollectivization but not privatization. This is because private farmers in Uzbekistan have so far been deprived of their right of private ownership with respect to land, cotton, grain output and income (due to the quota system, imposition of state orders and restrictions on bank accounts). At the same time, intermediary institutions in the distribution of land and water resources such as shirkats (collective farms) are disappearing. Despite cotton's low profitability for farmers, its planting can be acceptable for farmers if matched with other crops. Another benefit related to cotton is access to subsidized inputs. Trevisiani noted the issue of inequality in land distribution as a majority of the rural population are excluded from ownership of farmland.

Iskandar Abdullayev's paper "Cotton in Uzbekistan: Water and Welfare" was devoted to an analysis of the decline of Uzbek cotton production. Abdullayev considered two reasons for this: 1) the continuation of ineffective policy toward the cotton sector and 2) outdated irrigation and water management systems, especially drainage ones. The shift from large collective farms towards family organizations has resulted in a vacuum of responsibility and organization in the operation and maintenance of some irrigation and drainage systems.

Daur Dosybiev brought the attention of the conference to the issue of "Uzbek Labour Migrants in Kazakh Cotton Fields." He noted that Kazakh farmers gladly hire unemployed citizens of Uzbekistan since they are paid three times less than local workers. Uzbek migrants are also satisfied: at home they are paid even less. He distinguished three categories of Uzbek labour migrants: 1) relatively well-off Uzbek farmers who are hired along with their entire families every year by the same farms (around 30 per cent of all Uzbek migrants); 2) those who arrive in Kazakhstan illegally and are hired by small and medium farms (around 50 per cent); and 3) those without documents who agree to work for free board and lodging (about 20 per cent). In 2004, more than 4,000 illegal migrants were identified in southern Kazakhstan. The real number of illegal migrants, however, is much higher. In August 2005, the regional employment authority announced that 12,000 people who do not have a permanent job must take part in the cotton harvest in southern Kazakhstan. Illegal workers receive

US$0.03 per kg of picked cotton. In a month an experienced worker earns up to US$200. In comparison, Kazakhstani workers are paid US$0.06 per kg as a minimum wage. Kazakhstani farmers, Dosybiev argues, sometimes use forms of exploitation that openly resemble slavery. It is not unusual for an employer to report his workers to the police at the end of the season if he knows that they have entered Kazakhstan illegally. In that way, he does not have to pay for their work. Representatives of the law-enforcement bodies do nothing to combat the situation, accepting bribes from the farmers instead. Farmers see little reason to register their workers: registration only leads to an increase in expenses and taxes. Kazakh law does not account for the status of labour migrants; their employment is not recorded anywhere; the whole process of recruitment is based on a verbal agreement between workers and employers. Accordingly, the rights of Uzbek citizens working on the cotton fields of Kazakhstan are not protected in any way.

The **Panel 5, Governance Issues: Case Studies**, brought examples from Tajikistan, Turkmenistan and Uzbekistan. Michael Hall discussed "Governance and the Cotton Sector in Tajikistan" and described the lack of experience, decision-making capacities and awareness of the current government in coping with new realities related to the emergence of new actors and processes – private and foreign investors, private farming etc. Despite a series of reforms intended to end state interference in the cotton sector in Tajikistan, little has in fact changed. State quotas for cotton production are still in place, enforced by a variety of coercive measures. Local administrators are often closely linked to so-called "futures companies," meaning that farmers have few options when it comes to securing inputs and selling their crop. Farmers themselves, used to being members of collective farms, generally lack the skills and knowledge needed to become independent managers. A combination of bad governance, exploitative labour practices, and farmers' inexperience has resulted in farmers running up a massive debt to local "futures companies." The situation is particularly grave for women, who perform most of the manual labour in the cotton fields for little or no compensation. The lack of incentive on the part of farmers means that production quotas are rarely met, and Tajikistan's cotton production, potentially an important source of revenue, is steadily declining. If Tajikistan is to make genuine progress towards alleviating rural poverty and increasing food security, it will need to accelerate and deepen the reform process in the agricultural sector.

Farid Tukhbatullin next presented a paper entitled "Turkmen Cotton: Treasure Turned into Burden." He said that Turkmenistan's actual cotton output constantly fails to reach the goals set by the government. In 2005, 723 thousand tons were picked, which is three times less than government targets. The reason for this is low productivity – 9.4 metric quintals per hectare against expedited

28.5 metric quintals. Management in the cotton sector is highly centralized, as in Uzbekistan, and the government imposes artificially low purchasing prices that reduce incentives for farmers. Another reasons for low productivity is the absence of crop rotation and the nature of the administrative system in the country, notably the frequent change of *khyakims* (heads of local administrations). A newly appointed khyakim knows in advance that he will not remain in office for a long time, thus he has little concern for the improvement of agriculture or the prosperity of peasants. In practice, khyakims care more about fulfilling their own needs during their post.

Raphaël Jozan's paper considered the challenge of "Recombining Socio-technical Networks of the Uzbekistani Agrarian System: The Ferghana Valley during the Transition Period." The paper was written with co-authors Roman Florent, Samuel Martin, Oliver Munos, and Marie Panarin. It proposed to tackle both the dynamics and the inertias of Uzbekistanis cotton sector (and the agrarian system in general) through a multi-scale analysis requiring a multidisciplinary approach. This would cover processes of production, commercialization and administrative spheres. Uzbekistan's path of agricultural transition is quite special when compared with other countries of the Former Soviet Union. The agricultural sector is still heavily administrated and most productions are planned by the state. The authors challenged the categorization of farming institutions into three major levels of farming production: household smallholdings, private farmers, and shirkats. In fact, they argued, taking into account second crop land tenure, forms of farming are becoming more complicated. The authors also touched the issue of corruption and bribery in the cotton sector, arguing that they are higher in shirkats, than in private farms. Corruption may exist for the sake of the fulfilment of a plan implemented often thanks to the illegal trading of cotton.

Ian Houseman, in his paper "Demonstration and Advisory Services in the Cotton Sector – A Case Study in Ak Altin, Uzbekistan," shared his experienced and observations during his work with the ADB funded Technical Assistance project, Institutional Support for Sustainable Agricultural Development.

Panel 6 focused on the **Socio-Political Context**. Tashpulat Yuldashev presented a paper entitled "Uzbek Cotton: On the Crossroads of Vested Interests." One of the obstacles in achieving higher productivity in Uzbekistan is the priority of vertical and monopoly relations over market relations. The existing procurement system makes the farmers losers, and those associated with key management institutions winners in the distribution of cotton revenues. The main share goes to a narrow elite circle, while other powerful actors are engaged in illegal redistribution using tricks such as misreporting on fibre output from the raw cotton: from every three tons of cotton wool it is possible to produce 1,100 kg of lint, not 1,000 kg as it is usually indicated in reports. Just by these means officials

embezzle around 125,000–130,000 tons of cotton per year, or up to US$140 million. Another way is to cheat cotton growers when defining the quality grade of the cotton. In 2004 the Khlopkoprom (the state owner of most cotton gins) paid US$235 per ton of the first grade of raw cotton, but the respective prices for the 4th–5th grades is only US$60–70. The procurers representing cotton gins often challenge fair assessment of the quality of received cotton, and after the first rains assign only the lowest grades. The estimated difference on a national scale is US$200m. It is hidden from state records and is embezzled by cotton dealers. Further misinformation of official statistics relates to the development of the textile industry. According to official data, for the last three years the textile industry increased to 21 per cent of total output, the manufacturing industry increased to 21 per cent, and the light industry sector processed 24 per cent of cotton lint. This data contradicts the data of cotton lint export, the level of which does not drop. In fact the share of light industry in GDP in comparison with 1990 has five times decreased, and many previously well-to-do textile manufactures have declined.

In his paper "A Caste of Helot Labourers: Special Settlers and the Cultivation of Cotton in Soviet Central Asia: 1944–1956," J. Otto Pohl presented a very important historical perspective on forced labour in the cotton fields. The history of forced labour in Uzbekistan started with the first national deportations to Central Asia during 1940s, although the labour of special settlers was used in the 1930s as well. The main ethnic groups deported to the region were Karachais (total number 68,938), Crimean Tatars (188,626), Meskhetian Turks (94,955), and Russian-Germans (203,796).

In the last set of papers, **Panel 7**, the **Social and Environmental Impact** of cotton was addressed. Nargis Halimova presented "The Cotton Sector in Tajikistan from Macro-Economic Impact to Social and Environmental Consequences." Cotton production in irrigated areas remains the mainstay of the agricultural economy in Tajikistan, although suffering low yields according to international standards. The agricultural sector employs 52 per cent of total labour force and contributed 21.6 per cent of the GDP in 2004. Cotton is a monoculture in the agricultural sector and along with other products like aluminium, electricity, mineral products, and precious stones, it is a main export product. Despite high demand for cotton, farms fail to pay credits on time and get indebted (US$186,016,155 owed as of 1 September 2004). Debts grow and profits from farmers' harvests go only to the repayment of debts. The gender issue is unavoidable in the cotton sector. The majority of the male labour force are immigrants, about 620,000, according to IOM. About 90 per cent of the labour force are women. At the same time out of 7,173 private farms in Khatlon Oblast, women head only 240 or 4 per cent. In Sugd Oblast the respective figures are 239 or 5 per cent. Studies indicate

the link between cotton and poverty. The poverty rate is 78 per cent and 64 per cent in cotton cultivating Khatlon and Sugd compared to 49 per cent and 45 per cent in Dushanbe and the Districts of Republican Subordination (to the east of Dushanbe) respectively.

Since 1996, under a programme of land reform, Tajikistan reorganized its large collective and state farms (kolkhozes and sovkhozes). Members of reorganized farms are acknowledged as shareholders by law and are given land plots with inherited land use rights (According to the Constitution of Republic of Tajikistan, land is state ownership). For the last 15 years, growing cotton as a monoculture with no practices of crop rotation has resulted in soil degradation and the destruction of soil structure and fertility. Soil degradation has affected about 97.9 per cent of the territory of the republic. Annually about 50 thousand hectares of cultivated lands are exposed to various degrees of desertification. The current poor functioning of irrigation and drainage systems results in soil salinization and waterlogging. Arable lands have become bogs which may create ecological refugees. However, despite all these problems at present Tajikistan cannot convert from cotton in the near future as it brings stable foreign currency to country and has demand in the world market.

Akhmad Hoji Khoresmiy's paper "Impact of the cotton sector on soil degradation" focused on environmental issues. He discussed the excessive use of agrochemicals in Uzbekistan as a means for increasing the yield of cotton. 70–90 per cent of cotton production in Uzbekistan relies on the use of agrochemicals, specifically on pesticides. But only one per cent of pesticides employed actually fight plant pests and diseases with the rest causing soil degradation. In the 1990s, 85,000 tons of pesticides were supplied centrally and used annually. Due to financial difficulties, the use of pesticides has gone down by about 15–20 per cent to 50,000 tons per year, but official statistics do not reflect the fact that farms buy the chemicals independently. The author called for the wider use of organic fertilizers, echoing the recent innovation for cultivating organic cotton.

Elliott Cannell's paper, "The Role of Children in Uzbekistan's Cotton Harvest," complemented the discussion of the social aspects of the cotton sector by focusing on the practice of mass mobilization of children orchestrated by the Uzbek state. According to UNICEF, 22.6 per cent of 5–14 year-olds children (or 1.4 million children) are annually sent to cotton fields at the expense of their education and personal development. They are kept during the harvest season in badly equipped and cared barracks and are very often underpaid. Many return home as debtors, not contributors, to their family budgets.

At the conclusion of the conference a roundtable was held. It was noted that the lack of a unified concept of comprehensive reform in the cotton sector weakens advocacy for reform. IFI missions in the region are forced to be very cautious and humble in dealing with governments which do not demonstrate

commitment and interest in reform. Regional governments do not even desist from the closure of IFI offices, as they continue moving towards being isolated from the international community. It was agreed that although the conference is unable to present such a unified concept, its members can progress toward it. They may do so by building their own professional network, including representatives with complementary expertise, from academics and consultants to IFIs to NGO activists. Each member of this network would be encouraged to use their own access to policy makers in promoting the reform agenda.

Note

1. David Stark and Laszlo Bruszt, *Postsocialist Pathways: Transforming Politics and Property in East Central Europe*, Cambridge, Cambridge University Press, 1998.