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Contesting Rural Resources: Emerging 'Forms' of Agrarian Production in Uzbekistan

GERT JAN VELDWISCH and MAX SPOOR

The most recent land reform in Uzbekistan, in which Large Farm Enterprises (LFEs) were split into medium-sized farmer enterprises, left, alongside the country's overwhelming majority of small dekhan peasants, continued strong state intervention in agrarian production. Three 'forms' (rather than 'modes') of production emerged: (1) state-ordered production of cotton and wheat; (2) commercial production, in particular of rice; and (3) household production of other food staples, including wheat and rice. These production 'forms' or processes are characterised by distinct input and output relations, terms of trade and technical requirements. They interrelate through competition for limited resources, such as land, water and other inputs, rather than competition amongst the actors themselves (the state, the new medium-sized farmers and the small dekhan peasants). A contest over resources is particularly evident between the (state-ordered) cotton crop and the (commercial) rice crop in the case study on which our argument is based, namely the province of Khorezm, a downstream part of the Amu Darya river basin, in the western part of the country.

INTRODUCTION

Since its independence in 1991, Uzbekistan's agricultural system has been in transformation. The move away from a collective and command economy, though gradual [Auty, 2003; Conti, 2004; Gleason, 2004; Pomfret, 2007], has had important effects [Spoor, 2006]. In agriculture, changes have taken place mainly through land reform and transformations in the state planning of production, leading to the formation of new agricultural production units

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(such as the now-dissolved Large Farm Enterprises (LFEs)¹ or *shirkats* and the current *fermer* enterprises or *farmers*). Rural livelihood patterns have also changed, and socio-economic differentiation has increased. These changes have been much more pronounced than would generally be expected from a 'slow' reformer.

This article examines the most recent phase of Uzbek agrarian reform, initiated largely in 2005–06 (following some earlier experiments). The reform consisted of the dissolution of all remaining LFEs and the allocation of land-use rights to family-based *fermer* enterprises. The Uzbek case is peculiar in that the state has remained a strong regulator and driver of agricultural production. In fact, one might argue that while the individualisation of production observed in many transition economies [Lerman, 2007] has led to less state control, in Uzbekistan it has been accompanied by re-regulation [Trevisani, 2008a].

Our argument is that while new 'users' of resources have appeared in the Uzbek agricultural sector, the competition over resources is between usages, rather than users, and is hence between three 'forms' of production: (1) state-ordered production of cotton and wheat; (2) commercial production, in particular of rice; and (3) household production of other food staples, including wheat and rice. Before underpinning this theoretically, the second section reviews Uzbekistan's path of agrarian transition, looking at land reform (initially limited, except for the strengthening of the *dekhan* peasant economy), farm restructuring (from state and collective farms to *shirkats* and their dissolution into *fermer* enterprises) and changes in the state order system (decision-making and procurement).

The third section uses two theoretical approaches to define more precisely our observed 'forms' of production. The first is the classical 'labour process' approach [Braverman, 1974; Burawoy, 1985; Edwards, 1979], which looks at 'modes of production'. The second, applied in a complementary manner, is the 'technological and administrative task environment' (TATE) approach [Benvenuti, 1982; Benvenuti and Frouws, 1999; Hebinck and van der Ploeg, 1997]. These approaches assist in differentiating 'modes' from 'forms' of production and in arguing that competition over resources such as land and particularly water in our case study of Khorezm is not so much between the state, the *farmers* and the *dekhan* peasants, but between the forms of production themselves.

The fourth demonstrates this specifically for cotton and rice, both crucial crops in the western province of Khorezm.

The final section concludes that if we take Khorezm as illustrative for Uzbekistan's agrarian transformation, the rural landscape in this 'slow' reformer is more complex than might be expected. Furthermore, it is changing substantially into a process of emerging class formation, as a

small elite of medium-sized *farmers* controls most of the arable land, while farm-workers-cum-*dekhans*-peasants comprise the poor. The state's strategy, within the context of reforms, has been to re-regulate the agricultural sector, while leaving intact the state-ordered 'form' of production and striving to assure stability in this changing landscape in which different uses compete for scarce production resources (and in so doing interact). This becomes clear in the case of Khorezm in comparing the state-ordered cotton crop with the commercial rice crop.

These processes were observed during intensive fieldwork undertaken by one of the authors. The fieldwork² was conducted during 12 months divided over five periods between February 2005 and October 2006. The fieldwork location was Khorezm Province (*Oblast/Viloyat*) in West Uzbekistan (Figure 1). At the 'village level', four locations within Khorezm were studied in detail (Figure 2), namely on the territory of the recently established water-users' associations (WUA) founded in the respective former *shirkat* territories of Karmish, Chikirchi-Angarik, Madir-Yap and Tagalak-Yap. For a discussion of methodological issues in conducting this research see Veldwisch [2008b].



FIGURE 1: UZBEKISTAN AND KHOREZM PROVINCE AS LOCATED IN CENTRAL ASIA
 Source: Adapted from www.eurasianet.org/images/central_asia.jpg

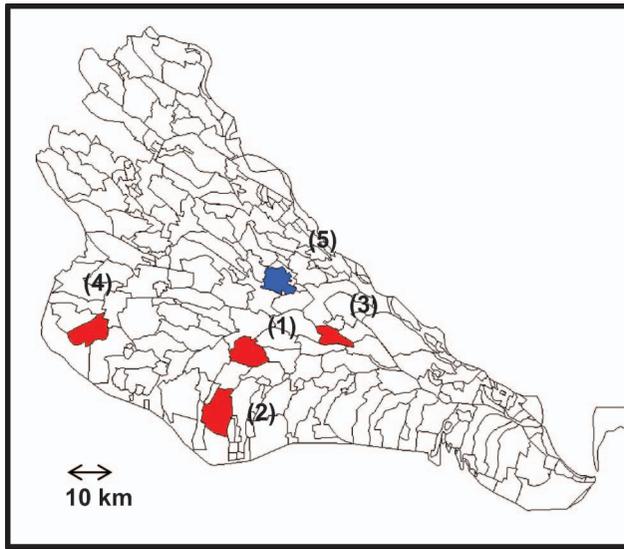


FIGURE 2: THE FOUR CASE STUDY AREAS AND URGENCH CITY, KHOREZM PROVINCE, UZBEKISTAN

Note: (1) Karmish WUA, (2) Chikirchi-Angarik WUA, (3) Madir-Yap WUA, (4) Tagalak-Yap WUA and (5) Urgench city. Source: Own compilation from GIS data of the ZEF/UNESCO project.

UZBEKISTAN’S PATH OF AGRARIAN TRANSITION

The new states that emerged from the Soviet Union followed very different paths of agrarian transition [Spoor and Visser, 2001]. There were early and late reformers, gradual, as well as non-reformers. Uzbekistan is considered a late and gradual reformer. The country’s agrarian structure still bears strong marks of the Soviet era. The land tenure system, until very recently, showed remnants of collectivisation, while input-output regulations resembled those of a partially planned economy. To understand the newly emerging ‘forms’ of production and roles of actors such as the *dekhan* peasants and *fermer* enterprises, we therefore first examine the history of agrarian reform and the current land tenure system. This is followed by an elaboration of the changes in state regulation in the agricultural sector.

Land reform

Individualised land for agricultural production was minimal in Uzbekistan, as elsewhere in the former Soviet Union [Lerman, 2007]. However, despite the slowness of reforms the shares of agricultural land cropped privately (shown in white in Figure 3) and semi-privately (in light grey in Figure 3) both steadily increased during the first 15 years of independence. At the same time

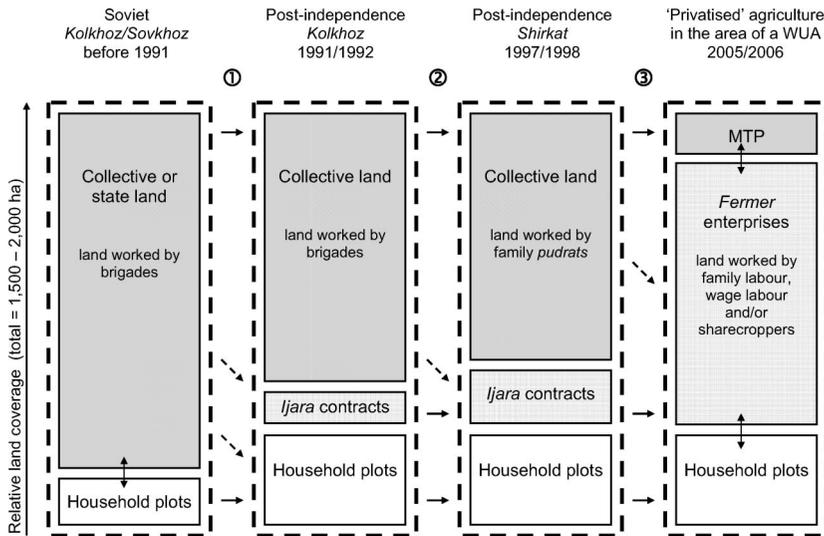


FIGURE 3: LAND USE CHANGES IN POST-INDEPENDENCE UZBEKISTAN
MTP=Motor Tractor Park. *Source:* Own compilation based on a figure by Trevisani [2008a].

the area cultivated under the collective and state regime (dark grey) decreased.

The first round of reforms (in Figure 3 marked by the symbol '①') consisted of three aspects:

- (a) In the direct aftermath of independence, most of the *sovkhoy* (state farms) in Uzbekistan, as in many countries of the Commonwealth of Independent States (CIS) (except those that implemented a redistributive land reform), became collective or cooperative farms which remained large and inefficient. This meant that most of the land was still cultivated by the heirs of the former *kolkhozy* and *sovkhoy*. Work brigades remained unchanged, although workers officially no longer received a monthly wage but rather a share of the collective's production (in practice these were only paper shares) [Spor, 2003, 2006; Rozelle and Swinnen, 2004].
- (b) At about the same time each rural household was given an extra household plot of about 0.13 irrigated hectares (*ko'sumcha tamorka*). This was in addition to the existing housing plot or garden (*tamorka*) of some 0.12 ha. The new household plots were established on former collective land; large fields were taken out of collective production and divided into small plots. These distant household plots were therefore located in groups on the (then still existing) *kolkhoz*. The allocation of

extra household plots was a response to the shortfall in grain (and other food products) right after the break-up of the Soviet Union and was meant to secure sufficient food production at the household level [Kandiyoti, 2003], as well as to compensate for the shortfalls in payments by the LFEs [Patnaik, 1995; Trevisani, 2007]. Enlargement of the household plots brought rural households towards food self-sufficiency, giving them a cushion against poverty. Collective farm workers, or *kolkhoznik*, later became known as *dekhans* (literally meaning 'small farmers' or 'peasants').³

- (c) From 1991, long-term private leaseholds on parcels of collective land were slowly introduced (called *ijara*, literally meaning 'to rent'). These contracts gained in importance and the area they covered slowly increased. In the literature until about 2000 they are referred to as 'independent farmers', 'private farmers' or '*dekhans*' (although later this last term was reserved for peasants with little more than a household plot). The current study refers to the family-based agricultural enterprises that were built upon these *ijara* contracts as '*farmers*' or '*farmer enterprises*'. Officially the land remained state property, while *farmers* got land leases or partial usufruct rights. Land was allocated through the powerful governors and mayors in a process that at the onset especially benefited the rural elite [Spoor, 2003; Trevisani, 2007].

The second phase of reforms (in Figure 3 marked with '②') pushed these developments further:

- (a) In 1997–98 all *kolkhozy* were renamed *shirkats* ('association' in Uzbek), and work on collective land was reorganised from work brigades into family *pudrats* (after the Russian-Uzbek root for 'contract'). A *pudrat* is a small work brigade organised according to family relations; each family bearing the responsibility for (part of) a field. The same people continued to work on the same collective fields. However, as *pudrats* they entered directly into various sharecropping arrangements with the *shirkat*, rather than being brigade members or workers.
- (b) The number of *farmers*, with leased land as enclaves within *shirkats*, slowly increased.
- (c) Some of the most unprofitable *shirkats* were subjected to a 'sanitation programme' aimed to reform unproductive agricultural enterprises. It consisted of a two-year period in which creditworthiness and economic viability were (at least on paper) re-established. The enterprises that showed improvement remained *shirkats*, while the rest were liquidated and transformed into 'associations of private and *dekhan* farmers'.⁴

The former collective lands were distributed among *farmers*, creating the situation depicted in the fourth column of Figure 3.

In the third and most recent round of reforms, since 2005–06 (marked ‘©’ in Figure 3), the path of de-collectivisation was continued:

- (a) All of the remaining collectives followed the liquidation route. Almost all land was redistributed to *farmers*, with a small share of between 10 and 20 per cent initially remaining under control of the ‘Motor Tractor Parks’ (MTPs). Most of this land was to be distributed to *farmers* later.
- (b) The collective farms had integrated many functions. After their liquidation, these were partly transferred to the *farmers*, partly transferred to district-level government organisations and partly continued in separate organisations such as the MTPs. The MTPs were placed in charge of most of the heavy machinery that remained from the collective farms.
- (c) Water-users’ associations (WUAs) were given responsibility for managing and maintaining the irrigation and drainage infrastructure [Veldwisch, 2007a, 2007b]. In Yangibazar District (Khorezm Province), this third phase of reforms took place in 2001–02 as part of a nationwide pilot study. Based on this (and other) experiences, similar reforms were implemented in the whole of the country in 2005 and 2006.

The remaining sections focus on the third phase of reforms and the period right after, that is, the situation represented in the fourth column of Figure 3.

Regulation by the state

The Uzbek government continued to prescribe quotas for production of wheat and cotton through the state procurement system. Wheat was deemed essential for national grain self-sufficiency, while cotton had long been a strategic cash crop [Wegerich, 2002]. Prior to the collapse of the Soviet Union, grain was delivered to Uzbekistan from other areas within the Union. At independence Uzbekistan aimed at self-sufficiency in grain production, and meanwhile it has achieved this. Partly this came at the cost of cotton production.⁵

At the break-up of the Soviet Union grants fell away and the Uzbek government started to seek its own revenues. These were generated by continuing the state order system for cotton: government set production quotas for *shirkats* (and later for *farmers*) and raw cotton was to be sold to the state for a fixed (or ‘negotiated’, but *de facto* administratively established)⁶ price [Kandiyoti, 2003; Pomfret, 1999]. The system functioned through pre-financing of subsidised inputs and provision of cheap credits to LFEs and *farmers*. These debts were deducted at the end of the season from the amounts

paid for the output delivered to the state. Prices paid for raw cotton were low compared to what the government earned by exporting processed cotton (lint) and by-products. Overall a net flow of value out of agriculture was taking place, especially owing to the arrangements around cotton production, even taking into account the subsidies on water, chemical fertilisers and pesticides [Djalalov, 2005; Spoor, 2004; World Bank, 2005]. This implicit taxation provided strong disincentives for cotton production [World Bank, 2005].⁷ Thus, there were high economic costs to keep the system intact. The financial margin for the actual producers was small and sometimes even negative, though producers did benefit from a stable and therefore predictable 'market'.

The implicit taxation of agricultural production has since decreased, due among other reasons to increased cotton prices paid to the *farmers*. The IMF [Spoor, 2004] in 1995 estimated the net outflow of resources from agriculture at US\$ 0.9–1.2 billion. In the following two years (1996–97), the transfer out of agriculture dropped to US\$ 250–550 million. The World Bank [2005] estimates that this number fluctuated between US\$ 285 million in the year 2000 and US\$ 150 million in 2003.

'FORMS' OF AGRARIAN PRODUCTION

Post-independence, the tripartite agrarian system of collective farms, private farmers and peasant households was transformed into a bi-modal system of just *farmers* and *dekhans*. The state still played an important role, but no longer ran its own agricultural enterprises. One could hypothesise that competition over resources takes place between the primary producers (*farmers* and *dekhans*), with the state taking a regulatory role. Yet social patterns and resource distribution follow different lines of division. It is not so much the users who compete with each other, but rather the different 'uses'. These can be conceptualised as 'forms' of production, each with its own logic. Each form of production has a different rationale, particular functions and economic characteristics and a typical socio-political control system. For the Khorezmian agrarian system we distinguish three forms of production:

- (1) *state-ordered production*, which includes production of cotton but also some wheat;
- (2) *commercial production*, in particular of rice, but to a lesser extent also of vegetables and fodder; and
- (3) *household production*, primarily for home consumption, but also including produce for barter and small-scale sales at local markets.

This differentiation is based on a 'labour process' approach, which is the study of the 'forces of production' and the 'relations of production'. Burawoy

[1985] and other authors using this approach [e.g. *Braverman*, 1974; *Edwards*, 1979], speak of 'modes of production', characterised by the way surplus appropriation takes place. They recognise a capitalist mode of production, a state socialist mode of production and a feudal mode of production. The rationale and organisation of these production processes are essentially different. Burawoy [1985] also distinguished two modes of production that take place within the socialist state, but have characteristics that distinguish them from the state socialist mode. These are *petty commodity production*, which is based on self-employment and production for small-scale sales, and the *domestic mode of production*, aimed at self-sufficiency. These economic activities depend on the state sector in a number of ways. Later, the *peasant mode of production* concept was extensively used, leading to lengthy debates on the nature of a 'mode of production' and addressing whether a mode is a separate system, how it reproduces and how different modes relate to one another and depend upon one another. As a result, the concept 'mode of production' can no longer be used in a non-complex way, that is, without addressing the list of difficult conceptual questions raised in this respect.

This study presents an empirically based account of the organisation of agricultural production. It assesses the internal logic of organisation, i.e. the links between the organisation of inputs, land, management, labour and outputs. We refer to these as 'forms of production'. These 'forms' exist more or less at the level of what is known as 'farming systems'. The three forms of production identified during the fieldwork are analysed according to their logic of production, their practical organisation and the connections between the different forms. Table 1 overviews the three forms of production, differentiating them according to land use, land tenure, management, labour and input organisation, the role of the state, economic rationale, TATE and political/ideological aspects of production. A number of these aspects are then discussed, in particular for the first and second forms of production, the state-ordered and commercial forms, as these are our prime interest.

The state-ordered form of production

Though a form of production is not by definition linked to a particular crop, in this case the state-ordered form is limited to cotton and wheat. Though the state controls the cropping areas of other crops, it is only for cotton and wheat that there are assigned quotas and forced sales to the state at administered prices. Formally the quotas have been reduced. However, in practice all cotton must be sold to the state, and even above-quota production ends up with (quasi-)state buyers. For wheat the state only has to be sold a share, typically 50 per cent of the planned yield, though this has also been reduced somewhat in recent years [*Spoor*, 2006]. Labour, inputs and other production requirements are quite different for cotton and wheat. This section

TABLE 1: SUMMARY OF THE THREE 'FORMS' OF PRODUCTION

Form of production	State-ordered	Commercial	Household
Main crops	Cotton, winter wheat	Rice, vegetables, fodder	In the garden: fruits and vegetables On the distant plot: winter wheat and rice
Crop schedule	Cotton from March/April to September/October Winter wheat from October to June	Rice from May/June to September/October Vegetables and fodder mainly in that same period	Winter wheat from October to June Rice from June to October
Land tenure	Long-term leaseholds; insecure as these can be withdrawn at will by the state	Long-term leaseholds; <i>farmers</i> grow these in their 'free' area; insecure as can be withdrawn by the state	Full-fledged ownership of gardens around the house and the distant plots
Management decisions	<i>Farmers</i> under strict state control (field checks)	<i>Farmers</i> ; or when rented out, the <i>dekhans</i> that sub-contract this land	<i>Dekhans</i> are free to make decisions
Organisation of inputs	Subsidised inputs through state controlled networks; capital intensive	Through informal and commercial networks; capital intensive	Minimal capital investments
Labour organisation	<i>Pudrat</i> ; a sharecropping-like system on typically 1–2 ha	Hired workers and/or renting out of small plots to <i>dekhans</i>	Household labour
Possible net profit*	For cotton US\$ 0–250/ha, also negative profits	US\$ 1,500–3,000/ha for paddy	Negligible – not for money; mostly self-consumed
Role of the state	Forcing centrally determined quotas on to individual <i>farmers</i>	Mandated by important individuals within the state hierarchy	Allocation of plots; securing enough available land
Economic rationale	Cotton and wheat still in part under the state-order system	Cash economy, marketing mostly in private markets	Household home consumption and barter economy
Technological and administrative task environment (TATE)	Detailed system of state rules and norms for agricultural management, inputs and technologies; enforcement through field checks and control over settlement accounts	Strongly restricted by system of permissions to grow, enforced by field checks; it is easier to get permissions for water-logged and saline land	By definition small areas that require manual operation; seeds are often reproduced and exchanged locally

(continued)

TABLE 1: (Continued)

Form of production	State-ordered	Commercial	Household
<i>Political and ideological apparatus of production</i>	Production is ordered and controlled by the state. Surplus extraction takes place through fixed low prices and compulsory sale. Threat of going bankrupt or land lease being withdrawn	Patrimonial; allocation on basis of loyalty and position in the socio-political hierarchy; parts of the benefits are passed onward	Household production has been given the role of a social security safety net. As such, it provides socio-political stability. Commercialisation limited by taxation at markets and in transport

*These possible net profits were calculated based on interviews with a small number of *farmers* regarding their inputs, costs, yields and marketing. The numbers are indicative and in reality depend on a number of parameters, not in the last place on soil fertility and the ability of the farmer to negotiate the terms of trade.

Source: Own compilation on basis of fieldwork.

concentrates only on cotton, as cotton exemplifies the state-ordered form of production in Khorezm (and in the whole of Uzbekistan for that matter).

The planning of cotton and wheat: Strategic crops. Crop (or *dekhanchilik*)⁸ *farmers* in principle must cultivate cotton on 60 per cent of their farming area. However, the exact area depends on soil characteristics and crop rotation schedules. In reality the areas are negotiable. *Farmers* individually must obtain permission for their cropping plan from the branch office of the Department of Agriculture. The yearly cropping plan is based on the *farmer's* long-term business plan and may contain only crops mentioned in the business plan. The cropping plan contains not only the state-ordered crops, but all crops the *farmer* grows. In the agricultural state hierarchy, quotas are assigned to provinces and from there down to the districts. Therefore there is some flexibility in assigning quotas to individual *farmers*. In practice, the district *hokimiyat* (governor's office) plays an important role next to the branch office of the Ministry of Agriculture.

This study found that some *farmers* actively made plans and negotiated for their cropping plans with the district authorities. Other *farmers* were just told what to grow without their wishes playing any role in the decision.

The cotton [ginny] makes a contract with [the Department of Agriculture] about how much cotton is needed. If the mill needs 80 per cent, [the department] tells the *farmers* 80 per cent. [GJV]: What did [the department] tell you to plant this year? [*Farmer*]: [They] told me to plant 12 ha of cotton and I did so.⁹

And in another situation:

[GJV]: You said that you had to plant 70 per cent, but actually you planted much more, maybe even 90 per cent. Why? [*Fermer*]: I wasn't told to plant 70 per cent, I was told to plant a minimum of 70 per cent, 75–80 per cent is also fine. I myself made the plan to plant such a large area with cotton and then went to [the Department of Agriculture] to ask for permission.¹⁰

The quota specifies both the area and the expected yield. The production target per area largely depends on soil quality, which is determined for each field once every five years. Some *farmers* were told on which plot to plant cotton, but most were free to decide where to plant what, although the field had to be suitable for the chosen crop.

Organisation of inputs. Almost all inputs for cotton cultivation are state subsidised and supplied through state-owned (or at least state-controlled) chains. *Farmers* pay for these inputs through transfers from bank accounts very similar to the Soviet-era settlement accounts; they are strictly state-controlled and in principle (or in theory) the amounts in these accounts cannot be turned into cash. Subsidised fertiliser for cotton is rationed according to area and soil quality. Fertilisers acquired through this subsidised system are about half the price of those not destined for cotton. They are distributed by the Agro-Chemicals Department, which has branch offices in areas that were formerly under the LFEs.

Seeds are multiplied at state research centres and on the land of selected *farmers*. The cotton varieties grown in each province and district are centrally bred, selected and imposed. *Farmers* can usually choose between two or three varieties and are supplied these seeds by the Department of Agriculture. For tractors most *farmers* still depend on the state-owned (or at least state-controlled) Motor Tractor Parks (MTPs), which prioritise production of state-ordered crops over other forms of production. *Farmers* are also entitled to an amount of subsidised diesel when growing cotton. Its storage, as well as its actual use or supply, is controlled by the MTPs.

Regarding the supply of these subsidised inputs, various *farmers* mentioned that usually not all allocated inputs actually reach the *farmer*; a certain amount is kept by the supplier. This is especially the case with fertilisers and diesel, which can easily be resold and thus provide an extra source of income for the state official involved. For cotton cultivation special credit is available at very low interest rates through a specialised 'cotton bank'. Some *farmers* prefer growing state-ordered crops over private, commercially grown crops just for access to this special credit. This was

illustrated by a *fermer* growing far more cotton than strictly required by state order:

[GJV]: Why did you want to plant such a large area? [*Fermer*]: Because it is better for my farm. For planting cotton you can get a lot of support from the state; you get credits from which you can pay for diesel, fertilisers, laboratories, the WUA and even the salaries of the workers. The total costs [of production] were 7 million and 20 thousand soum¹¹ and I took a credit of 3.5 million. You see, you can use state money to make a business. This is the advantage of planting cotton. Also for planting wheat you can get these benefits. This year again I took credit, for both wheat and cotton. For other crops they don't give credit.¹²

Management decisions. The timing of crucial actions in the cotton cultivation process is centrally announced by the Provincial Department of Agriculture. This particularly pertains to the periods for planting and harvesting. Although the mandated periods are not strictly adhered to by everybody, they nonetheless resonate the state's role as the driver behind cotton production. During the cultivation period, the *farmers'* activities in the cotton fields are continuously monitored. Groups of agricultural experts from a variety of state organisations regularly visit their assigned areas to check aspects of agricultural management. The groups are coordinated at the district level by the *hokimiyat* and the Department of Agriculture, to which they also report. Each period of the season has a different checklist. Most of the checks relate to state norms which play important roles in state control over agricultural practices [Wall, 2006].

One specific thing to be checked is whether the subsidised inputs are indeed being applied to the cotton crop. This especially concerns fertilisers, which are typically distributed on the day they are to be applied, with a state official remaining in the field to confirm that the fertiliser is indeed applied to the cotton fields. This was explained by various *farmers* and later also observed in the field.

Though not all fields and not even all *farmers* are monitored in all respects, when they are monitored the fields are in fact managed almost directly by these governmental organisations. Still it is the *fermer* who is (held) responsible for management of production on the field and for the quality and quantity of the output. The *fermer* is instructed and warned to follow the state norms, and held accountable if decisions have adverse effects on yield. Examples of aspects on which the *fermer* has some room for manoeuvre in management are the exact planting date, the number and timing of water gifts, the timing of thinning, whether to apply a defoliant, and timing of topping the cotton plants. *Farmers'* exact decision space also depends on

their relations with state officials and their level of experience and agricultural knowledge.

Besides having limited decision-making authority over management of their fields, *farmers* are perhaps even more restricted in their ability to mobilise resources at the right time. This pertains especially to tractors and other agricultural machinery, which at crucial points are available only to a very limited extent. *Farmers* perceive early planting of cotton as a big advantage, as this assures an early harvest, meaning that cotton-picking starts in late summer. If the cotton is planted later, harvesting might be delayed into November, when it is much colder and as a result the cotton bulbs do not open well. The cotton thus produced is of lower quality and the work in the fields harder. To harvest early, *farmers* must plant early, but to do so they have to begin early with land preparation. The few *farmers* who have their own tractor do not have to pursue MTP tractors, but can prepare and plant at the time they wish, renting out their tractor afterwards.

[*Fermer 1*]: I planted on 27 April and will start picking after Independence Day on 2 September.¹³ My planting is quite in the middle; there are also *farmers* who are a month later than myself. There were no tractors available at the right time, and so I got a bit late.¹⁴

And in another situation:

[GJV]: Once the planting starts will you be late or early in the schedule? [*Fermer 2*]: I do not depend on the schedule as I have my own tractor. It's a Kazakh tractor with a caterpillar mechanic.¹⁵

Mechanisation of large-scale agriculture during the Soviet period never reached high levels in Central Asia [*Patnaik*, 1995], and Khorezm was no exception [*Wall*, 2006]. Since independence investment in agricultural machinery has also been low. Moreover, high machinery-import taxes have created an unfavourable environment for refurbishing existing machines. As a result the number of tractors, as well as their capacity, has slowly declined. Still, in cotton cultivation, ploughing, sowing and pesticide spraying continues to be done by tractor. Other activities are done manually, in particular the highly labour-intensive cotton-picking.¹⁶

Labour organisation. The high demand for labour puts *farmers* in a difficult position, as they must mobilise their own workers.¹⁷ Most *farmers'* strategy is to organise labour through *pudrat* contracts with *dekhans*. These contracts strongly resemble sharecropping arrangements. Workers are neither wage labourers nor tenants. They are made responsible for the manual labour on

part of a cotton field (typically 1–2 ha). Their payment is partly in cash, partly in kind and partly in social capital that can be cashed in case of need. These payments and other benefits are often not precisely defined; they are negotiable and to some extent depend on performance (yield).

Both *farmers* and their *pudrats* explained that the *fermer* is responsible for all mechanised work, obtaining inputs, external relations and agricultural management decisions. The *pudrat* is responsible only for manual labour. Yield differences between *pudrats* on a single field are minimal, and where they do exist, both *farmers* and *pudrats* tend to perceive them as mainly the result of differences across the field or soil rather than as a result of the *pudrats*' efforts.

Economic rationale. Yield estimates for each cotton field are reassessed several times during the cropping season. In accordance, the state order for the fields is adjusted when necessary. This latter is a process of negotiation in which some *farmers* are better than others. The close monitoring of the expected yield during the season makes it difficult to sell part of the yield elsewhere, as this would be noticed. Another difficulty is the absence of a free market for cotton. Although some cotton gins have been privatised, basically a state monopoly remains, as the prices throughout the processing chain are centrally set [Rudenko, 2008]. Neither is there much demand for raw cotton, which would allow for side-marketing. This is one of the characteristics that distinguishes the wheat production process from that of cotton: wheat is also produced outside the state-ordered form of production and used on a wide scale by every household. Therefore, there is a market price for wheat flour, which makes it easier and more profitable to try to market this product through channels other than the state [Bobojonov and Lamers, 2008].

Farmers get different prices for different qualities of cotton, but in principle the prices are administratively fixed, i.e. there are no market prices. Grading is based on the quality of the fibre as well as any pollution of it. Prices are also adjusted for moisture content. Nonetheless, the process of cotton delivery to the ginnery, weighing, grading and determining its moisture content, is not a reliable one. *Farmers* stressed the importance of being physically present at the time these measurements are made to prevent manipulations of the results and hence of the value of the produce. This means that the output prices are in fact partially negotiated, and depend to some extent on the *fermer's* own bargaining capacity. Payments from the (state) ginnery to *farmers* are made through state-controlled bank accounts. Money from these accounts is first used to pay for the inputs for cotton, as described above. It is difficult to withdraw cash from these accounts, meaning that cotton production forms a somewhat separate, administration-based economic system. In practice, *farmers* might transfer money to the bank

account of businesses that are entitled to provide services or goods to *farmers*, but instead of providing the goods or services, 90–95 per cent of the cash is paid out to the *farmer*. *Farmers* themselves considered this illegal yet widely practised this.

TATE and its influence on production. The profitability of cotton cultivation for *farmers* depends on a variety of negotiated conditions: the actual delivery of the assigned inputs (especially fertiliser and diesel), the ability to mobilise tractors at the right moment, the ability to get water at the right time and the determination of the cotton weight, quality and moisture content. This form of production is strongly integrated into the wider relations of production, and the autonomy of farmers is low. The technological and administrative task environment (TATE) consists in this case of an integrated network of state institutions that regulate all aspects of the production process – from seed-selection and credit-provision to the ploughing method and marketing channels.

Depending on their field characteristics and the negotiated boundary conditions, many *farmers* earned some money from cotton production, though only a few of the *farmers* interviewed had been able to make good profits. Some reported losing money almost every year on cotton production. One benefit of growing cotton seems to be that it provides access to commercial production on lands not used for state-ordered production. This benefit is also negotiable, and the ratio between state-ordered and commercial production differs hugely between *farmers*. The economic surplus generated by cotton production through the knowledge and labour of the *farmers* and *dekhans* and the state-coordinated supply of inputs is extracted through an economic-administrative system. Thus, the economic benefits accrue mainly to the state through implicit taxation [*Spoor*, 2006].

The commercial form of production

The Uzbek agrarian *commercial form of production* is a variation of the *capitalist mode of production*. Slowly implemented privatisation has created opportunities for earning private profits through the use of private capital and employment of wage labourers. However, many aspects of the capitalist mode of production do not exist in present-day Uzbekistan. For instance, there is no private ownership of land, no free output market, and the input market is strictly regulated.

Here the core of the commercial production form is the orientation towards relatively free markets, the taking of private risks, the investing of private capital with chances of high returns, and production relations characterised by cash exchanges. Concretely, the commercial production form is what *farmers* produce alongside their state-ordered production. This includes vegetables (melons, potatoes, carrots, cabbage) and fodder (maize, sorghum,

alfalfa), but it is especially apparent in rice production. In Khorezm, rice represents a larger area than fodder and vegetables.¹⁸ Rice is the *farmers'* preferred crop and is clearly linked to the cash economy. As rice production is exemplary of commercial production in post-independence Uzbekistan, and as it represents a large cultivation area in Khorezm, its production is studied here in detail. Yet rice is not limited to the commercial form of production; it also plays an important role in the household form of production. This is discussed elsewhere [Veldwisch, 2008a].

Rice land. Commercial rice is grown on two types of *farmer* land: land suitable for nothing else but rice and as a second crop on land that was cropped to wheat in winter.

Land in the first category is locally referred to as 'lake land' (*ko'l yer*). Often this is land that has recently (less than 10 years ago) been reclaimed from a lake. Groundwater levels in these areas are naturally high and soils are often saline in the first years of use. When these soils are well drained and systematically leached, they are said to become good soils in about 10 years. However, drainage of these soils is difficult and salinity levels often remain high. Being unsuitable for cotton and wheat cultivation they are not considered for state-ordered production. These lands are either sown to rice in early June or left fallow. Some lake lands are alternately used for rice production and state-ordered production. The choice of whether to grow a state-ordered crop or rice on such fields may be subject to dispute between *farmers* and the Department of Agriculture.

For example, a typical *farmer* interviewed in this study was told to plant cotton on a medium-saline field. After a few weeks it became apparent that the cotton was growing badly. This well-connected but inexperienced *farmer* reached an agreement with the Department of Agriculture that he could destroy the young cotton plants and plant something else instead. He was instructed to plant maize. Instead he planted rice, without permission. As a result he was cut off from water deliveries and, until he had (informally) arranged the permission with the district authorities, he depended on drainage water to irrigate his rice.

Land in the second category becomes empty by the end of June, after the wheat harvest. This is late for sowing rice, but transplanting rice is still possible. The cropping plans approved at the start of the season do not include a second crop. This implies that *farmers* have to arrange special permission for this second crop, be it maize, melons or rice. Most *farmers* prefer planting rice, as it is the most profitable option in the current situation.

Commercial production of wheat is another option that enables use of the land later in the season. Wheat production is essentially different from cotton cultivation, the latter of which spans the full rice-growing period. Pillai

[2007] shows that *farmers* opt (and negotiate) early in the season for a state plan for wheat in order to avoid cotton and have the land available for a second crop in June. Some researchers suggest that rice is sometimes grown on fields destined for cotton cultivation. Yet the only such case encountered in this study was the situation described above where cotton was initially planted and destroyed with the consent of the Department of Agriculture.

With the elaborate system of monitoring and controls over production it is unthinkable that rice would be grown instead of cotton without notice. If indeed this happens it must be 'legalised' at some level, i.e. somebody in a government office has to agree in one way or another. Payments of bribes could play a role in such agreements (as e.g. suggested by *Wegerich*, 2006). But when a *farmer* wants permission to grow rice, long-term relations with officials in key positions in the Department of Agriculture seem to be of greater importance. When *farmers* were found willing to talk about the issue, they frequently mentioned reliability in fulfilling the production quota for state-ordered crops as a beneficial factor.

[GJV]: I understand that different types of land require different permissions to grow rice. How is that for you? [*Farmer*]: On the wheat field I didn't plant, because it is too close to my cotton fields; that would be bad. On the other fields a person from [the Department of Agriculture] came to have a look and gave permission. [GJV]: How much did you pay for that? [*Farmer*]: I don't pay for that. If you make your cotton targets there is no problem planting rice. Some people might be paying, but I never did.¹⁹

The total rice area permitted by the government organisations is related to availability of water from the Amu Darya. The discharge of the Amu Darya depends partly on rainfall, which is irregular and difficult to predict, but to a larger extent on melt waters from the Pamir Mountains. It can thus be reasonably estimated from the winter snowfall. Moreover there are many storage reservoirs along the river by which its flow can be minutely regulated.

In May and June 2006, through different channels in the agricultural hierarchy, messages reached the WUAs and passed via them to the *farmers* regarding the availability of water for the ensuing agricultural season. These messages were combined with advice on whether to plant rice. Most stressed that little water would be available and aimed to limit the *farmers'* expectations regarding rice production. The 2006 agricultural season eventually turned out not to be short on water at all. In May and June *farmers* were waiting for permission to plant rice. A few were visited repeatedly during this period and their success in getting permission monitored. The permissions never came in writing, but rather took the form

of vague indications that it would be all right, and most *farmers* at some point were confident they could plant rice without getting into trouble afterwards.

Organisation of inputs. Inputs for rice cropping are not supplied through the state system. *Farmers* must obtain these either outside of the state system or through 'leakages' from the state system. Subsidised inputs meant for the state-ordered form of production are sometimes diverted for commercial rice cultivation. The relatively high (cash) profits from rice cultivation seem to be an important driver for *farmers* to invest large amounts of money in inputs for rice cultivation.

Labour organisation and management decisions. Labour demand for rice cultivation is concentrated during planting and harvesting. Nursing the growing crop requires minimal effort if the water level in the basins is kept sufficiently high. Rice sown in May is broadcast by hand. Rice grown after wheat is transplanted in June from seedlings first raised in beds, which are often prepared in a corner of the wheat field. Rice is mostly harvested by hand. After drying it is threshed by a stationary combine.

Farmers organise labour for commercial rice production in at least three ways. In the first set-up, the *farmer* remains strictly in control of all management decisions, while employing labourers to do the manual work. Labourers are paid in cash and in addition usually receive some rice. In this set-up, *farmers* mostly employ *dekhans*, who also work as *puدرات* on the *farmer's* cotton fields. Workers are employed simply as labourers rather than in a sharecropping arrangement. This is because rice requires much less labour than cotton. The exception is when rice is transplanted, which is usually done by labourers paid per day. It is a difficult job for which wages are relatively high: about 50,000 soum for 0.1 hectare, which takes three people about three days, amounting to 5,500 soum per person per day.

The second type of set-up is a sharecropping arrangement between a *farmer* and a *dekhan*. Here the *farmer* supplies all of the inputs: seeds, fertiliser, a tractor for ploughing, a combine and water. The *dekhan* household does all of the work and in return receives a fixed percentage of the yield. This is typically 30–50 per cent, while the remaining 50–70 per cent goes to the *farmer*. In a variation of this, a threshold is set. For example, the *farmer* takes the first three tonnes and all that is produced above that amount is for the *dekhan*.

In the third set-up the *farmer* does not crop the fields, but rather rents out the rice fields divided into small plots, typically measuring about 0.1 hectare each. The price paid varies, depending on the location, the soil, the labourer's relation to the *farmer* and the moment of the agreement. This study found rice plots to vary in price between 40 and 60,000 soum per 0.1 hectare plot. Similar

arrangements are also found for other crops and were observed especially frequently for large fields of carrots planted after the wheat harvest. Rental prices found for these plots were 25 to 40,000 soum per 0.1 hectare.

Economic rationale. Rice is sold for cash, either at the market or to traders travelling to Khorezm from various parts of the country. The rice is sold throughout Uzbekistan. Rice from Khorezm is considered to be of good quality and is even specifically marketed as 'Khorezmian rice', especially in Tashkent. The market price of rice fluctuates, both throughout the year and between years. Based on weekly market surveys, Bobojonov [2004] showed the Urgench market price for 1 kg rice fluctuated between 250 and 1,000 soum between 2002 and 2004. The price of rice has a strong inverse relation to water availability; in water-scarce years the rice price increases, in water-abundant years the price falls.

Besides the relative ease with which rice is exchanged for cash, it also functions as a currency in itself. Labourers are frequently paid their wage in kilograms of rice instead of cash, and various *farmers* mentioned large purchases (e.g. tractors) being paid in bags of rice. Explaining the importance of rice for the welfare of Khorezm, a high-level government official even said that 'rice is the currency of Khorezm'.²⁰

TATE and its influence on production. Rice production has long played an important role in Khorezmian agrarian production. In the Soviet period rice was produced on specialised rice *sovkhozy* and on marginal lands of other *sovkhozy* and *kolkhozy*. Since independence, rice production has proven to be very lucrative, and even more so after the state-ordered system for rice production was lifted. Many of the 'rice fields' on the LFEs were informally leased to *farmers* and well-off *dekhans*. In the latest phase of land reform, these rice fields were 'privatised' and divided among *farmers*. Access to the commercial form of production is the metaphorical carrot that draws people to start a *fermer* enterprise which in the first place manages state-ordered production. The Department of Agriculture merely monitors the area planted to rice. Unlike cotton production, the government does not get involved in management decisions on rice production, neither does it supply inputs or regulate the output markets. The extraction of surplus from rice production is primarily in the hands of the *farmers*; they control the distribution of benefits. These are sometimes shared with their workers, but in those cases it is considered payment or reward for other duties.

The household form of production

Agricultural production in the household form is a key part of the *dekhan* livelihood [Veldwisch, 2008a]. The focus here is purely on production on the

dekhans' own fields, excluding the *dekhans*' additional activities and sources of income. Rural households have a home with an adjacent plot (the *tamorka* or 'garden') and a plot further away from the home (the *ko'sumcha tamorka* or 'distant plot'). The total area is about 0.2 ha per household, typically divided into a garden measuring 0.06 ha and a 0.14 ha distant plot. Fruits and vegetables are grown in the garden, while the distant plot is used for double cropping wheat and rice.

There is no mechanisation in the household form of production, so both land preparation and harvesting are manual. Labour is provided by the household itself, sometimes with the help of the extended family and/or neighbours.

The selection of seeds also takes place largely within the household or through exchanges within the village. Wall [2006], for instance, describes how certain tomato seeds spread primarily through mother/daughter meetings, moving in this way between villages. Both manure and chemical fertilisers are applied, though fertilisers represent a major capital investment compared to the otherwise very low investments in this form of production. Produce from the two plots is destined for self-consumption. Often there is not even a marketable surplus. Surpluses and shortages of particular products are settled through informal sharing and exchange networks with neighbours, by bartering and by small-scale sales in local markets.

The rationale of the household form of production is that of basic food provision, and hence, livelihood security. Money plays a subordinate role in the organisation of inputs, in labour and in the use of the produce.

RICE AND COTTON

The three forms of production compete with one another for the limited available resources. This is especially evident in land-use planning and land allocation procedures. In particular, the relation between cotton produced under the state order system and commercial rice production is shaped by conflicting interests and contestation over resources. We saw above that the rice and cotton production processes have very different benefits for different actors. Moreover, their labour demands are different and to some extent conflicting. The conflict is not one between agricultural enterprises; after all, there are no separate state enterprises and commercial enterprises. Rather, the conflicting interests appear throughout the agrarian structure as a whole; they are an issue for the state, the *fermer* as well as the agricultural labourer.

State-ordered production is strongly linked to the interests of the state, and therefore to state officials, who for their position in the agricultural (and political) hierarchy depend on their ability to deliver the requested cotton quotas. Though delivering cotton is not the only criterion, the accountability

mechanisms of state officials are almost exclusively upwards-oriented, meaning that even *hokims* (governors) depend on their superiors rather than on constituents. Still, it is in their interest to allow substantial areas of rice to be planted, because they have a role as benefactor and patron in their communities and because it creates opportunities for them to gain personal benefits. The state hierarchy is not easily accessible for research, and people are not inclined to talk about upward loyalties or personal benefits accrued through rice allowances. Therefore, it is difficult to ascertain with certainty the exact processes steering the balance between cotton and rice production. It seems logical, however, that *hokims* more than the Department of Agriculture would be interested in increasing the rice area cropped in their districts. The somewhat conflicting messages in May and June 2006 about whether planting rice would be allowed followed directly from differences between the agricultural hierarchy and the *hokim*.²¹

The state-ordered and commercial forms of production are closest in the *fermer* enterprise. In practice the *fermer* manages both production processes. However, the *fermer's* management capacity is limited, in state-ordered production by checks and controls imposed by government and in commercial production by management responsibilities partly contracted out to labourers. Some *farmers* limit themselves to cotton production, as they have practical experience with its cultivation, the concomitant credits provide opportunities for investment without own capital, it has a rather stable output price and it builds socio-political capital with state authorities. However, *farmers* also generally try to get permission to cultivate some rice. The socio-political capital accumulated through reliable cotton delivery can be used as leverage to acquire such permission. *Farmers* with socio-political power vested in their job position, network or descent are often able to acquire rice permissions for relatively large areas.

Crop planning is central to the agricultural production strategies of both the Department of Agriculture and the *fermer*. Monitoring cropped areas is the main mechanism of governmental control over agriculture. The organisation of all other agricultural inputs is subordinate to the crop planning procedure. Still, even in input distribution there is interaction between the two forms of production. A *fermer* who grows both cotton and rice must balance the investment of inputs between the two processes. Subsidised fertilisers and credits can be used for investments in rice production. Similarly, *farmers* have to distribute their time, tractor use and labour allocations over these processes. Whilst almost all of the *dekhan* households work in cotton cultivation, only a limited number is involved in commercial rice production. Working in cotton cultivation serves as an entrance to other benefits of which the *fermer* is gatekeeper. Granting access to commercial rice cultivation is perceived as one of the best rewards, especially when the *dekhan* household

has a great degree of freedom over the rice cultivation, which results in good economic returns. This can be either through permanent employment contracts or profitable sharecropping arrangements. Such access to land is limited for *dekhans*, in principle being available only to households closely connected to a *fermer*. Besides control over land, a number of other benefits previously distributed through the collective farms are now accessible only through *farmers*. Examples are access to the cotton stalks that are used as firewood, access to grazing and provision of informal credits.

Thus, *dekhans* depend on *farmers* for access to various benefits. By the same token, *farmers* are very much in need of labourers for cotton cultivation, which is perceived as hard labour for a minimal wage. This situation has led to the formation of dependency or patronage networks in which cotton production serves as a upward buoy, compensated by access to commercial rice production. This pattern is evident in both state-*fermer* and *fermer-dekhan* relations. The dynamic interactions between the rice and cotton production processes are an expression of the relation between private interests and state interests. This is not to say that there is an interface between the state and 'society'. It has been argued before that the distinction between state and society does not really exist in post-Soviet Uzbekistan [Jones Luong, 2004]. This blurring of boundaries was an explicit aim during the Soviet reconstruction of society. In the current organisation of agriculture all agrarian actors are still clearly mobilised in the exercise of state production. Conversely, the state does not operate as a single body, but is subject to internal dynamics and the personal preferences of actors within it. The evolution of agricultural production from LFEs to household-based enterprises, like the *fermer* enterprise, has been accompanied by an increased sense of private ownership.

CONCLUSION

When analysing the roles of different actors in agricultural production from independence until 2006, little transformation is discernable. Coordination of agricultural production is still in the hands of the state, agricultural management rests with the rural elites (those who held management positions in the *kolkhoz*), and manual labour is still done by the same households – in the past they were called *kolkhozniks*, now they are *dekhans*. However, the units of enterprise and governing principles between these groups of actors have considerably changed. This study found that the dynamics between the state, the *farmers* and the *dekhan* peasants have taken shape in the context of three 'forms' of agricultural production, among which limited resources are being contested. That is, the state controls household production differently from commercial rice production, and differently again from state-ordered

cotton production. Yet in all of the production forms the state is in a position of control. Similarly, labour relations (often between *farmers* and *dekhans*) are organised differently in each form of production, yet in each production form the *dekhans* are the labourers.

This study of agricultural production in Khorezm, Uzbekistan, demonstrated the coexistence of three forms of production: (1) the state-ordered form of production of cotton and wheat; (2) the commercial form of production, mainly of rice and fodder; and (3) the household form of production, of a variety of food products for home consumption. Each has its specific organisation of inputs, labour, state control, distribution of benefits and marketing. In the state-ordered form of production, fulfilling quotas is the central objective. Production takes place on *fermer* land, but the state has a strong role in control over agricultural production [Trevisani, 2008b]. The commercial form of production is the main cash earner and source of investment capital for *farmers*. The areas used for rice cultivation are, however, strictly controlled by the state, and permissions to grow rice are used as rewards. By controlling the production process, the state controls emerging agricultural entrepreneurship. Finally, the household form of production fulfils the role of providing basic livelihoods and food security. It is in the state's interest to allow sufficient room for this, to maintain the social stability of the country, which indirectly influences political stability.

The way in which agricultural production is organised reflects the diverse economy of post-Soviet Uzbekistan. The Uzbek economy is not a transition economy in the sense that it is undergoing a step-by-step transformation from a state-socialist economy into a capitalist economy. Rather, it is in constant transformation and as such can be viewed as 'transformational' [Kornai, 2000]. Characteristic of this economy, and of Khorezm Province specifically, is its diversity of (production) rationales rather than its transition from one ideal type of economy into another. All three strands of the agrarian economy now have reason to exist; and stability of the system is achieved by interaction and exchange amongst the three forms of production.

This study found that many *farmers* have successfully tapped into the commercial form of production alongside the requisite state-ordered production. Delivery of outputs of the state-ordered form is a prerequisite for being allowed to develop commercial production. Thus, though management of agricultural production is in principle free within the commercial form of production, indirectly it is still strictly controlled by the state. Commercial production is attainable only by first demonstrating loyalty in production for the state. Socio-political capital created through delivery of state-ordered output is transformed into cash money through the commercial production of rice. This position of forced loyalty in which the state holds the *farmers* is emulated in the position the *farmers* hold their own workers: when

workers are loyal and work hard on the cotton fields they become eligible for better rewards. Access to land on which rice may be grown plays an important role in this reward system.

A set of ongoing agrarian reforms is changing the Uzbek social landscape. The wholesale switch from LFEs to *fermer* enterprises, implemented nationwide in 2005–06, was a jolt in an otherwise gradual process. In the period under study the privatisation of agricultural production advanced, but state regulation did not diminish. The interface between privatised commercial agriculture and state agriculture is most evident in the numerous contrasting aspects of cotton and rice production. *Fermer* enterprises in Khorezm often engage in both; state agricultural organisations are similarly involved in both. The watershed, rather than being between the *farmers* and the state, lies quite literally between cotton and rice, as the study of water distribution processes reveals the precarious relation between cotton and rice production [Veldwisch, 2008a]. This is not only due to conflicting resource requirements, but also because the distribution of resources between cotton and rice echoes the sharing of benefits between privatised commercial and state-ordered production.

NOTES

- 1 'LFE' is used to cover the broad spectrum of agricultural enterprises in state and collective agriculture. As the particular differences are relatively unimportant here, it is deemed clearer to use just the one term instead of *kolkhoz*, *sovkhos*, *shirkat*, collective, or cooperative [Spoor and Visser, 2004].
- 2 The field research was conducted within the scope of an agreement between the German Ministry of Education, represented by the Centre for Development Research (ZEF), the United Nations Educational, Scientific and Cultural Organisation (UNESCO), and the Government of Uzbekistan, represented by the Ministry of Agriculture and Water Resources (MAWR). The project developed under this agreement is entitled 'Economic and Ecological Restructuring of Land and Water Use in Khorezm'.
- 3 Trevisani [2008a] states that this specific wording was chosen 'for its ideological reference to the "historical" sedentary Uzbek oasis dweller, who used to make his living out of agriculture'.
- 4 The name *dekhan* was initially given to those who received land use rights via *ijara* contracts.
- 5 As noted by Spoor [2000], the area across which cotton was grown decreased from 1,666,680 ha to 1,487,300 ha between 1992 and 1996 while the area allocated to grain increased from 626,990 ha to 1,328,600 ha [FAOSTAT, 2007]. It is beyond the scope of this article, but if taking into account all environmental and economic costs (in terms of comparative advantage) of this largely extensive expansion of wheat production, it is questionable whether the undertaking would be justified, other than on political grounds.
- 6 Prices are *de facto* fixed as the state functions as monopolistic buyer.
- 7 The World Bank estimates that with a change in tax structure an increase of 50 per cent in cotton output would be possible, which would result in the same revenue for the state.
- 8 Arable crop *farmers*, as distinguished from *farmers* involved in animal husbandry and orchard *farmers*.
- 9 Field notes 10 May 2006.
- 10 Field notes 8 May 2006.
- 11 The national currency of Uzbekistan (during the fieldwork 1,000 *soum* was approximately 1 US\$).

- 12 Field notes 8 May 2006.
- 13 The expected 'official start' of the cotton-picking season, which actually turned out to be 8 September.
- 14 Field notes 23 August 2005.
- 15 Field notes 06 April 2006.
- 16 There is substantial evidence that besides university students and secondary school pupils, younger children are also being forced to participate in the cotton harvest [ICG, 2005].
- 17 Large *farmers* sometimes mobilise labour for cotton-picking through schools and state organisations, which bring bus and truck-loads of pupils and workers to the fields.
- 18 It is difficult to assess the area given over to rice, as rice growing is somewhat secretive and areas are not centrally administrated, or at least this data is not openly available. Moreover, the cropped area fluctuates with the availability of water. In wet years the (commercial) rice area in Khorezm possibly constitutes about 20 per cent of the total area [Veldwisch, 2007a].
- 19 Field notes 25 July 2006.
- 20 Field notes 2 May 2006.
- 21 For a more elaborate discussion see Veldwisch [2008a].

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