

Transition to Market Economies in Former Soviet Central Asia: Dependency, Cotton and Water

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INTRODUCTION

The transition from planned to market economies in the largely agriculturally-based Central Asian republics of the former USSR is a complex process. The article argues for an initiating (rather than a mere facilitating) role of the state in this transition, in which urgent measures are needed to promote agrarian markets and to modernise irrigation systems, water saving techniques and quality improvement. A generalised *laissez-faire* approach to markets, relying on the 'invisible hand', would be counter-productive in this transition process.

This article analyses problems of agrarian change within the transition to a market economy in former Soviet Central Asia. The four newly independent republics of 'middle' Asia, Kirgizstan, Tadjikistan, Turkmenistan and Uzbekistan, have all embarked on a transitional road to become market economies. In two of the four, Turkmenistan and Uzbekistan, the former communist parties – although under another name – have remained in power, with party secretary-generals becoming presidents. In Kirgizstan, a non-communist liberal came to power. Finally, in Tadjikistan a full-blown civil war disrupted the country. Although in Kirgizstan market reforms, including privatisation programmes, have gained some momentum (together with the nearby republic of Kazakhstan), they are developing only slowly in the other three republics.

The article focuses on the case of Uzbekistan which, in comparison with the other 'middle' Asian republics, is by far the most important, with a population of over 22 million. Uzbekistan, as part of its Soviet legacy, is strongly dependent on its cotton quasi-monoculture and is confronted with a large-scale ecological disaster in terms of water pollution, salinisation of soils and the drying-up of the Aral sea. The case will be discussed from the

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perspective that many developing countries (and Uzbekistan at least in some important aspects can be regarded as one) shifted in the 1980s and early 1990s from 'interventionist' to *laissez-faire* policies, involving a reduction in the state, market deregulation and privatisation, and opting for a more outward-directed strategy of (world) market integration. In most structural adjustment programmes in LDCs the state has been seen as an obstacle rather than a possible actor in the transition process, although some recent discussion on the role on the state has argued against the tendency of 'state minimalism' [Streeten, 1993]. The reaction to the 'bureaucratic failures' of market intervention during the post-independence or post-colonial period has in fact produced mixed results in LDCs, particularly in terms of income distribution, food security and sustainability.

The World Bank, which has been the major force behind the structural adjustment programmes, has recently formulated a strategy for transition to a market economy in Uzbekistan. The broad lines [IBRD, 1993] do indeed include standard policy measures, such as price liberalisation, state compression and privatisation. In this general 'agenda for economic reform' in Uzbekistan these elements are predominant, although for the agricultural sector attention is paid to the role the state should play in developing a legal framework for markets, and in setting up a comprehensive system of wholesale and retail marketing by, amongst other measures, providing 'credit for investment and working capital' [IBRD, 1993: 127]. The government of Uzbekistan, as an example of a strong state, seems unwilling to apply any form of shock therapy or quick transition to a market economy, and is in favour of a step-by-step transition, in which the role of the state is crucial.¹ This article argues against a generalised *laissez-faire* type of market reform, questioning the 'invisible hand' of the market as a panacea for the severe economic problems the country is confronting. My view is that the role of the state is crucial in the contemporary reconversion to a market economy, in particular because of the complex dependency relations that exist with the previous 'centre' (Russia, Ukraine). This will not necessarily lead to the negative 'muddle through' scenario the World Bank has envisaged if market reforms are not 'comprehensive' [IBRD, 1993: 39-40]. On the contrary, a new state role is necessary in order to promote market development and for securing the political stability that might be seriously jeopardised if shock therapy, as applied in Russia, was introduced.

The first section of the article discusses the background of the Central Asian 'development model' during the Soviet period, when the forced expansion of cotton production increased dependence on the Russian Federation and the Ukraine, and contributed to the current grave ecological situation. The agriculture-led growth model based on (mostly internal Soviet) cotton exports, and the corresponding investments financed by

massive transfers from the 'centre' to this sector did indeed bring rapid economic development, but without considering the enormous costs. The second section explores the crucial importance of cotton to the development of Central Asia during the last three decades. This crop not only restructured the overall economy, particularly of Uzbekistan, but influenced the formation of a particular political economy with a cotton-connected *nomenklatura* and a complex system of vested interests depending largely on this sector. The third section analyses the options for reform. What will be the impact of decollectivisation or land redistribution? Will market reforms improve water management? Should the 'white gold' be replaced by food staples and fruit (also in view of the low world market price for cotton)? Finally, in this section the current role of the state is discussed and in particular what could be its guiding role in the transition to a market economy.

AGRARIAN CHANGE IN CENTRAL ASIA: A BRIEF HISTORICAL OVERVIEW

Central Asia and the Russian Empire

During the 1860s Tsarist Russia expanded its reign to Turkistan, that included the Khokand and Khiva Khanates and the Bukhara Emirate with important cultural and trading centres such as Samarkand, Tashkent and Bukhara. These cities are known to us as part of the universe that linked east and west through the silk routes [Frank, 1992]. 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 [Carrère d'Encausse, 1988]. 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 late-comers to the Soviet orbit but had already passed through a long process of Russian colonisation. At the moment of colonisation they were largely agricultural, semi-nomadic and pastoralist societies with deeply entrenched feudal structures of land (and water) ownership. The four states Kirgizstan, Tadjikistan, Turkmenistan and Uzbekistan represented 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 [*Khan and Ghai, 1979; Spoor, 1980; Carrère d'Encausse, 1988*].

Cotton was already widely cultivated in the areas around the main rivers Syr Darya and Amu Darya, before it became so important to the Russian empire, and later to the USSR. The feudal system had produced rather intricate and effective means of water control, with 'waterlords' 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, which in turn provided manure for fertilisation of the soil. This system was still in use until the 1940s, but was mostly eliminated by the introduction of intensive cultivation of cotton that will be discussed below [*Rumer, 1987: 84*]. When the US civil war of the 1860s hampered exports from the 'cotton belt', Russia 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.

The Soviet Central Asian Model

Therefore, well before the October Revolution cotton had already become the main cash-crop in Central Asia, particularly in Uzbekistan and to a lesser extent in Turkmenistan and Tadjikistan. Although the surplus transfer from agriculture as a base for industrialisation in the early years of the USSR has been disputed [*Ellman, 1975*], these transfers were inherent in the – sometimes characterised as colonial – relations between Russia or the Ukraine and the Central Asian republics. In their well-known work on Central Asia, Khan and Ghai [*1979*] attempt to show the negative impact of this surplus transfer (through low procurement prices and monopoly trading) during the 1920s, by emphasizing the decreasing cotton yields. However, they also argue that from the early 1950s onwards the terms of trade greatly improved for cotton producers, comparing domestic procurement prices with export parity prices, leading to a positive supply reaction (Table 1), with increasing yields and output. Their conclusion is that the development of cotton in Central Asia was 'an exception to the strategy of primitive socialist accumulation', in which the transfer of surplus from agriculture finances industrialisation [*Khan and Ghai, 1979:21*].

With hindsight, I would disagree with this position. Firstly, to indicate

such a linear supply response to improved barter terms of trade in the context of the former USSR is rather problematic. Cotton production expanded under conditions of 'forced cultivation', comparable to well-known colonial situations. Therefore, the 'sharp shift of sown area away from grain into cotton' [*ibid.*: 25], which can indeed be observed, cannot be understood simply by pointing to a producer's reaction to relative price changes.² The order 'cotton first' that came from Moscow during nearly three decades with ever expanding production and procurement quotas, explains much more than any price development. Yield increases cannot be taken at face value, particularly not when one considers the bias to overestimate that was developing in the planned system.³ Furthermore, it was raw cotton yields that increased, while during the 1970s the quality of cotton, in terms of fibre content, was rapidly decreasing. For example, the share of inferior quality varieties increased in that period from 14 to 29 per cent [*Rumer, 1987: 78*].

Secondly, comparisons of domestic and world market prices have to be handled with great care as the exchange rate was highly artificial. 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. Thirdly, as the lion's share of cotton was (and is) exported to Russia and the Ukraine for further processing, the added value generated remained outside Central Asia. The region has practically no important textile factories and is even dependent on importing most of its textiles. A comparison of domestic procurement and world market prices of the lint equivalent ignores this important problem. Therefore, the contribution of Central Asia, and in particular of Uzbekistan (producing 70 per cent of the CIS cotton), to national income of the former USSR was greater than what was officially measured [*Rumer, 1989: 35*]. Fourthly, no ecological costs were taken into account in the production of cotton. Although water was scarce it has always been seen as a free resource. The high costs of spillages of pesticides, the salinisation of soils, the drying up of the Aral sea and the disastrous health consequences which are becoming clear would have to be estimated in any meaningful comparison [*Carley, 1989; Khazamov, 1990*]. Finally, while cotton expanded under orders of Moscow, other traditionally grown high-value crops like grapes and melons diminished in importance, although their market perspectives may have been better.⁴

Nevertheless, the financial transfers from the 'All-Union Budget' to the Central Asian republics were substantial for several decades and much of the currently existing infrastructure (roads, agro-industries etc.) was realised through investments from the 'centre'. While, contrary to the

argument of Khan and Ghai [1979], cotton prices remained substantially below world market prices, this was compensated by subsidised prices for major import commodities such as oil and grain.⁵ To make a final estimate of the net in- or outflow is almost impossible because of these complexities, although the answer must be sought in the hidden costs (of human ecology) of the development model. The agriculture-led growth model based on the cotton sector, that Khan and Ghai [1979] considered as exemplary, should therefore be critically examined. The observation that Central Asia catapulted 'from the middle ages into modern collective farms and state farms at one go' [*ibid.*: 3] has clearly to be qualified if one takes into account the consequences of over-specialisation and the dependency relations involved. The forced expansion of this irrigated crop led to dramatic ecological outcomes, while insufficient investment was made in modern water-saving techniques, with the result that large-scale cotton cultivation is now considered to be 'the tragic experiment' [Rumer, 1989; Khazamov, 1990]. The development model of Central Asia, and in particular of Uzbekistan (Turkmenistan having the extra resource of large reserves of natural gas) should indeed 'be studied carefully by those countries which cannot hope to develop by classical type industrialization' [Khan and Ghai, 1979: 103]. However, this should be done with caution in order not to duplicate the model, although this was originally suggested by the authors.

COTTON IN CENTRAL ASIA: FROM PANACEA TO ECOLOGICAL DISASTER

Cotton as 'White Gold'

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 (rainfed) pattern. It is interesting to note that summer (spring) grain cultivation indeed vanished. Nevertheless, crops like rice and corn, while falling in acreage until the 1970s, expanded again substantially during the 1980s.

Cotton increased rapidly its cultivated area, from 441,600 hectares in 1913 to 1,022,600 hectares in 1940. Production was carried out on production co-operatives (*kolkhoz*) and state farms (*sovkhos*), which were established in the early 1930s after the country had experienced a wide-scale land reform during the second half of the 1920s [Khan and Ghai, 1979: 38-9]. Water management came under the control of regional authorities, and major

TABLE I
AGRICULTURAL SECTOR UZBEKISTAN (1913-91)

	1913	1940	1960	1970	1980	1985	1986	1987	1988	1989	1990	1991
Wheat (winter)	Area (x 1,000 Ha)	460.5	384.2	540.0	500.0	396.7	269.9	426.9	431.2	327.6	407.0	..
	Output (x 1,000 Tn)	299.3	172.4	253.6	340.2	415.0	353.1	461.0	539.0	321.0	521.0	..
	Yield (Tn/Ha)	0.7	0.3	0.7	0.6	0.8	0.9	0.8	1.1	1.3	1.0	1.3
Wheat (spring)	Area (x 1,000 Ha)	471.7	396.7	128.2	123.6	22.7	32.1	41.0	25.3	18.3	24.8	..
	Output (x 1,000 Tn)	212.3	103.1	70.5	66.7	16.8	34.4	34.0	24.0	21.0	32.0	..
	Yield (Tn/Ha)	0.5	0.3	0.6	0.5	0.7	0.6	0.5	0.8	1.0	1.2	1.3
Wheat (total)	Output (x 1,000 Tn)	512.6	272.6	327.0	408.9	433.9	387.9	495.0	563.0	342.0	533.0	..
Barley (winter)	Area (x 1,000 Ha)	117.7	107.1	211.8	312.4	304.3	163.0	208.9	256.4	214.7	269.2	..
	Output (x 1,000 Tn)	57.7	34.3	167.3	253.0	276.9	166.3	257.0	359.0	219.0	358.0	..
	Yield (Tn/Ha)	0.5	0.3	0.8	0.8	0.9	1.0	1.0	1.2	1.4	1.0	1.3
Barley (spring)	Area (x 1,000 Ha)	132.9	207.5	90.6	77.7	36.3	48.0	31.4	27.8	22.5	22.5	..
	Output (x 1,000 Tn)	74.4	64.3	55.3	45.8	33.0	33.6	32.0	32.0	27.0	27.0	..
	Yield (Tn/Ha)	0.6	0.3	0.6	0.6	0.9	0.7	0.8	1.0	1.2	1.2	..
Barley (total)	Output (x 1,000 Tn)	143.3	98.0	225.4	301.4	309.2	199.4	289.0	391.0	246.0	385.0	..
Rice	Area (x 1,000 Ha)	161.1	83.1	31.2	63.3	105.1	150.3	135.2	166.5	160.8	147.1	159.0
	Output (x 1,000 Tn)	210.2	125.5	57.8	184.9	507.2	482.2	506.0	581.0	484.0	502.0	520.0
	Yield (Tn/Ha)	1.3	1.5	1.9	2.9	4.8	3.2	3.1	3.3	3.5	3.0	3.3
Corn	Area (x 1,000 Ha)	38.8	17.3	30.8	24.6	185.0	128.9	118.6	116.3	111.1	108.8	107.4
	Output (x 1,000 Tn)	38.8	33.5	70.8	66.3	1,229.7	443.1	399.0	520.0	460.0	431.0	421.0
	Yield (Tn/Ha)	1.0	1.9	2.3	2.7	6.7	3.4	3.3	4.5	4.1	4.0	3.9
Cotton	Area (x 1,000 Ha)	441.6	1,022.6	1,427.9	1,709.2	1,912.1	2,027.0	2,103.0	2,016.9	1,967.3	1,832.6	1,719.6
	Output (x 1,000 Tn)	517.2	1,385.9	2,823.5	4,495.2	5,579.0	5,381.8	4,989.0	4,838.0	5,292.0	5,058.0	4,643.0
	Yield (Tn/Ha)	1.2	1.4	2.0	2.6	2.9	2.7	2.4	2.3	2.7	2.8	2.7
Potatoes	Area (x 1,000 Ha)	6.5	23.5	28.1	21.2	23.3	26.3	30.0	31.1	35.3	42.0	39.5
	Output (x 1,000 Tn)	46.2	113.3	162.7	180.3	259.0	240.7	308.6	308.0	325.0	336.0	316.0
	Yield (Tn/Ha)	7.2	4.8	5.7	8.3	10.0	9.0	10.2	8.5	9.9	9.2	8.0

Source: IBRD [1992]; Narodnoye. [1987]; Narodnoye ... [1991].

canals were constructed in the 1930s and 1940s to expand the irrigated area [Gleason, 1991: 13]. 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 2,000,000 hectares in the early 1980s. By increasing yields rapidly, output had reached nearly 4.5 million tons in 1970 and more than five million tons in 1980, ten times the 1913 figure (see Table 1).

Most investments, however, were made in the construction of these main canals, while the ageing traditional irrigation systems were hardly modernised [Khazamov, 1990]. 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, this had low priority in Central Asia. The seepage from major canals and field channels 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 between 6–10 m³ of water is needed per centner (100 kg) of raw cotton, compared to 1.5 m³ in Israel [Khazamov, 1990: 30; Rumer, 1987: 81]. The *sovkhoz* and *kolkhoz* were part and parcel of the state supply and procurement system, in which 100 per cent of the produce was procured, according to the centrally established plan (with some incentives for above norm production), and inputs were planned on the basis of the (over) estimates of the enterprise management. Water, the most important input had no price, and does not therefore represent a cost in the production accounts.

Cotton and the Ecological Disaster

The consequences of the indiscriminate use of scarce water resources are by now widely known. The Aral sea is on the verge of disappearing unless drastic measures are taken. This can be appreciated by the fact that out of the estimated overall river volume of water destined to supply the Aral sea of 120–127 cubic kilometre per annum, an estimated 90 cubic kilometre is used for irrigation of Central Asia, with 60–65 cubic kilometre for cotton [Khazamov, 1990: 30]. Furthermore, the ecological disaster has become one of human ecology. Owing to overspecialisation in cotton and the indiscriminate use of pesticides, large quantities of mineral residues have polluted surface waters and aquifers. Fish from the enormous Aral and Balkhash lakes are not fit for human consumption, hundreds of thousands of hectares of fertile land have turned into sand and salt deserts, and child mortality and the number of severe birth deformations in the Karalkalpak region (south of the Aral sea) have increased drastically [Carley, 1989: 2]. In

the main agricultural areas, such as the eastern Fergana Valley, the dominance of cotton is clear to any visitor. During a field trip in October 1993, made at the end of the cotton harvest, it was impressive to find cotton everywhere, indeed 'as far as the eye can see'. The salinization of soils is quite visible as well, and understandable when one is informed that many of these fields (in a very populated area) have been sown with cotton for more than 50 years.⁷

Although the 'successful' cotton boom has been attributed to the efficiency of collectives and state farms [*Khan and Ghai, 1979*], the planned system in which they operated did not provide incentives to introduce water-saving techniques, modernise irrigation systems or improve the quality of raw cotton in terms of fibre content. As in all sectors of the Soviet economy, production or procurement targets were volume or weight oriented, mainly ignoring quality criteria. Furthermore, as traditional irrigation systems were rather labour intensive and the collectives and state farms defended full employment, no incentive existed to introduce any modern (labour- and water-saving) installations [*Khazanov, 1990: 32*].

The Cotton Nomenklatura

While the rapid expansion of cotton production was imposed by orders from Moscow, vested interests developed within the political elite of the Central Asian republics (partly native and partly Russian) 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. The falsification of output and yield data, illicit trade practices and forced labour, came to the surface after the Uzbekistan Party-leader, Sharif Raishidov, 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; a reason why after independence in Uzbekistan many convictions were reexamined and several persons rehabilitated [*Cavanaugh, 1992*]. However, the fact remains that cotton is not only the motor of the Uzbekistan economy but many vested interests depend on 'white gold'. As Rumer [*1987: 82*] noted:

In Uzbekistan it has degenerated into the dictatorship of a single crop, indeed one so highly specific as cotton ... By being transformed into virtually one great cotton plantation, Uzbekistan embarked on a long tragic experiment – to determine the capacity of a monoculture to corrode not only agriculture, but also industry, education, health, and finally public morality (quote from *Literaturnaya Gazeta*).

In the newly independent republic of Uzbekistan the use of mass labour

brigades is still commonplace. During the cotton harvest period, one is often obliged to give way, when travelling at dawn in the Fergana valley, to long queues of trucks and buses, hired by the cotton enterprises and full of young students, factory workers and civil servants, in the majority women. With the liberalisation of prices of many inputs, the use of harvesters has become much more expensive, while the quality of hand-picked 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.⁸

TRANSITION TO A MARKET ECONOMY IN CENTRAL ASIA

Step-by-step Economic Reform

While in Kazakhstan and Kirgizstan the transition to a market economy has already entailed substantial privatisation and market liberalisation, this process is much slower in Uzbekistan and Turkmenistan, although the political regimes pay lip-service to economic transition. Of course, as part of the Rouble zone (prior to the introduction of a new currency in November 1993), the inflation that resulted from the April 1991 and January 1992 price liberalisations in the former USSR, strongly affected Uzbekistan. In 1991 inflation was 147 per cent, rising rapidly to an estimated 700 per cent in 1992. Wholesale prices in Uzbekistan are estimated to have risen by 2,700 per cent in 1992. In Table 2 it can be observed that GDP in 1991 decreased slightly by 0.5 per cent but in 1992 it decreased substantially by 9.6 per cent, although this was still much lower than in most other republics of the former USSR. During 1993 inflation continued to be high with average monthly rates between 20–30 per cent.⁹ Although most consumer prices are determined by the market, some basic necessities (foodstuffs, public transport and medicines) are still being subsidised [Cavanaugh, 1992: 35].

The non-state sector has been traditionally important in the Central Asian societies, where the *bazaar* plays a crucial role for retail trade and small workshops. However, in the last two years rapid small-scale privatisation can be observed in the urban informal sector [Johnson and Islamov, 1991]. In the agricultural sector gradual but still important reforms are being undertaken with the land-leasing programme. They are of political significance as they are regarded by some as potentially leading to land conflicts in highly populated regions, such as the Fergana valley.

Popular pressures on existing agricultural land have already led to outbreaks of violence in the densely populated Fergana valley. A Land Code was adopted in 1990 which was supposed to reduce tension over land by permitting plots to be leased by private farmers. However, some state and collective farm officials complained that if each family

TABLE 2
MACRO-ECONOMIC INDICATORS UZBEKISTAN (1985-92)

	1985	1986	1987	1988	1989	1990	1991	1992
GDP (Rbl.Mill.Current Prices)	..	..	..	29,372	30,698	32,340	56,300	416,900
Real GDP Growth (%)	..	..	..	10.2	3.7	1.6	-0.5	-9.6
NMP (Rbl.Mill.Current Prices)	20,000	19,600	19,354	20,743	21,558	23,402	45,963	..
Real NMP Growth (%)	.. ^a	.. ^a	.. ^a	9.6	3.1	4.5	-0.9	-20.0
Gross Agric.Product (Rbl.Mill. Constant 1983)	10,215	10,014	10,014	10,049	10,931	10,456	11,114	10,870 ^b
Population (x 1,000)	18,090	18,107	19,107	19,623	20,108	20,532	20,955	21,450
Trade Balance (Rbl.Mill)	..	..	..	-1,674	-3,868	-4,851	-619	-39,000

Sources: EIU [1993]; IBRD [1992]; IBRD [1993].

Notes: (a): *Narodnoye Khozyaystvo Uzbekskoy SSR... [1987: 24]* provides the growth rates 4.8%, 2.5% and 3.8% for NMP (1985-87), but given the later data (with decreasing NMP in current terms) these are hardly reliable.

(b): The limited growth of the agricultural product was due to livestock development. There was stagnation of crop production during the 1980s.

were to claim the amount of land prescribed in the law, there would be no farms left. Nonetheless, by the spring of 1992 about 500,000 ha of arable land had been distributed under the provisions of the 1990 law [EIU, 1993].

However, in government circles there are still important reservations about the possible redistribution of state-owned land or a process of decollectivisation, not only because of possible economies of scale, but also because this might lead to social tensions.¹⁰ Land ownership is still in the hands of the state, and privatisation is in the form of long-term lease contracts. Only a small percentage of land has been given to commercial family farms, while most has been divided into very tiny household plots. Some important reforms have been implemented, as a first step towards 'legitimising the processes which were based on previously underground activities' [Johnson and Islamov, 1991: 16]. In 1993 many *kolkhoz* and *sovkhos* underwent changes of ownership. They were transformed into joint-stock companies or leased some of their land to households. However, in most cases the changes were only formal. Possibly of greater significance is the gradual relaxation of the state procurement quota for the most important crops. In 1991 only five per cent of the *plan* volume of cotton and corn could be sold at 'free prices'.

while this rose to 15 per cent in 1992 and to 20 per cent in 1993. It was 50 per cent for grapes and vegetables.¹¹ In a *kolkhoz* visited in the Fergana valley in October 1993 the management made clear that cotton production was only worthwhile for this 20 per cent, as the official procurement price was very low.¹² State influence has remained widespread, and there is only limited liberalisation in export markets.¹³

Down with Cotton?

Within the debates on the transition strategy for Uzbekistan, anti-cotton sentiments blaming the crop for all major problems like dependency and ecological disaster, are present. Some now argue that the cotton area in Uzbekistan (and Turkmenistan) should be severely reduced, adopting a nationalist slogan which was heard as far back as 1970 in Tashkent: 'down with the cotton, long live the orchards' [*Khazamov, 1990: 25*]. However, in the late 1980s most demanded reductions in the cotton area to the order of 15–20 per cent, with 1.7 million hectares seen as the objective [*Gleason, 1990: 22*]. In Table 1 it can be seen that this level was nearly reached in 1991, while there has been some increase (albeit not comparable) in the grain and potato areas and output. In 1992 the cotton area fell to below 1.7 million hectares.¹⁴ Cavanaugh [*1992: 37*] relates this contraction to: 'Although state procurement prices have been raised for most crops, they are still set well below market levels. This gap has created a new "scissors crisis" for farmers, who are faced with skyrocketing prices for fuel, machinery, and other manufactured goods.' Furthermore, cotton exports confront a complex market situation, one in which Russia and Ukraine are not prepared to raise their prices [*EIU, 1993: 97*], as long as they represent the traditional captive market. World markets are flooded with cheaper and better quality Chinese cotton fibres causing increased competition at the lower level of world market prices.¹⁵ Given the quality problems of Uzbek cotton, for the time being it is destined for the big brothers in the north until alternative markets are conquered.

Water has been, is and will remain the major problem for Central Asia, and its agricultural sector. During the 1980s there was a move to increase future water supply by diverting the Siberian rivers. In view of the enormous financial costs of such a project and under pressure from a growing environmental lobby, the Kremlin (under Gorbachev) aborted the project in 1987. In Central Asia, from a demand-side perspective, this decision was deplored and is now regarded with a certain amount of suspicion. However, increased water supply will not solve (and in some cases may aggravate) the problem of mineral pollution and salinisation if water management remains ineffective. This project, given the new situation of the CIS, is definitely not on any policy agenda. Moreover, conflicts over water resources are more likely

than ever, and it is to be hoped that the still existing River Basin Organisations can be strengthened in order to avoid future conflicts [cf. *IBRD, 1993*].

For Uzbekistan, one of the major water users (with nearly all of its 4.2 million hectares irrigated), the question of diversification from cotton to food crops and fruit production, such as grapes and melons that have been traditionally grown in this area, needs to be addressed. This could be part of the solution, but the main problem is not cotton itself, but the inefficient use of water and agricultural inputs. Khazamov [1990: 32] argues that most irrigation water 'does not reach the fields' so that drastically cutting the cotton area would only marginally ease the Aral sea problem (while at the same time cutting the life-line of the Uzbek economy). What is needed are policies that improve the use of water and pesticides, partly to be achieved through the market (by increased prices, indicating real scarcities), and partly through regulations and taxation.¹⁶ The state will have to play a crucial role in this process. Investments have to be carried out in irrigation schemes and water-saving techniques, and cotton production concentrated in those areas where water losses are lowest and production options best.

Large-scale diversification of crops grown on former cotton areas will only be possible in the long run, as water resources are heavily polluted by minerals and food crops would be immediately affected [*Khazamov, 1990: 32*]. In the mid-1980s cotton employed 40 per cent of the Central Asian labour force [*Rumer, 1989: 62*], while occupying three-fifths of the cultivated area in Uzbekistan (excluding silage crops). Therefore not only agriculture but the whole economy has to diversify (and more non-agricultural jobs have to be created). The still dominant cotton sector needs to be developed in terms of fibre content, improved varieties, water-saving techniques, alternative and controlled use of pesticides and integrated pest management, and last, but not least, in terms of an increased industrial processing capacity. The Karimov government has recently opened its borders to foreign companies and donors, resulting in several industrial and agricultural investment projects. One example is a large-scale project in which an estimated 50,000 hectares of productive land will be modernised and diversified towards potatoes and wheat with Dutch technical assistance.¹⁷ Focusing attention on increased food production (thereby reducing dependency on Russia and the Ukraine) is indeed important, but this should go hand in hand with the development of wholesale and retail markets, as mentioned earlier.

Market Development or the 'Invisible Hand'?

Although some reforms of property rights have been pushed forward [*Johnson and Islamov, 1991*], in Uzbekistan market reforms have been limited. Cavanaugh [1992] therefore noted that there will be a 'long road to

the market' and also observed for the case of Uzbekistan that: '... it is clear that the republic's conservative government will refrain from any measures likely to press too hard on the already impoverished nation and possibly cause political unrest' [*ibid.*: 38]. It is questionable whether a process of decollectivisation and land redistribution should be pursued in the short run. A differentiated approach should be adopted, depending on the particular region and production system. If this is developed in a 'comprehensive' manner, it should not lead to the 'muddle through' scenario which IBRD [1993: 39-43] is painting. It seems inadvisable to parcelise large-scale cotton enterprises and preferable to experiment with different forms of enterprise organisation and ownership. In grain, fruit and vegetable production the private family farm might be the most efficient form, depending on the existence of functioning input, and on capital, financial, labour, wholesale and retail markets. Generalised privatisation of land and rural assets in a situation where these markets do not exist, or only in a partial and inefficient form, could contribute to political-ethnic problems, create enormous open unemployment, and lead to concentration of land (within the current monopolised power relations of Uzbekistan) and the creation of class of landless and rural workers.

In the absence of state, regional or municipal control, water management, already a central problem for the whole of Central Asia, will be even more complicated to solve [*Gleason, 1991*]. One should not forget that Turkmenistan and Uzbekistan have three-quarters of the region's land area and most of the arable land, yet have access to only one-fifth of the water resources [*Rumer, 1989: 76*]. Although 'bureaucratic failure' contributed greatly to such ecological disasters as the Aral Sea, 'the market' can hardly be expected to provide all the solutions. It will be important to stimulate private production and marketing, and to reduce the omni-potent presence of the state. Paradoxically it will have to be the state which guides this process, as the 'invisible hand' of market forces will not spontaneously develop rural and urban marketing systems. The state should therefore develop a strategy in which 'market development' takes a prominent place, in particular by promoting increased domestic and foreign competition.¹⁸ Private and collective production should develop in an environment that links incentives with improved quality and the markets where commodities and services can be sold. Therefore, the state should not only play an enabling or facilitative¹⁹ role (providing education, research, extension services, legal framework), but also an initiating role which emphasises modernisation of irrigation works, improvements in the efficiency of water use (through price policy and taxation), and investments in processing (oilseed and textile in the case of cotton) industries to decrease the dependency of the economy. This can often be achieved by giving the emerging private sector the appropriate

incentives, through credit, financial guarantees, tax exemptions and so on. If diversification of agricultural crops is pursued, the development of the marketing sector, including inputs, processing, transport and credit provision will become crucial. This should complement the current 'leap' tendency towards productive modernisation, instead of remaining a residual area of policy.

NOTES

1. Interview with President Islam Karimov of Uzbekistan, in *Time International*, 15 Nov. 1993.
2. Khan and Ghai [1979: 71] indicate even that grain prices in 1976 were 50 per cent higher than international prices, while for cotton this was 27 per cent. However, net incomes per hectare and per ton were clearly much higher for cotton than for grain. Gleason [1990: 20] makes a similar point.
3. During the early 1980s output/yield data were exaggerated by as much as 20 per cent [Gleason, 1990: 20]. A quick look at Table 1 raises the suspicion that these overestimates were endemic for the whole agricultural sector (see wheat, barley, corn and rice).
4. However, intensive fruit production elsewhere in the former USSR has not been exempted from grave ecological problems.
5. Professor Yuli Olshevitch, Institute of Economics, Moscow made this clear to me when discussing an earlier version of this article.
6. In the same year this study was published I visited Kazakhstan and Uzbekistan and I was equally impressed by the results of the cotton boom [Spoor, 1980]. As in their book, in my interviews the use of water and the ecological costs were never seen as a problem. The only problem was that there was not enough water, and therefore Siberian rivers should be diverted, supplying Central Asia.
7. Field notes research visit Fergana Valley, 26–29 Oct. 1993.
8. Field notes research trip to Fergana valley, 26–29 Oct. 1993. In an interview with a factory manager in a border town with Kirgizstan he made clear that his workers were obliged by the mayor to participate in the harvest.
9. Data provided the Tashkent Institute of Finance and Prices.
10. Interview with the Chairman of the Uzbek Academy of Agricultural Sciences, 23 Oct. 1993.
11. Personal notes of Professor Yuli Olshevitch prepared as comments on an earlier version of this article.
12. Field notes research visit Fergana valley, 26–29 Oct. 1993.
13. The EIU [1993] reported:

As cotton dominates Uzbekistan's exports, the result is that the government still directly controls some 85% to 90% of total exports. There have been calls for more trade liberalization, and a growing illicit cotton trade may oblige the government to relinquish control of exports.

- In practice, this has not happened during the first half of 1993.
14. MBA-INRA [1993: 36–37].
 15. In the early 1980s the former USSR contributed more than 20 per cent of the world cotton production, while Uzbekistan produced as much cotton as the USA. With the 1992 harvest of 4.13 million tons Uzbekistan is still one of the world's major cotton producers.
 16. Government officials indicated to me that there were serious plans to implement water taxation and differential prices (Interview, Chairman of Institute for Agricultural Economics, 25 Oct. 1993, Tashkent).
 17. According to newspaper reports of early June 1993, a Dutch co-operative company will be

- the most important sub-contractor in this project which is entitled 'Small Holland'. This company CEBECO Handelsraad has a near monopoly position in the Dutch market for agricultural inputs.
18. See the suggestions made in FAROSAT [1992], *Market Modernization of Uzbekistan's Economy*.
 19. Faaland and Parkinson [1991].

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