



ZEF Bonn
Zentrum für Entwicklungsforschung
Center for Development Research
Universität Bonn

Richard Pomfret

Number
79

**Resource Abundance,
Governance and
Economic Performance
in Turkmenistan
and Uzbekistan**

ZEF – Discussion Papers on Development Policy
Bonn, January 2004

The CENTER FOR DEVELOPMENT RESEARCH (ZEF) was established in 1995 as an international, interdisciplinary research institute at the University of Bonn. Research and teaching at ZEF aims to contribute to resolving political, economic and ecological development problems. ZEF closely cooperates with national and international partners in research and development organizations. For information, see: <http://www.zef.de>.

ZEF – DISCUSSION PAPERS ON DEVELOPMENT POLICY are intended to stimulate discussion among researchers, practitioners and policy makers on current and emerging development issues. Each paper has been exposed to an internal discussion within the Center for Development Research (ZEF) and an external review. The papers mostly reflect work in progress.

Richard Pomfret: Resource Abundance, Governance and Economic Performance in Turkmenistan and Uzbekistan, ZEF – Discussion Papers On Development Policy No. 79, Center for Development Research, Bonn, January 2004, pp. 20

ISSN: 1436-9931

Published by:

Zentrum für Entwicklungsforschung (ZEF)

Center for Development Research

Walter-Flex-Strasse 3

D – 53113 Bonn

Germany

Phone: +49-228-73-1861

Fax: +49-228-73-1869

E-Mail: zef@uni-bonn.de

<http://www.zef.de>

The author:

Richard Pomfret, School of Economics, University of Adelaide,
(contact: richard.pomfret@adelaide.edu.au)

Contents

Acknowledgement

1	Introduction	1
2	Turkmenistan and Uzbekistan since Independence	2
3	Energy and Agriculture Rents	8
3.1	Estimating the Energy Rent	8
3.2	Agricultural Rent: The Cost of Agricultural Price Controls	9
3.3	Agricultural Rent: How is it Used?	12
3.4	Summarising the Contrasting Scale and Deployment of the Natural Resource Rents	13
4	How Sustainable are the Resource Rent Flows?	14
	References	18

Acknowledgement

I am grateful to Rick Auty for helpful comments on an earlier draft and to Alan Gelb for sharing his unpublished research. A longer version of this paper (Pomfret 2002b) is available from NBR at <http://www.nbr.org>

This paper is part of a collaborative research effort between ZEF, the National Bureau of Asian Research, Seattle, WA, and Professor Richard Auty of Lancaster University. The larger project focusses on the effects of natural resources on governance in the Caspian Sea Region.

1 Introduction

This paper analyses the connection between resource wealth, governance and economic performance in Turkmenistan and Uzbekistan. Since independence, both countries have remained heavily resource-dependent and they have had political stability, but despite some similarities, their economic situations have been diverging since the transition shock in 1991. Although the two countries are resource-abundant, their resource endowments differ: both have energy resources and farmland suited to cotton-growing, but Turkmenistan's resource base is heavily skewed towards natural gas, with cotton and oil of lesser importance, and with very little other economic activity. Uzbekistan's major exports are cotton and gold, with energy endowments sufficient to cover domestic needs but without substantial energy exports. Both oil fields and cotton fields yield rents and this paper estimates their scale and also examines how the different socio-economic linkages associated with each set of rents differentiates the capture of the rents and their deployment. The paper argues that during the first decade of transition the rents from both sets of natural resources could be realised with little recourse to FDI so that both regimes were able to resist pressure for rapid reform. However, despite acknowledged policy errors, Uzbekistan managed its rents more effectively and responsibly than Turkmenistan and it faces the more promising future.

2 Turkmenistan and Uzbekistan since Independence

Both countries are fairly sparsely populated (Table 1) with large areas of desert, although Uzbekistan is the most populous Central Asian country with the region's metropolis, Tashkent, and with a large part of the densely populated Ferghana Valley in the east. Both countries used to be considered high or upper middle income countries but, following a substantial decline in real income since the end of central planning and the dissolution of the Soviet Union, according to World Bank estimates of GNP per capita in US dollars, both are now low income countries. Measuring gross national product (GNP) in US dollars has many conceptual problems, especially associated with determining the appropriate exchange rate, and the estimates in Table 1 overstate the extent of the decline. Estimates based on output data indicate that Uzbekistan's real GDP in 2001 was three percent higher than in 1989, while Turkmenistan's had fallen by sixteen percent since 1989 (EBRD 2002).¹ Measures of inequality and of poverty increased during the 1990s, but not by as much as elsewhere in the former Soviet Union (FSU), and these countries avoided the drop in life expectancy observed in Kazakhstan, Russia and other CIS countries.

Table 1: Basic statistics, Turkmenistan and Uzbekistan 1990s

	Population (millions)		Area (thousand sq. kms.)	GNP per capita (US\$)		Life expectancy (years)		
	1992	1999		1991	1999	1991	1998	
							M	F
Turkmenistan	3.9	4.8	488	1,700	660	66	63	70
Uzbekistan	21.4	24.5	447	1,350	720	69	66	73

Sources: ESCAP (2002), World Bank (1993), 238-9; World Bank (2001), 274-9.

Notes: Turkmenistan's official statistics give GDP growth of 18% in 2001 and over 20% in 2002, but the EBRD has "serious data concerns" over these figures. In the same report Turkmenistan's population is estimated at 5.2 million in 1999 and 5.8 million in 2002 (EBRD, 2002, 40).

¹ European Bank for Reconstruction and Development, *Transition Report Update*, May 2002, Annex 1.1.

Resource Abundance, Governance and Economic Performance in Turkmenistan and Uzbekistan

Uzbekistan, and to a lesser extent Turkmenistan, contained the core areas of cotton production in the USSR. They were also the two largest producers of natural gas in Central Asia. For Turkmenistan, natural gas became the dominant economic sector in the 1980s and at independence, Turkmenistan was the fourth largest gas producer in the world. The recent development of the gas fields meant that, unlike much of the region where energy production stagnated during the late Soviet era, Turkmenistan's gas exports to other former Soviet republics remained a major revenue earner in the years after independence. Uzbekistan's energy reserves were less developed before 1991 and, although exploitation increased after independence, it served to achieve self-sufficiency by 1995 rather than become a major export-earner. Uzbekistan's second most important export after cotton is gold, whose value remains secret. Additional advantages arise from the character of Tashkent, which with over two million people, was the metropolitan centre of Soviet Central Asia, and the city was home to a relatively developed manufacturing sector and to abundant administrative and other skills, as well as relatively good transport infrastructure.

After independence, both Turkmenistan and Uzbekistan aimed to sell their natural resource exports at world prices, although this was easier for cotton and gold than for either gas or oil, whose destinations were determined by the inherited pipeline system. Both governments tried to diversify their economies. In agriculture this centred on changing the crop pattern in favour of wheat, in part at the expense of cotton but also at the expense of forage and other crops. The outcome in both countries was to increase wheat production and reduce cotton output during the 1990s, although Uzbekistan was more successful in both increasing wheat output and limiting the decline in cotton, as well as in maintaining reasonable yields (Table 2).²

Table 2: Cotton and wheat output and yield, Turkmenistan and Uzbekistan, 1991-8.

	Seed cotton (1000 tonnes)		Wheat (1000 tonnes)	
	Turkmenistan	Uzbekistan	Turkmenistan	Uzbekistan
1992	1290 (2.3)	4128 (2.5)	377 (1.9)	964 (1.5)
1994	1283 (2.3)	3936 (2.6)	675 (2.6)	1362 (1.4)
1996	436 (0.8)	3350 (2.3)	424 (0.7)	2742 (2.1)
1998	707 (1.2)	3220 (2.1)	600 (1.2)	3094 (3.2)

Source: Goletti and Chabot (2000), 50-52.

Note: figures in parentheses are yields, in tons per hectare.

² In the arid conditions in both countries output is volatile. The 1998 harvest was good in most districts due to exceptionally favourable rains, while 1996 was disastrous.

After 1991 Turkmenistan supplied natural gas to Ukraine and the Caucasus charging world prices rather than the old plan prices and received the revenue, minus transit fees. Although substantial rents were earned on gas exports, maintaining them became increasingly difficult. The inherited pipeline system allowed transit states to levy high fees and final users to delay payment, knowing that Turkmenistan had no alternative outlets. In March 1997 Turkmenistan responded to the holdout problem by stopping gas exports to its main debtor, Ukraine. Supplies were only resumed, after protracted negotiations with Russia and with Ukraine and other importing countries, in January 1999 (Sagers, 1999). That episode improved payments, although Ukraine only agreed to pay half of its bill in cash and the remainder in barter. The opening of a small pipeline to Iran in 1997 also helped to diversify outlets, but to date that pipeline has operated below capacity, apparently due to Iranian reluctance to purchase more gas from Turkmenistan.

The cotton sector of Turkmenistan also experienced problems. Rent extraction through a state order system left farmers with limited incentives. In addition, starting in the mid-1990s, the Turkmenistan government promoted import-substituting industrialization, mainly involving textile mills. It subsidized the cotton supply to the textile factories, which operated with low efficiency, possibly even negative value-added, and dissipated perhaps a third of the cotton rent (Pomfret, 2001).

Through all of this Turkmenistan's government has maintained its strategy of reform avoidance. Economic policy aimed to minimize change, while maintaining popular support through consumption subsidies (gas, water, electricity and bread were free to households). The simple economic structure permitted a quasi-planned economy to survive after the end of Soviet planning. Controls were tightened in 1998 by foreign exchange restrictions, which created a black market, while domestic prices became ever more distorted and artificial. Performance is difficult to measure because national accounts data are the least credible in the CIS, but there has undoubtedly been a severe decline in output since independence. Poverty rates appear not to have risen as much as elsewhere in Central Asia, perhaps because, apart from the President and his immediate entourage, income distribution is fairly egalitarian.

Uzbekistan's situation at independence differed in that cotton and gold used more flexible transport systems and could be readily diverted to world markets. The immediate access to resource rents in Uzbekistan and Turkmenistan explains their resistance to economic reform, in contrast to Azerbaijan and Kazakhstan, which needed foreign assistance to develop their resources before the export revenue could flow in. Uzbekistan did, however, differ from Turkmenistan in that, although conservative, the government was not viscerally opposed to change. The official policy of gradual reform was not a euphemism for no reform. Housing and small-

Resource Abundance, Governance and Economic Performance in Turkmenistan and Uzbekistan

scale privatisation were implemented rapidly, although large-scale privatisation was not. Stabilization was delayed because the government initially resisted pressure for Big Bang reform, but once convinced of the dangers from hyperinflation and of its causes the Uzbek government, unlike Turkmenistan's, implemented a standard stabilization policy from January 1994. Uzbekistan also lodged a formal application for WTO membership, unlike Turkmenistan, which remains the only transition country not to have made such an application (Pomfret, 2002a).

By the mid-1990s the outstanding feature of the Uzbekistan economy was that, measured by GDP, its performance since 1989 was the best of all former Soviet republics and better than most eastern European transition economies. This was helped by the initial resource endowment, but also was a result of policies for public investment (Taube and Zettelmeyer, 1998). Moreover, Uzbekistan had a good record of maintaining state revenues and public expenditures on education and health (Pomfret and Anderson, 1997). Provision of targeted social services by innovative institutional change helped poverty alleviation (Coudouel and Marnie, 1999). In sum, although Uzbekistan scored poorly on western-based transition indicators, it differed fundamentally from Turkmenistan's lack of any serious transition strategy, and its economic performance over the first decade after independence was superior.

In part, the differing outcomes between Turkmenistan and Uzbekistan can be attributed to differing leadership. Although both Niyazov and Karimov are orphans and technocrats who transformed from Gorbachev-appointed First Secretaries of Soviet republics to Presidents of new nation states, they differ in personality. Karimov is a trained economist, who takes pride in exerting competent management and in being a statesman on at least the regional stage. He is encouraged to pursue economic development by competition with Kazakhstan for regional hegemony because he understands the close links between economic and political power. Although Karimov is clearly in charge, the image is of a team leader. Niyazov, by contrast, has established an extreme personality cult and, while he styles himself as leader of his people (Turkmenbashi), his actions show more concern for personal glorification and satisfaction than for economic development to improve the well-being of the population.³ Niyazov's economic policies are simplistic: populist giveaways curry support while import substitution is pursued to diversify the economy, and his foreign policy asserts Turkmenistan's neutrality and abdicates responsibility for the give and take of diplomacy.

³ Niyazov routinely criticizes ministers in public and summarily dismisses them and officials. Although internal opposition is suppressed, there are frequent rumours of plots (most recently, surrounding a wholesale purge of the security force in April 2002), an assassination attempt in November 2002 and a growing number of defections by diplomats abroad (most prominently, ex-foreign minister Shikhmuradov in November 2001).

Two deeper determinants of the differences can be identified, however. First, Tashkent was the administrative, industrial and military centre of Soviet Central Asia, the fourth largest city in the Soviet Union, and by far the most cosmopolitan metropolis in the region. In this setting it is difficult to imagine an independent Uzbekistan tolerating the personality cult or simplistic policies of a Niyazov. Moreover, the presence of experienced administrators created the capacity for good administration that is evident in Tashkent and lacking in Ashgabat. Second, among resource-abundant countries, energy producers tend to have more appropriable rents and a greater propensity for state failure. Cotton requires maintenance of a structure of irrigation, provision of other inputs, processing and a marketing network; an organized state can extract rents from cotton, but it is harder for an individual despot to control without sharing some of the spoils (Pomfret, 1995). Although despotic, Karimov has taken on board the concept of a developmental state, with Malaysia as a frequently mentioned model.

Some regression in policy occurred, however. In 1996 a downturn in world cotton prices led to balance of payments problems for Uzbekistan and the government rejected market adjustment and instinctively turned to exchange controls, which have been retained. The gap between the official and market-determined exchange rates concealed the full extent of the tax on cotton-growers and so was attractive to a government heavily reliant on rent from cotton. In most other respects, however, the wedge between world and domestic prices and the subsequent domestic distortions were recognized as harmful, and increasingly so as time passed. The government slowly acknowledged the costs of using controls and in 2000 began moving, albeit gradually, to undo the policy error.

The Uzbek government continued with piecemeal reforms in the late 1990s, and the economy combined positive output growth with moderate inflation. By the early-2000s Uzbekistan still had the best performance record, measured by GDP relative to its pre-independence level, of any former Soviet republic.⁴ This seems difficult to ascribe to initial conditions or favourable world prices for cotton, and seems to reflect competent governance (at least by the low standards of the FSU). The government also shows some flexibility over policy reform. Not only did it begin to loosen foreign exchange controls in 2000 but in 2001 it recognized the need to improve the environment for small and medium-sized enterprises, curbing bureaucratic controls and red-tape. In April 2002 the commercial rate was devalued close to the black market exchange rate, a move widely viewed as a definitive step towards exchange rate unification and eventual currency convertibility.

⁴ According to the GDP estimates in the EBRD's May 2002 *Transition Update* Uzbekistan was the only former Soviet republic to have regained its 1989 output level.

Resource Abundance, Governance and Economic Performance in Turkmenistan and Uzbekistan

This is not to claim that Uzbekistan has created a vibrant market economy like Poland's or a dynamic market sector as an engine of economic growth like China has achieved. Nevertheless, although both Uzbekistan and Turkmenistan remain resource-dependent and have autocratic regimes they differ significantly. Both have exchange controls, but Uzbekistan's are being phased out. Cosmopolitan Tashkent is a far cry from the sterile centre of Ashgabat. Foreign capital inflows have been modest, but their nature differs; in Turkmenistan foreign contractors build factories, monuments and hospitals for cash payment or barter (usually in cotton), whereas in Uzbekistan foreign investors invest their own capital in the expectation of future profits (most visibly the Daewoo joint venture).

3 Energy and Agriculture Rents

3.1 Estimating the Energy Rent

Turkmenistan's rents from natural gas and its use of natural gas revenues are non-transparent. \$1.5 billion from natural gas sales in 1992-3 remains under President Niyazov's direct control. Revenues declined substantially in the mid-1990s as customers within the CIS stopped paying their bills. Gas exports at that time were recorded in the National Accounts at the contract price and arrears entered as capital outflows, but this foreign investment by Turkmenistan was largely a figment, and the value of actual receipts was hidden as they were deposited into secret funds.

In March 1997 Turkmenistan stopped supplying natural gas to delinquent customers, and only resumed supply after an agreement was reached in 1999. The income from gas exports was low during these years and there are signs that the President ran down the accumulated funds from past sales, so that by 2000 foreign debt was becoming an issue, although its magnitude was probably unknown given the complexity of the off-budget accounts. Export revenue from natural gas picked up again in 1999, but it remains unclear how diligent the CIS customers are in servicing their bills. In contrast to gas, oil exports have been less significant to Turkmenistan in recent years. By 1998 oil production had regained its 1990 level, but it was still only half of its 1975 peak. Exploitation of off-shore oil is delayed by jurisdictional disputes over Caspian Sea boundaries and by indecision over new pipeline routes.

Uzbekistan was a net energy importer in the Soviet era, importing oil and hydroelectricity and exporting small quantities of gas to south-eastern Kazakhstan and the Kyrgyz and Tajik republics. After 1991, however, Uzbekistan was sufficiently successful in developing domestic energy sources that it did not suffer from the shift to world prices on intra-CIS trade, and it ceased to be a net oil importer in 1995 (Table 3, p. 9). The steady growth in output reflects in part the high degree of reliance on domestic demand, which has been relatively stable due to Uzbekistan's relatively good GDP performance and timely expansion of new fields (Skagen, 1997, 25). Most of the gas production is taken up by domestic consumption but Uzbekistan also exports to southern Kazakhstan, Kyrgyz Republic and Tajikistan. Payment disputes disrupted supplies in 1998. The rent from Uzbekistan's oil and gas resources has been redistributed to consumers through domestic energy prices below world prices, while remaining rents go to general government revenue.

Resource Abundance, Governance and Economic Performance in Turkmenistan and Uzbekistan

Table 3: Hydrocarbon production and mineral rent, 1990-2000

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Turkmenistan											
Oil (mbpd)	120	115	110	90	85	85	90	110	130	145	150
Gas (bcm)	81.9	78.6	56.1	60.9	33.3	30.1	32.8	16.1	12.4	21.3	43.8
Rent/GDP	na	na	na	na	0.638	0.395	0.538	0.336	0.329	0.440	na
Uzbekistan											
Oil (mbpd)	70	70	80	95	125	170	175	180	190	190	175
Gas (bcm)	38.1	39.1	39.9	42.0	44.0	45.3	45.7	47.8	51.1	51.9	52.2
Rent/GDP	na	0.013	0.153	0.136	0.125	0.170	0.196	0.210	0.137	0.166	na

Source: BP and World Bank estimates reported in Auty (2002). Skagen (1997, 30) gives slightly lower estimates, but similar patterns for natural gas production 1991-6.

Notes: mbpd = million barrels per day; bcm = billion cubic metres.

A detailed discussion of the estimated natural resource rents is available in Pomfret (2002b). However, based on an estimated cost of gas extraction at 50-55 US cents per thousand cubic feet (mcf), delivered prices in the western CIS of around \$2.25/mcf (compared to the world price of \$2.5 - 3) and transport costs through the former Soviet network of about 40 cents/mcf per thousand kilometres would generate from 20 to 45 cents per mcf in rent.⁵ Auty (2002) reports estimates of energy rents in Turkmenistan between 1994 and 1999 amounting to between 33 and 64 percent of GDP. These are rough estimates, but they capture the widely held view that the Turkmenistan economy has been highly dependent on rents from natural gas. Similar estimates of energy rents in Uzbekistan range from 13 to 21 percent of GDP over the 1994-9 period (Table 3).

3.2 Agricultural Rent: The Cost of Agricultural Price Controls

Turkmenistan and Uzbekistan have retained state procurement systems for cotton and wheat. In contrast, the neighbouring Kyrgyz Republic eliminated state procurement in 1992 and Kazakhstan and Tajikistan did so in the mid-1990s. This is reflected in substantial differences in farmgate prices. Table 7.4 reports the local currency price of cotton for the 1997 harvest season, and the US dollar equivalent. Goletti and Chabot (2000, 55) estimate the average border parity price at \$404 per ton, which is not far from the prices received by farmers in the Kyrgyz Republic,

⁵ These costs and prices used by Auty (2002, 12n) are lower than those reported by Skagen (1997, 51-2), who estimated Turkmenistan's production costs in the mid-1990s to be 1.8 US cents per cubic metre.

Tajikistan and Kazakhstan, but substantially above the prices that farmers receive in Turkmenistan or Uzbekistan.

In their study of agricultural prices in eighteen developing countries, Krueger, Valdes and Schiff (1988) found that overvalued exchange rates imposed a more serious burden on farmers than did trade barriers or other direct taxes.⁶ Not surprisingly, the Uzbek foreign exchange controls of 1996 widened the black market premium. Goletti and Chabot calculate that at the parallel exchange rate the local currency price in Table 4 of 14,750 sum per ton translates into \$105 per ton, or about a quarter of the border parity price. The burden of the overvalued exchange rate increased through the late-1990s. Turkmenistan's black market premium only became substantial in 1998 so that the effect of foreign exchange controls is not very great in Table 4, but has become a major source of price distortion since 1997.

Table 4: Output price for cotton, 1997 harvest season

	Kazakhstan	The Kyrgyz Republic	Tajikistan	Turkmenistan	Uzbekistan
Local currency units	25,500 tenge	7,100 som	190,000 TR	1,000,000 manat	14,750 sum
USD at official exchange rate	\$349	\$394	\$388	\$240	\$242
USD at parallel exchange rate				\$188	\$105

Source: Goletti and Chabot (2000, 55).

In the regulated systems of Turkmenistan and Uzbekistan, farmers receive subsidized inputs and appear to benefit from more reliable supply of seed and fertilizers and better-managed irrigation than farmers in the Kyrgyz Republic, Kazakhstan or Tajikistan. Goletti and Chabot (2000) show differences in fertilizer prices (Table 5, p. 11), and note the incentives to smuggle to neighbouring countries, which benefits the farmers involved but is socially inefficient. Farmers in Turkmenistan and Uzbekistan also benefit from advanced interest-free partial payments, although it is unclear how promptly these and the final payments are made available and the extent to which farmers are free to use money credited to their bank accounts.

⁶ In the Sub-Saharan African countries in their study, for example, the direct tax burden on agriculture averaged 23% while the indirect tax equivalent of exchange rate overvaluation was 29%.

Resource Abundance, Governance and Economic Performance in Turkmenistan and Uzbekistan

Table 5: Cost per kilogram of nutrient (in US\$)

	Kazakhstan	The Kyrgyz Republic	Tajikistan	Turkmenistan	Uzbekistan
Nitrogen	0.50	0.50	0.50	0.12	0.25
Phosphorous	1.50	1.50	1.00	1.00	0.50
Potassium	0.16	0.16	0.15	0.04	0.07

Source: Goletti and Chabot (2000, 60), citing data from an EU-Tacis 1995 report.

Table 6 summarizes the publicly available estimates of transfers out of agriculture in Turkmenistan and Uzbekistan during the 1990s. The distortions and transfers are significantly higher in Turkmenistan, and the gap between the two countries is likely to have widened since 2000 as the exchange rate distortion in Turkmenistan has increased while that in Uzbekistan is being reduced. The estimated transfers are not identical to the economic concept of rent, but they do provide a guide to the appropriable rent, or at least to what part has been expropriated.

Table 6: Estimated transfers out of agriculture

	Year	Coverage	Value	Reference
Turkmenistan				
Lerman + Brooks	1998	Cotton + wheat	1,565 billion manat	11% GDP
Pastor + van Rooden	1999	Cotton + wheat	2,880 billion manat	15% GDP
Lerman + Brooks adjusted	1999	Cotton + wheat	7,330 billion manat	
Uzbekistan				
Connolly + Vatnick	1992	Cotton	\$367 million	
Khan	1995	Agriculture		10% ag. GDP
Herman	1996	Cotton + wheat	\$1,533 million	8% GDP

Sources: Pomfret (2002b) Appendix.

3.3 Agricultural Rent: How is it Used?

In Turkmenistan the difference between domestic cotton prices and world prices is divided between the cotton-marketing agency, the state budget, and the Agricultural Development Fund (ADF) “in proportions that are not transparently displayed” (Lerman and Brooks, 2001, 8). The residual difference between revenue from cotton sales, payments to cotton farmers and to the cotton marketing agency, and transfers to the ADF should show up as state budget revenues. In the 1998 budget, cotton revenues are shown as \$199 billion manat, which is much less than Lerman and Brooks’ calculated residual (2030 revenue minus 700 to farmers minus 355 to the ADF minus marketing agency costs).

The most likely explanation of the gap is that cotton, or revenue from cotton exports, was channelled through the myriad off-budget funds directly controlled by the President. Prestige construction projects in the mid-1990s, such as the national airport, the presidential palace and the grandiose monuments in Ashgabat were paid for in cash or in cotton. Later, in the early 2000s, Turkmenistan appeared to be accumulating foreign debt at commercial rates, but in the 1990s the foreign contractors were paid out of current income.

The net transfers from wheat were smaller than those from cotton and in Turkmenistan part of the rents went directly to consumers in the form of lower domestic prices for flour and bread. Such untargeted consumption subsidies are inefficient, compared to an alternative of higher wheat prices and tax revenue used to target the needy, but less socially wasteful than palaces and statues. Uzbekistan also transferred rents to consumers up until 1995, but subsequently shifted from general subsidies to a more targeted social security system.

In both Turkmenistan and Uzbekistan cotton mills benefited from input prices below world cotton prices. In Turkmenistan the distortion became larger as funds were used in the late 1990s and early 2000s to build up a substantial cotton textile and apparel industry. By the end of 2000 this industry was absorbing a third of the cotton crop and probably had negative value-added at world prices; the value of the finished cotton products may even have been less than the value of the raw cotton used in their manufacture (Pomfret, 2001). Uzbekistan’s promotion of its textile industry was less extreme and the costs were being acknowledged by 2001 when the government indicated a shift to a less dirigiste industrial policy. Most of the agricultural transfers in Uzbekistan appear to go to general government revenue, which will be addressed below.

3.4 Summarising the Contrasting Scale and Deployment of the Natural Resource Rents

Both Turkmenistan and Uzbekistan have enjoyed substantial resource rents over the decade since independence, but there are important differences in the magnitude, composition and use of the resource rents. In Turkmenistan the share of rents in GDP is much higher, the rents come primarily from natural gas, and their use has been less transparent than in Uzbekistan. Combining the estimates in Tables 3 and 6, Turkmenistan's energy and agricultural rents were in the region of 44 percent of GDP in 1998 and 60 percent of GDP in 1999. These are rough estimates, but they are very large and may still be underestimates due to the effects of foreign exchange controls.

In Turkmenistan the agricultural and energy rents have been used mainly to subsidize domestic consumers (of bread and gas) and producers (using cotton or gas) and to provide a treasure chest for the President's construction projects. Petri, Taube and Tsyvinski (2002, 29) estimate that energy subsidies to consumers amount to 13% of GDP. Turkmenistan has also levied transit rents on narcotics from Afghanistan. Elsewhere in the CIS such rents have accrued primarily to entrepreneurs/criminals, but for Turkmenistan there have been detailed allegations of President Niyazov's personal involvement in hashish convoys and heroin production.

Uzbekistan derives rents from energy, cotton and gold. The former, and part of the agricultural rents, are used to subsidize domestic consumers and producers. In the mid-1990s, prices to residential users of gas were 0.12 – 0.15 US cents per cubic metre, similar to Turkmenistan but much lower than the 4.2 cents in Kazakhstan or 15-18 cents in Turkey, and 1.84 cents per cubic metre to industrial users, compared to 0.24 cents in Turkmenistan and 8.37 cents in Kazakhstan (Skagen 1997, 51-52). Since 1995, however, the consumer subsidy element has been reduced and the rents have become part of the general government budget.

Uzbekistan emerges as one of the transition economies best able to maintain government revenues as a share of GDP. This is largely because resource rents have been recorded as public revenues, and Uzbekistan has used this situation to maintain public expenditure on education, health, and social services. In 1998 expenditure on education accounted for almost 8% of GDP, the highest share in any transition economy (World Bank, 2002, 84-5).

4 How Sustainable are the Resource Rent Flows?

Agricultural rents are vulnerable to adverse supply responses. There is considerable evidence that the negative supply response to state marketing of crops like cotton or cocoa is small in the short-run, when the rents are a ready source of government revenue, but becomes larger. The most serious consequences of punitive taxation of an export crop are the long-run loss of sales and encouragement of illegal economic activities. The negative incentives will force the two governments to choose between current rent maximization and stagnating output, or allowing farmers to retain a larger share of the export revenue. Continuation of the current policies of rent extraction also provides incentives for smuggling cotton to neighbouring states with freer markets, as from Uzbekistan across the porous border into Kazakhstan, where agricultural prices are less repressed.

Turkmenistan's energy rents seem to be more secure insofar as it has proven oil and gas reserves, which can be exploited at an increasing rate. The rate of exploitation may be influenced by national policies, which could affect the willingness of foreign firms to participate in the exploitation of the offshore reserves (for which Turkmenistan will require foreign assistance), but the revenue flows will depend upon exogenous factors such as world prices and the construction of new pipelines from the Caspian Basin. Uzbekistan's energy rents will be significant, but less important than energy rents are for Turkmenistan. Revenue from gold exports is also likely to be a steady income source for Uzbekistan.

The rents support differing regimes so their manner of capture and deployment depends on the evolution of those regimes. Turkmenistan has the most personalized post-Communist regime and probably the most mismanaged. The major change since independence has been in the use of the rents from energy and cotton. Otherwise, the economy is one of the least reformed. Economic performance has been poor. Despite these shortcomings, the required economic reforms are not especially drastic because Turkmenistan's comparative advantage for the foreseeable future will lie heavily in energy. Thus, the prime need is to replace the current abuse of the rents by a socially oriented husbanding, which requires a mix of economic diversification and portfolio diversification. Scope for efficient economic diversification is, however, limited and past emphasis on textile and apparel factories and on hotel building has been misplaced. A market-directed approach to small and medium-sized enterprises is preferable, although probably with limited impact, but that would reduce waste

Resource Abundance, Governance and Economic Performance in Turkmenistan and Uzbekistan

compared with the current strategy. Portfolio diversification would involve establishment of an investment fund for Azerbaijan and Kazakhstan. The current situation in Turkmenistan is a pathological distortion of the fund concept where the resources are totally under the political control of the President. Changing that situation is a political rather than an economic matter.

The desirable cotton policy for Turkmenistan is more complex, because its reliance on the Karakum Canal for irrigation is a major cause of the desiccation of the Aral Sea. The Aral Sea problem is very difficult to address because the distribution of costs and benefits from any sensible policy would be unevenly distributed across countries, but reducing Turkmenistan's irrigated cotton production would help. Current policy is, however, heading in the opposite direction. The major construction project of the present decade involves a \$4-5 billion artificial lake in the Karakum desert to improve drainage and reduce salinization problems. The new lake has been criticized by practically all outside observers, but it has the President's support and hence there is no domestic opposition to the project.

Assessing the prospects for Uzbekistan is more complex because although the regime is despotic, it is less absolute and inflexible than Turkmenistan's. Gradual reform and occasional major policy reversals make it more difficult to predict future economic policy. Uzbekistan is relatively free from foreign debt, and political stability is not inconsistent with policy reform. Moreover, Uzbekistan cannot rely exclusively on resource rent extraction. Gold and energy offer less scope for rent extraction than cotton, which is likely to remain the dominant economic activity due to natural and inherited conditions, but the government is likely to acknowledge the advantages of reducing its rapacity in order to give farmers an incentive to increase yields.

Uzbekistan must diversify its economy and it has more scope to do so than does Turkmenistan. The strategy for this requires deepening reforms so that prices guide resource allocation in efficient directions. In 2001 and 2002 Uzbekistan appeared to be moving towards this with the adoption of a new attitude towards economic management aimed at helping small and medium-sized enterprises and loosening foreign exchange controls. Removing the latter would be a major step in reducing the rent extraction in agriculture and in improving operation of the domestic price system. Both countries face a challenge in reversing the serious institutionalised corruption. According to Broadman and Recanatini (2001, 363) Turkmenistan is the joint-worst, with Tajikistan, of all transition countries, and Uzbekistan is in the next-worst group with Azerbaijan and Albania.⁷

⁷ Measuring corruption is, however, difficult. Uzbekistan ranks as having relatively low corruption among transition countries according to the BEEPS survey reported in the EBRD *Transition Reports* or the *Corruption Perceptions Index* compiled by Transparency International.

Eifert et al. (2002) highlight the benefits for resource-rich countries of creating constituencies for the sound use of rents (through public information and education programs), the importance of transparent political processes and financial management, and the value of getting the political debate to span longer time horizons. Uzbekistan is far from ideal in these respects, but its government recognizes at least the first and last of the three points. Eifert et al. (2002) develop a typology of rentier states with five categories: mature (consensual) democracies (eg. Norway or Alberta), factional (polarised) democracies (eg. Ecuador or Venezuela), paternalistic autocracies (eg. Saudi Arabia or Kuwait), predatory autocracies and reformist (benevolent) autocracies. The first and last of these classes are developmental political states that provide institutions with which a country can avoid the resource curse, while the other systems will sooner or later suffer adverse consequences from misuse of rents, lack of transparency or short-termism.

In this classification Uzbekistan might be a predatory autocracy, but could be a reformist autocracy. Turkmenistan is not the paternalistic autocracy that it claims, but a predatory autocracy that focuses on administering rents, which it does unsoundly, without transparency and with no view to the future. Paradoxically, Turkmenistan with its potentially beneficial energy resources/ population ratio has poor prospects because of the country's extremely predatory government. The major issue determining the country's future is the longevity of the President's rule. If he is overthrown or dies, a successor may well be motivated by capturing the rents rather than by avoiding the resource curse.

Uzbekistan's future is brighter and less dependent on regime change. The current regime provides competent governance, at least by the low standards of the FSU, which is reflected in its economic performance since independence. The country has a favourable resource endowment, which is not based solely on energy or mineral abundance. The government has relied heavily on resource rents, but has used the revenues reasonably well. Continuation of past policies could negatively impact long-term agricultural development, but the government is at least aware of the problems. The future will therefore depend in part on the world price for Uzbekistan's key exports, especially cotton, but even more on whether reforms are implemented which will allow the resource sectors to respond effectively to incentives and which will promote efficient diversification.

To date, the Uzbek government has provided public services and social policies reasonably efficiently, shifting from universal support in the early 1990s to more targeted social support in the second half of the decade, and this has helped to maintain public acquiescence despite the government's authoritarianism. If the government is serious in its proposals to re-establish currency convertibility and to

Resource Abundance, Governance and Economic Performance in Turkmenistan and Uzbekistan

reduce obstacles to small and medium-sized enterprises by liberalizing markets, then prospects are positive. But if the government refuses to loosen controls over economic activity, then the economy has little prospect of competitive diversification and the government will be forced to tighten rather than loosen its squeeze on the agricultural sector and risk killing the goose that lays the golden egg.

References

- Auty, Richard (2002): Reform in Uzbekistan and Turkmenistan is Minimal rather than Gradual.
- Broadman, Harry, and Francesca Recanatini (2001): Seeds of Corruption – Do Market Institutions Matter? *MOCT-MOST: Economic Policy in Transitional Economies*, **11** (4), pp. 359-92.
- Coudouel, Aline, and Sheila Marnie (1999): From Universal to Targeted Social Assistance: An Assessment of the Uzbek Experience, *MOCT-MOST: Economic Policy in Transitional Economies*, **9** (4), pp. 443-58.
- EBRD, (2002a) *Transition Report Update*, May 2002, London: European Bank for Reconstruction and Development, Annex 1.1.
- EBRD (2002b): *Strategy for Turkmenistan*. Document of the European Bank for Reconstruction and Development, approved by the Board of Directors on 10 July 2002 and posted on the website www.ebrd.org.
- Eifert, Benn, Alan Gelb and Nils Borje Tallroth (2002): The Political Economy of Fiscal Policy and Economic Management in Oil Exporting Countries, paper prepared for the IMF Conference on Fiscal Policy Formulation and Implementation in Oil Producing Countries, held in Washington DC on 5-6 June 2002.
- ESCAP (2002), *Population Data Sheet*, August 1992.
- Goletti, Francesco, and Philippe Chabot (2000): Food Policy Research for Improving the Reform of Agricultural Input and Output Markets in Central Asia, in Suresh Babu and Alisher Tashmatov, eds., *Food Policy Reforms in Central Asia* (International Food Policy Research Institute, Washington DC), pp. 45-69.
- Krueger, Anne, Maurice Schiff and Alberto Valdes, eds. (1991-2): *The Political Economy of Agricultural Pricing Policies, 5 Volumes*, The Johns Hopkins University Press, Baltimore MD.
- Krueger, Anne, Maurice Schiff and Alberto Valdes (1988): Agricultural Incentives in Developing Countries: Measuring the Effect of Sectoral and Economywide Policies, *World Bank Economic Review*, **2**(3), September, pp. 255-71.
- Lerman, Zvi, and Karen Brooks (2001): Turkmenistan: An Assessment of Leasehold-Based Farm Restructuring, *World Bank Technical Paper No.500* (Europe and Central Asia Environmentally and Socially Sustainable Development Series), The World Bank, Washington DC.

Resource Abundance, Governance and Economic Performance in Turkmenistan and Uzbekistan

- Pastor, Gonzalo, and Ron van Rooden (2000): Turkmenistan - The Burden of Current Agricultural Policies, *IMF Working Paper WP/00/98*. International Monetary Fund, Washington DC.
- Petri, Martin, Günther Taube and Aleh Tsyvinski (2002): Energy Sector Quasi-Fiscal Activities in the Countries of the Former Soviet Union, *IMF Working Paper WP/02/60*. International Monetary Fund, Washington DC.
- Pomfret, Richard (1995): *The Economies of Central Asia*. Princeton University Press, Princeton NJ.
- Pomfret, Richard (2000): Agrarian Reform in Uzbekistan: Why has the Chinese Model Failed to Deliver? *Economic Development and Cultural Change*, **48** (2), January, pp. 269-84.
- Pomfret, Richard (2001): Turkmenistan: From Communism to Nationalism by Gradual Economic Reform, *MOCT-MOST: Economic Policy in Transitional Economies*, **11** (2), pp. 165-76.
- Pomfret, Richard (2002a): Trade and Exchange Rate Policies in Formerly Centrally Planned Economies, *The World Economy*, (forthcoming).
- Pomfret, Richard (2002b): Resource Abundance, Governance and Economic Performance in Turkmenistan and Uzbekistan, *Working Paper*, Seattle: National Bureau of Asian Research.
- Pomfret, Richard, and Kathryn Anderson (1997): Uzbekistan: Welfare Impact of Slow Transition, *WIDER Working Paper 135*, United Nations University World Institute for Development Economics Research, Helsinki, Finland – revised version published in Aiguo Lu and Manuel Montes (eds.) *Poverty, Income Distribution and Well-being in Asia During the Transition* (Palgrave, Basingstoke UK, 2002).
- Rosenberg, Christoph, and Maarten de Zeeuw (2000): Welfare Effects of Uzbekistan's Foreign Exchange Regime, *IMF Working Paper 00/61*, International Monetary Fund, Washington DC.
- Sagers, Matthew (1999): Turkmenistan's Gas Trade: The Case of Exports to Ukraine, *Post-Soviet Geography and Economics*, **40** (2), pp. 142-9.
- Skagen, Ottar (1997): *Caspian Gas*. Royal Institute of International Affairs, London.
- Taube, Günther, and Jeromin Zettelmeyer (1998): Output Decline and Recovery in Uzbekistan: Past performance and future prospects, *IMF Working Paper WP/98/132*, International Monetary Fund, Washington DC.
- World Bank, (1993): *World Development Report 1993*, Washington DC: World Bank.

World Bank (2001): *World Development Report 2000/2001*, Washington DC: World Bank.

World Bank (2002): *Transition: The First Ten Years*. Washington DC: The World Bank.

The following papers have been published so far:

- | | | |
|--------|--|--|
| No. 1 | Ulrike Grote,
Arnab Basu,
Diana Weinhold | Child Labor and the International Policy Debate
Zentrum für Entwicklungsforschung (ZEF), Bonn,
September 1998, pp. 47. |
| No. 2 | Patrick Webb,
Maria Iskandarani | Water Insecurity and the Poor: Issues and Research
Needs
Zentrum für Entwicklungsforschung (ZEF), Bonn,
Oktober 1998, pp. 66. |
| No. 3 | Matin Qaim,
Joachim von Braun | Crop Biotechnology in Developing Countries: A
Conceptual Framework for Ex Ante Economic Analyses
Zentrum für Entwicklungsforschung (ZEF), Bonn,
November 1998, pp. 24. |
| No. 4 | Sabine Seibel,
Romeo Bertolini,
Dietrich Müller-Falcke | Informations- und Kommunikationstechnologien in
Entwicklungsländern
Zentrum für Entwicklungsforschung (ZEF), Bonn,
January 1999, pp. 50. |
| No. 5 | Jean-Jacques Dethier | Governance and Economic Performance: A Survey
Zentrum für Entwicklungsforschung (ZEF), Bonn,
April 1999, pp. 62. |
| No. 6 | Mingzhi Sheng | Lebensmittelhandel und Kosumtrends in China
Zentrum für Entwicklungsforschung (ZEF), Bonn,
May 1999, pp. 57. |
| No. 7 | Arjun Bedi | The Role of Information and Communication Technologies
in Economic Development — A Partial Survey
Zentrum für Entwicklungsforschung (ZEF), Bonn,
May 1999, pp. 42. |
| No. 8 | Abdul Bayes,
Joachim von Braun,
Rasheda Akhter | Village Pay Phones and Poverty Reduction: Insights from
a Grameen Bank Initiative in Bangladesh
Zentrum für Entwicklungsforschung (ZEF), Bonn,
June 1999, pp. 47. |
| No. 9 | Johannes Jütting | Strengthening Social Security Systems in Rural Areas of
Developing Countries
Zentrum für Entwicklungsforschung (ZEF), Bonn,
June 1999, pp. 44. |
| No. 10 | Mamdouh Nasr | Assessing Desertification and Water Harvesting in the
Middle East and North Africa: Policy Implications
Zentrum für Entwicklungsforschung (ZEF), Bonn,
July 1999, pp. 59. |
| No. 11 | Oded Stark,
Yong Wang | Externalities, Human Capital Formation and Corrective
Migration Policy
Zentrum für Entwicklungsforschung (ZEF), Bonn,
August 1999, pp. 17. |

ZEF Discussion Papers on Development Policy

- No. 12 John Msuya Nutrition Improvement Projects in Tanzania: Appropriate Choice of Institutions Matters
Zentrum für Entwicklungsforschung (ZEF), Bonn,
August 1999, pp. 36.
- No. 13 Liu Junhai Legal Reforms in China
Zentrum für Entwicklungsforschung (ZEF), Bonn,
August 1999, pp. 90.
- No. 14 Lukas Menkhoff Bad Banking in Thailand? An Empirical Analysis of Macro Indicators
Zentrum für Entwicklungsforschung (ZEF), Bonn,
August 1999, pp. 38.
- No. 15 Kaushalesh Lal Information Technology and Exports: A Case Study of Indian Garments Manufacturing Enterprises
Zentrum für Entwicklungsforschung (ZEF), Bonn,
August 1999, pp. 24.
- No. 16 Detlef Virchow Spending on Conservation of Plant Genetic Resources for Food and Agriculture: How much and how efficient?
Zentrum für Entwicklungsforschung (ZEF), Bonn,
September 1999, pp. 37.
- No. 17 Arnulf Heuermann Die Bedeutung von Telekommunikationsdiensten für wirtschaftliches Wachstum
Zentrum für Entwicklungsforschung (ZEF), Bonn,
September 1999, pp. 33.
- No. 18 Ulrike Grote,
Arnab Basu,
Nancy Chau The International Debate and Economic Consequences of Eco-Labeling
Zentrum für Entwicklungsforschung (ZEF), Bonn,
September 1999, pp. 37.
- No. 19 Manfred Zeller Towards Enhancing the Role of Microfinance for Safety Nets of the Poor
Zentrum für Entwicklungsforschung (ZEF), Bonn,
October 1999, pp. 30.
- No. 20 Ajay Mahal,
Vivek Srivastava,
Deepak Sanan Decentralization and Public Sector Delivery of Health and Education Services: The Indian Experience
Zentrum für Entwicklungsforschung (ZEF), Bonn,
January 2000, pp. 77.
- No. 21 M. Andreini,
N. van de Giesen,
A. van Edig,
M. Fosu, W. Andah Volta Basin Water Balance
Zentrum für Entwicklungsforschung (ZEF), Bonn,
March 2000, pp. 29.
- No. 22 Susanna Wolf,
Dominik Spoden Allocation of EU Aid towards ACP-Countries
Zentrum für Entwicklungsforschung (ZEF), Bonn,
March 2000, pp. 59.

ZEF Discussion Papers on Development Policy

- No. 23 Uta Schultze Insights from Physics into Development Processes: Are Fat Tails Interesting for Development Research?
Zentrum für Entwicklungsforschung (ZEF), Bonn,
March 2000, pp. 21.
- No. 24 Joachim von Braun,
Ulrike Grote,
Johannes Jütting Zukunft der Entwicklungszusammenarbeit
Zentrum für Entwicklungsforschung (ZEF), Bonn,
March 2000, pp. 25.
- No. 25 Oded Stark,
You Qiang Wang A Theory of Migration as a Response to Relative
Deprivation
Zentrum für Entwicklungsforschung (ZEF), Bonn,
March 2000, pp. 16.
- No. 26 Doris Wiesmann,
Joachim von Braun,
Torsten Feldbrügge An International Nutrition Index – Successes and
Failures in Addressing Hunger and Malnutrition
Zentrum für Entwicklungsforschung (ZEF), Bonn,
April 2000, pp. 56.
- No. 27 Maximo Torero The Access and Welfare Impacts of Telecommunications
Technology in Peru
Zentrum für Entwicklungsforschung (ZEF), Bonn,
June 2000, pp. 30.
- No. 28 Thomas Hartmann-
Wendels
Lukas Menkhoff Could Tighter Prudential Regulation Have Saved
Thailand's Banks?
Zentrum für Entwicklungsforschung (ZEF), Bonn,
July 2000, pp. 40.
- No. 29 Mahendra Dev Economic Liberalisation and Employment in South Asia
Zentrum für Entwicklungsforschung (ZEF), Bonn,
August 2000, pp. 82.
- No. 30 Noha El-Mikawy,
Amr Hashem,
Maye Kassem,
Ali El-Sawi,
Abdel Hafez El-Sawy,
Mohamed Showman Institutional Reform of Economic Legislation in Egypt
Zentrum für Entwicklungsforschung (ZEF), Bonn,
August 2000, pp. 72.
- No. 31 Kakoli Roy,
Susanne Ziemek On the Economics of Volunteering
Zentrum für Entwicklungsforschung (ZEF), Bonn,
August 2000, pp. 47.
- No. 32 Assefa Admassie The Incidence of Child Labour in Africa with Empirical
Evidence from Rural Ethiopia
Zentrum für Entwicklungsforschung (ZEF), Bonn,
October 2000, pp. 61.
- No. 33 Jagdish C. Katyal,
Paul L.G. Vlek Desertification - Concept, Causes and Amelioration
Zentrum für Entwicklungsforschung (ZEF), Bonn,
October 2000, pp. 65.

ZEF Discussion Papers on Development Policy

- No. 34 Oded Stark On a Variation in the Economic Performance of Migrants by their Home Country's Wage
Zentrum für Entwicklungsforschung (ZEF), Bonn,
October 2000, pp. 10.
- No. 35 Ramón Lopéz Growth, Poverty and Asset Allocation: The Role of the State
Zentrum für Entwicklungsforschung (ZEF), Bonn,
March 2001, pp. 35.
- No. 36 Kazuki Taketoshi Environmental Pollution and Policies in China's Township and Village Industrial Enterprises
Zentrum für Entwicklungsforschung (ZEF), Bonn,
March 2001, pp. 37.
- No. 37 Noel Gaston,
Douglas Nelson Multinational Location Decisions and the Impact on Labour Markets
Zentrum für Entwicklungsforschung (ZEF), Bonn,
May 2001, pp. 26.
- No. 38 Claudia Ringler Optimal Water Allocation in the Mekong River Basin
Zentrum für Entwicklungsforschung (ZEF), Bonn,
May 2001, pp. 50.
- No. 39 Ulrike Grote,
Stefanie Kirchhoff Environmental and Food Safety Standards in the Context of Trade Liberalization: Issues and Options
Zentrum für Entwicklungsforschung (ZEF), Bonn,
June 2001, pp. 43.
- No. 40 Renate Schubert,
Simon Dietz Environmental Kuznets Curve, Biodiversity and Sustainability
Zentrum für Entwicklungsforschung (ZEF), Bonn,
October 2001, pp. 30.
- No. 41 Stefanie Kirchhoff,
Ana Maria Ibañez Displacement due to Violence in Colombia: Determinants and Consequences at the Household Level
Zentrum für Entwicklungsforschung (ZEF), Bonn,
October 2001, pp. 45.
- No. 42 Francis Matambalya,
Susanna Wolf The Role of ICT for the Performance of SMEs in East Africa — Empirical Evidence from Kenya and Tanzania
Zentrum für Entwicklungsforschung (ZEF), Bonn,
December 2001, pp. 30.
- No. 43 Oded Stark,
Ita Falk Dynasties and Destiny: On the Roles of Altruism and Impatience in the Evolution of Consumption and Bequests
Zentrum für Entwicklungsforschung (ZEF), Bonn,
December 2001, pp. 20.

ZEF Discussion Papers on Development Policy

- No. 44 Assefa Admassie Allocation of Children's Time Endowment between Schooling and Work in Rural Ethiopia
Zentrum für Entwicklungsforschung (ZEF), Bonn,
February 2002, pp. 75.
- No. 46 Torsten Feldbrügge,
Joachim von Braun Is the World Becoming A More Risky Place?
- Trends in Disasters and Vulnerability to Them –
Zentrum für Entwicklungsforschung (ZEF), Bonn,
May 2002, pp. 42
- No. 47 Joachim von Braun,
Peter Wobst,
Ulrike Grote "Development Box" and Special and Differential Treatment
for Food Security of Developing Countries:
Potentials, Limitations and Implementation Issues
Zentrum für Entwicklungsforschung (ZEF), Bonn,
May 2002, pp. 28
- No. 48 Shyamal Chowdhury Attaining Universal Access: Public-Private Partnership and
Business-NGO Partnership
Zentrum für Entwicklungsforschung (ZEF), Bonn,
June 2002, pp. 37
- No. 49 L. Adele Jinadu Ethnic Conflict & Federalism in Nigeria
Zentrum für Entwicklungsforschung (ZEF), Bonn,
September 2002, pp. 45
- No. 50 Oded Stark,
Yong Wang Overlapping
Zentrum für Entwicklungsforschung (ZEF), Bonn,
August 2002, pp. 17
- No. 51 Roukayatou
Zimmermann,
Matin Qaim Projecting the Benefits of Golden Rice in the Philippines
Zentrum für Entwicklungsforschung (ZEF), Bonn,
September 2002, pp. 33
- No. 52 Gautam Hazarika,
Arjun S. Bedi Schooling Costs and Child Labour in Rural Pakistan
Zentrum für Entwicklungsforschung (ZEF), Bonn
October 2002, pp. 34
- No. 53 Margit Bussmann,
Indra de Soysa,
John R. Oneal The Effect of Foreign Investment on Economic Development
and Income Inequality
Zentrum für Entwicklungsforschung (ZEF), Bonn,
October 2002, pp. 35
- No. 54 Maximo Torero,
Shyamal K. Chowdhury,
Virgilio Galdo Willingness to Pay for the Rural Telephone Service in
Bangladesh and Peru
Zentrum für Entwicklungsforschung (ZEF), Bonn,
October 2002, pp. 39
- No. 55 Hans-Dieter Evers,
Thomas Menkhoff Selling Expert Knowledge: The Role of Consultants in
Singapore's New Economy
Zentrum für Entwicklungsforschung (ZEF), Bonn,
October 2002, pp. 29

ZEF Discussion Papers on Development Policy

- No. 56 Qiuxia Zhu
Stefanie Elbern Economic Institutional Evolution and Further Needs for Adjustments: Township Village Enterprises in China
Zentrum für Entwicklungsforschung (ZEF), Bonn,
November 2002, pp. 41
- No. 57 Ana Devic Prospects of Multicultural Regionalism As a Democratic Barrier Against Ethnonationalism: The Case of Vojvodina, Serbia's 'Multiethnic Haven'
Zentrum für Entwicklungsforschung (ZEF), Bonn,
December 2002, pp. 29
- No. 58 Heidi Wittmer
Thomas Berger Clean Development Mechanism: Neue Potenziale für regenerative Energien? Möglichkeiten und Grenzen einer verstärkten Nutzung von Bioenergieträgern in Entwicklungsländern
Zentrum für Entwicklungsforschung (ZEF), Bonn,
December 2002, pp. 81
- No. 59 Oded Stark Cooperation and Wealth
Zentrum für Entwicklungsforschung (ZEF), Bonn,
January 2003, pp. 13
- No. 60 Rick Auty Towards a Resource-Driven Model of Governance: Application to Lower-Income Transition Economies
Zentrum für Entwicklungsforschung (ZEF), Bonn,
February 2003, pp. 24
- No. 61 Andreas Wimmer
Indra de Soysa
Christian Wagner Political Science Tools for Assessing Feasibility and Sustainability of Reforms
Zentrum für Entwicklungsforschung (ZEF), Bonn,
February 2003, pp. 34
- No. 62 Peter Wehrheim
Doris Wiesmann Food Security in Transition Countries: Conceptual Issues and Cross-Country Analyses
Zentrum für Entwicklungsforschung (ZEF), Bonn,
February 2003, pp. 45
- No. 63 Rajeev Ahuja
Johannes Jütting Design of Incentives in Community Based Health Insurance Schemes
Zentrum für Entwicklungsforschung (ZEF), Bonn,
March 2003, pp. 27
- No. 64 Sudip Mitra
Reiner Wassmann
Paul L.G. Vlek Global Inventory of Wetlands and their Role in the Carbon Cycle
Zentrum für Entwicklungsforschung (ZEF), Bonn,
March 2003, pp. 44
- No. 65 Simon Reich Power, Institutions and Moral Entrepreneurs
Zentrum für Entwicklungsforschung (ZEF), Bonn,
March 2003, pp. 46

ZEF Discussion Papers on Development Policy

- No. 66 Lukas Menkhoff
Chodechai Suwanaporn The Rationale of Bank Lending in Pre-Crisis Thailand
Zentrum für Entwicklungsforschung (ZEF), Bonn,
April 2003, pp. 37
- No. 67 Ross E. Burkhart,
Indra de Soysa Open Borders, Open Regimes? Testing Causal Direction
between Globalization and Democracy, 1970–2000
Zentrum für Entwicklungsforschung (ZEF), Bonn,
April 2003, pp. 24
- No. 68 Arnab K. Basu
Nancy H. Chau
Ulrike Grote On Export Rivalry and the Greening of Agriculture – The
Role of Eco-labels
Zentrum für Entwicklungsforschung (ZEF), Bonn,
April 2003, pp. 38
- No. 69 Gerd R. Rucker
Soojin Park
Henry Ssali
John Pender Strategic Targeting of Development Policies to a Complex
Region: A GIS-Based Stratification Applied to Uganda
Zentrum für Entwicklungsforschung (ZEF), Bonn,
May 2003, pp. 41
- No. 70 Susanna Wolf Private Sector Development and Competitiveness in Ghana
Zentrum für Entwicklungsforschung (ZEF), Bonn,
May 2003, pp. 29
- No. 71 Oded Stark Rethinking the Brain Drain
Zentrum für Entwicklungsforschung (ZEF), Bonn,
June 2003, pp. 17
- No. 72 Andreas Wimmer Democracy and Ethno-Religious Conflict in Iraq
Zentrum für Entwicklungsforschung (ZEF), Bonn,
August 2003, pp. 23
- No. 73 Oded Stark Tales of Migration without Wage Differentials: Individual,
Family, and Community Contexts
Zentrum für Entwicklungsforschung (ZEF), Bonn,
September 2003, pp. 15
- No. 74 Holger Seebens
Peter Wobst The Impact of Increased School Enrollment on Economic
Growth in Tanzania
Zentrum für Entwicklungsforschung (ZEF), Bonn,
October 2003, pp. 25
- No. 75 Benedikt Korf Ethnicised Entitlements? Property Rights and Civil War
in Sri Lanka
Zentrum für Entwicklungsforschung (ZEF), Bonn,
November 2003, pp. 27
- No. 76 Wolfgang Werner Toasted Forests – Evergreen Rain Forests of Tropical Asia
under Drought Stress
Zentrum für Entwicklungsforschung (ZEF), Bonn,
Dezember 2003, pp. 46

- No. 77 Appukuttannair
Damodaran
Stefanie Engel
Joint Forest Management in India: Assessment of
Performance and Evaluation of Impacts
Zentrum für Entwicklungsforschung (ZEF), Bonn,
October 2003, pp. 44
- No. 78 Eric T. Craswell
Ulrike Grote
Julio Henao
Paul L.G. Vlek
Nutrient Flows in Agricultural Production and International
Trade: Ecology and Policy Issues
Zentrum für Entwicklungsforschung (ZEF), Bonn,
January 2004, pp. 59
- No. 79 Richard Pomfret
Resource Abundance, Governance and Economic
Performance in Turkmenistan and Uzbekistan
Zentrum für Entwicklungsforschung (ZEF), Bonn,
January 2004, pp. 20

ISSN: 1436-9931

The papers can be ordered free of charge from:

Zentrum für Entwicklungsforschung (ZEF)
Center for Development Research
Walter-Flex-Str. 3
D – 53113 Bonn, Germany

Phone: +49-228-73-1861
Fax: +49-228-73-1869
E-Mail: zef@uni-bonn.de
<http://www.zef.de>