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A WORLD BANK STUDY



Trade Expansion through Market Connection

THE CENTRAL ASIAN MARKETS OF KAZAKHSTAN,
KYRGYZ REPUBLIC, AND TAJIKISTAN



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Acronyms and Abbreviations

BEEPS	Business Environment and Enterprise Performance Survey
CAREC	Central Asia Regional Economic Cooperation
CIS	Commonwealth of Independent States
EU	European Union
GDP	Gross Domestic Product
GIS	Geographic Information System
HACCP	Hazard Analysis Critical Control Point
ICT	Information and Communication Technology
km	kilometer
OECD	Organization for Economic Co-operation and Development
SEZ	Special Economic Zone
SPECA	United Nations Special Program for Economies in Central Asia
WDR	World Development Report
WTO	World Trade Organization

Currency Equivalents

(Exchange Rate Effective June 21, 2010)

Currency Unit = Sum

USD 1 = T 150

USD 1 = SOM 37

USD 1 = SM 3

Weights & Measures

Metric System

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Executive Summary

The five countries of Central Asia expanded their trade significantly since beginning their transition with exports quadrupling to almost USD70 billion between 2003 and 2008 but without substantial diversification. These countries achieved this by promoting private investment, property rights, trade liberalization, and transport infrastructure in varying degrees. The proceeds from exports of crude material and mineral fuels reached USD 49 billion, nearly four times the 2003 level, while exports of food and manufactured products (not including machinery and transport equipments) reached USD 18 billion in 2008. As of 2008 the bulk of exports still came from a narrow range, with more than 80 percent of total export proceeds from just two sectors in Kazakhstan (mineral fuel and metal products) and Tajikistan (cotton and aluminum products), and one sector in Turkmenistan (mineral fuels). Only Kyrgyz Republic and Uzbekistan exported 80 percent of their exports from three or more sectors. Central Asian countries need to diversify their export bases.

Export diversification and growth will be integral to future growth and development of this region. Diversifying production and exports exposes firms to domestic and international competition, which enhances productivity. Such diversification drives a country's structural transformation from agriculture to industry to service, accompanied by a spatial transformation as leading cities and their hinterlands play a stronger role in production and trade.

This study focuses on three countries of Central Asia—Kazakhstan, the Kyrgyz Republic, and Tajikistan—and applies the framework used by the World Development Report (WDR 2009). These countries agreed to participate in the study, but the results of this work are also relevant for others in the Central Asia region. The global crisis reduced trade and exports of the three countries in 2009 as it did for the world. Nevertheless, as the world economy recovers, these countries must think strategically about how to diversify and expand their exports in the medium to long term. This is particularly challenging for these countries that have small domestic markets and are landlocked and relatively remote from large markets; they suffer from low domestic economic density, long distances to markets, and significant economic divisions between trading partners and major markets, making the framework of the *World Development Report 2009* (World Bank 2009c) relevant. The study recommends that Kazakhstan, the Kyrgyz Republic, and Tajikistan anchor their export diversification and growth strategy on three spatial scales—*urban* (leading city), *area* (city-hinterland), and *regional* (integration with regional markets). This corresponds to the 3 Ds of Density, Distance, and Division in WDR 2009. Policy makers in these countries must take actions along the above three dimensions, and in parallel, to obtain results. Without competitive connections to large markets abroad, investors will not invest in productive capacity in cities even when major cities are competitive producers of goods because such investments will not be profitable. While cities can be the best and most competitive locations for agro-processing, manufacturing and exporting within a country, they may not be if the policy environment is too unfavorable or basic services too inefficient. In addition, even if cities policies and basic services are significantly improved, they cannot work as islands; they need effective connections to their immediate hinterlands within the country.

Policy and investment actions at the *urban* (city) level are needed to promote more open and competitive environments and foster agglomeration economies (Table 1). Policy

Table 1. Summary of policy actions to be considered

	Instruments	Economic geography dimensions		
		Urban level (city)	Area level (city-hinterland)	Regional level (city-markets abroad)
Policy actions needed in all three countries	Institution	Remove restrictions on services (finance; telecom; logistics and warehousing; business/professional services)	Strengthen Oblast-level administration to facilitate or coordinate leading city-hinterland economic interactions	Establish North-south corridor management institution Develop regulations to promote regional freight consolidation services
	Infrastructure	Invest in relevant infrastructure (urban transportation, water and sewage system, heating system, electricity)	Improve road connections between leading city and hinterland	Improve road legs of the North-South corridor in need of repair Improve road legs connecting the North-South corridor to China
	Incentive	Establish some form of Special Economic Zone (SEZ) in the two leading cities	Develop a market information system (prices, quantities, locations)	
Examples of country-specific policy actions	Institution	Reform Land Use regulation in Astana to adapt to its rapid urbanization	Freedom to farm enforced in hinterlands of Dushanbe and Khujand	Tripartite transit agreement between China, the Kyrgyz Republic, and Tajikistan
	Infrastructure	Scaled-up ICT infrastructure in Almaty to support its regional hub function	Modern storage facilities in hinterlands of Bishkek, Dushanbe, Khujand, and Osh	Improvement of the Karaganda-Almaty roads, and the Osh-Batken road connection
	Incentive	Promote a regional food production network anchored in Almaty	Extension services to farmers in hinterlands of Bishkek, Dushanbe, Khujand, and Osh	Advantageous backhaul cargo services offered by Kazakh trucks to Kyrgyz and Tajik traders

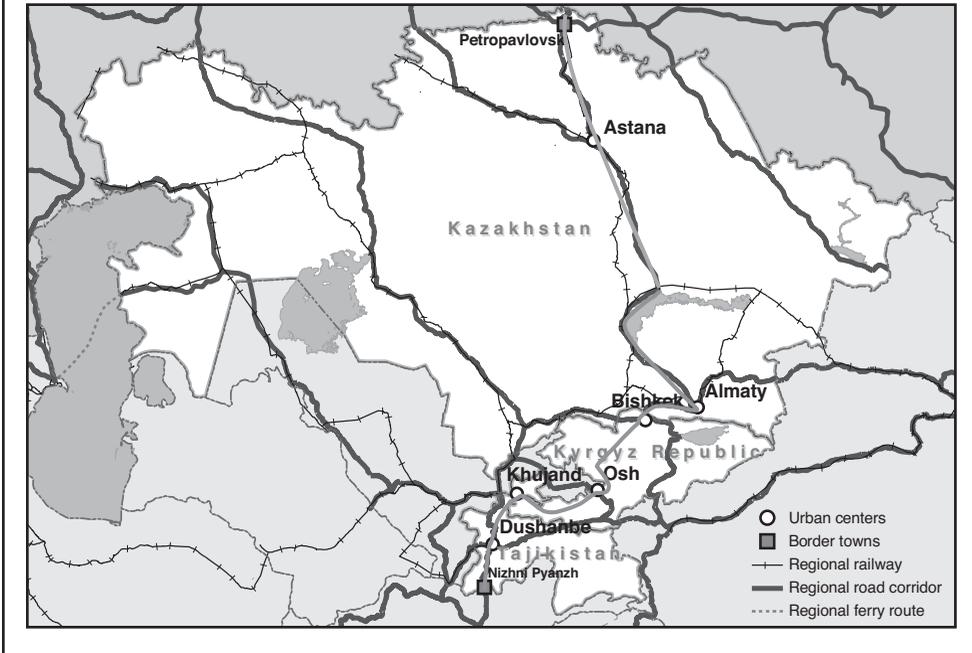
Source: Authors.

makers in each country are advised to focus on its two leading cities—Almaty and Astana in Kazakhstan, Bishkek and Osh in the Kyrgyz Republic, and Dushanbe and Khujand in Tajikistan—and explore various possibilities, including establishing some form of a Special Economic Zones (SEZs) or industrial/export processing zone (IZ/EPZ). Establishing some form of a “zone” in a defined area of the city with potential to expand it over time, could allow a country to jump start its export diversification and trade expansion through appropriate infrastructure investments and a better policy environment (e.g. simpler business registrations and operations, easier tax regimes, etc) within that targeted area. The larger the targeted area of this ‘zone’, the larger the likely impact, even as countries continue to improve infrastructure and policy environment for the entire city.

At the *area* (city-hinterland) level, policy actions must increase mobility of production factors within macro-regions anchored on leading cities. Better connections between leading cities and immediate agricultural hinterlands, such as improved road connections and extension services to farmers and storage and market places, will provide a sound basis for intensifying agro-industrial activities within the country.

At the *regional* (six cities-large markets) level investments and policy actions are needed to reduce transport costs and transport time to key regional markets. But the

Figure 1. The North-South Road Corridor Linking Six Central Asian leading cities (line added)



Source: Authors.

long-term success of Central Asian regional integration rests on the bedrock of better connections between the macro-regions within countries (i.e. between leading cities and their hinterlands) and between these six leading cities and major regional markets (i.e. China, India, Russia, and Turkey). First, this requires investing and upgrading the *north-south road corridor*, which links the cities of Dushanbe, Khujand, Osh, Bishkek, Almaty, and Astana to the Afghan-Tajik border at Nijny Panj (southern Tajikistan) and to the Kazakh-Russian border at Petropavlovsk (northern Kazakhstan) (Figure 1). While the road connection between Bishkek, Osh and Khujand is currently not part of CAREC regional road corridor, it is the most integrative, with the potential to intensify direct and transit trade between Kazakhstan, the Kyrgyz Republic and Tajikistan. Second, this requires improvements in policies and agreements related to the operation and trade and transit facilitation in border crossings connecting these markets. Third, this requires that country policies in respect of trucking and logistic services are made more favorable for their expansion.

But the growth and diversification of non-natural-resource-based exports are limited by constraints to competitive production and poor connections to markets. The study identified two types of production capacity constraints in the leading cities: backbone services and infrastructure (for example, expensive financial services, unreliable power supply, and limited and expensive telecommunications services); and business environments (such as excessive red tape, poor public services including tax issues, and too much involvement by political elites in business biasing competition). Two types of market connectivity constraints were also identified: transport and logistics services

(limited freight consolidation services and multimodal transport services, and inadequate regional logistics services, even in Almaty, an aspiring regional logistics hub); and challenges to international transit (issues related to customs and border crossings, high transport costs, inefficient rail services, and problems in transiting Uzbekistan, for example).

For a regional production network to emerge between the six leading cities of Kazakhstan, the Kyrgyz Republic, and Tajikistan, the East Asian experience suggests three basic principles: *start small*, to maintain coordination challenges at a manageable level; *think global*, to reach a larger market instead of seeing neighbors as competitors; and *help the less advanced parts* of the production network to secure quality, quantity, and timely intermediate and final products. The north–south road corridor offers huge potential for export diversification and should drive the regional integration agenda. To secure access to key regional markets, the first major policy action should be to establish a three-tier north–south corridor management institution, consisting of a stakeholder group, a working group, and a secretariat.

Overall policies would be made by the stakeholder group, to consist of high-level officials in Kazakhstan, the Kyrgyz Republic, and Tajikistan who are involved in regulating trade and transport facilitation activities. Working groups in each country should consist of national implementation committees designed as problem-solving sub-groups with operational procedures to encourage flexibility and responsiveness and ensure public-private interaction at all levels. Different working groups formed on an ad hoc basis, as needed, can address specific issues and can then be disbanded once an objective is met. The secretariat of the corridor management institution should be located in one of the six leading cities, to maximize the secretariat's involvement in high-level policy making on regional integration issues.

The stakeholder group could consider pursuing various multipartite transit agreements, complemented by trade agreements allowing products with export potential to reach new markets such as agroprocessed products to western China (Urumchi and Kashgar). While some bilateral transit agreements already exist between China and Central Asian countries, none of them secure access to the Chinese market by the three central Asian countries as a group, thus effectively reducing their actual access to Chinese markets.

Another policy action aimed at securing access to key regional markets would be to rehabilitate and upgrade the legs of the poorly-maintained north–south road corridor, along the route from Nijny Panj–Dushanbe–Khujand–Batken–Osh–Bishkek–Almaty–Astana–Petropavlovsk. For instance, improving the Osh–Batken–Isfara–Khujand–Dushanbe segment would allow both the Kyrgyz Republic and Tajikistan to bypass Uzbekistan in reaching markets in Russia or Turkey. The entire road badly needs upgrading and rehabilitation. The Khujand–Dushanbe connection currently operates well below its potential, while the Shakrishtan tunnel remains under construction; the Anzob tunnel is deteriorating, according to operators using this route. Upgrading and completing this road corridor would increase competition with the other routes going through Uzbekistan and would ultimately improve transit trade via Uzbekistan.

Once priority highway investments in each country are agreed on, complementary policy instruments will be needed to facilitate trade and transport and address various administrative barriers, as well as border crossing and transit constraints. To take advantage of Kazakhstan's more advanced and efficient trucking industry, such policy instruments should also include a clause to allow cross-border truck trade and/or to facilitate

foreign direct investment in the trucking industry between Kazakhstan, the Kyrgyz Republic, and Tajikistan.

Finally, policy makers should consider some type of compensation mechanism to ensure the long-term viability of deepened regional integration. Based on Almaty's leading role in the region, Kazakhstan is likely to gain the most in the short term from deepened regional integration. One obvious choice would be some form of subsidy to reduce transport costs to Almaty from the Kyrgyz Republic and Tajikistan. This might consist of advantageous backhaul cargo services offered by Kazakh trucks, or favorable joint-ventures with Kyrgyz or Tajik trucking companies, or of subsidized gas prices for Kyrgyz and Tajik truckers shipping goods to Almaty for consolidation. This would be a win-win deal for Kyrgyz and Tajik traders, who would see a decrease in transport costs in reaching regional markets, and for Almaty, whose regional hub function would be realized, promoting a wide range of multi-modal and intermediation services.

The most important policy action at the *urban* level would be to establish, in each leading city, some type of Special Economic Zone (SEZ) where infrastructure conditions and economic regulations are more hospitable than in the rest of the country. An SEZ would make each city's business environment more attractive to domestic and foreign investors. The downside of SEZs is the inevitable distortion created in the rest of the national economy, but the larger the privileged area the lower such distortion will be, making citywide SEZs logical. This was the case in China in 1984, when 14 coastal cities were granted SEZ status, and in 1988, when the entire island of Hainan was assigned SEZ status. But this may not be feasible in these leading cities of Central Asia at this time. Instead focusing on a more limited area—such as an industrial zone/export processing zone in each city—may provide a useful start to creating highly competitive locations for production and export in these cities. As these limited Special “zones” demonstrate results in terms of investment, employment and exports, they could be expanded to include an increasingly larger area.

The single most important *area*-level policy action is to scale up the backbone infrastructure and services provided in the macro-regions. To facilitate innovation, production, and trade, improvements are needed to systems and regulations for governing intra-urban and interurban transport, retail and wholesale distribution, and logistics and financial services. For instance, public investments may be needed to provide the transport infrastructure needed to connect the core city to its mainly agricultural hinterland, as well as the market infrastructure investments needed to facilitate rural-urban interactions, such as marketplaces, storage capacity with power and water connection as needed, and price information systems.

Such policy actions, representing the core of the city-led diversification strategy proposed in this study should be undertaken for all six leading cities in Central Asia. This diversification strategy involves three types of policy makers: city-level authorities for city-level interventions, oblast-level authorities for the hinterlands of leading cities, and national authorities for regional-level policy actions. A close collaboration between all three levels of decision-making is paramount to the success of the diversification strategy.

Additional measures recognizing the specific needs of each leading city should be considered. For instance, because Almaty is at a more advanced stage of urbanization than are the five other cities, Almaty may require additional infrastructure in mass transportation, ICT, and financial services to sustain and expand its regional hub function. In Dushanbe and Khujand and their hinterlands, the process of land titling need to be

strengthened, because Tajik farmers do not have yet the freedom to farm their products and no land market exists in Tajikistan.

Kazakhstan, the Kyrgyz Republic, and Tajikistan have a comparative advantage in some agricultural products demanded by major regional markets. Horticulture in the hinterlands of Almaty, Bishkek, Dushanbe, Khujand, and Osh and grain in the hinterland of Astana could benefit from complementary policies aimed at improving quality and quantity of products grown. Dairy and meat complexes around Bishkek and Dushanbe could benefit from upgraded livestock activities in their hinterlands. Providing a business-friendly environment and improved access to credit, along with rehabilitated feeder roads and marketplaces and stronger access to technical assistance to meet quality requirements would help transform agriculture into a more dynamic sector. In addition, improving access to efficient and affordable transport and distribution services to consolidate production, along with stronger connections to external markets via multimodal means of transport, would help forge closer links with manufacturing and business services.

With the north–south corridor management institution established and macro-regions consolidated around the six leading cities, the creation of an innovation-intensive food cluster in Almaty with stronger connections to other cities becomes part of a sound regional diversification strategy. Such a strategy could benefit from supply links with intermediate products from the hinterlands of Bishkek, Dushanbe, and Khujand, and would help meet demand both from the Kazakh domestic market and other regional markets easily accessible from Almaty via road, rail, and air.

The Need for Central Asian Countries to Diversify Their Trade

In 2005, the Europe and Central Asia Region's flagship report, *From Disintegration to Re-integration: Eastern Europe and the Former Soviet Union in International Trade* (Broadman 2005), unveiled two emerging trade blocs: one diversifying and tending to trade with most advanced Western countries and the other remaining concentrated on natural-resource-intensive production and tending to pull back toward a trading area centered on the Russian Federation. This report concluded that countries of the second trade bloc needed to pursue further trade policy reforms beyond those already in place and identified domestic market-facilitating reforms as the bulk of the unfinished agenda. The first bloc consisted of the eight new European Union (EU) members,¹ while the second bloc consisted primarily of the countries of the Commonwealth of Independent States (CIS). As the transition from centrally planned economies approaches its third decade, now may be a good time to revisit the implications of this dichotomy.

Recent empirical work confirms that development and growth are associated with increasing production and trade diversification. For example, Imbs and Wacziarg (2003) focus on the link between development and diversification and Herzer and Nowak-Lehman (2006) examine the link between growth and diversification. Economists continue to debate the direction of the causality. But extensions of the endogenous growth model, which links growth to the accumulation of human capital, clearly demonstrate that developing countries can increase their productivity, and thus their prospects of achieving higher per capita incomes, as they move from agriculture-based economies to industry-based and service-based economies (Chuang 1998). Developing countries can accomplish this by learning through the diversification process, through competition and intersectoral spillovers.

Furthermore, diversification of products and markets spreads the risk associated with external shocks. Haddad and others (2010) show that for a wide range of countries expanding their export bases, the correlation between trade openness and growth volatility turns negative when export diversification indicators cross a threshold. The current economic crisis gives a new resonance to this stabilizing effect of diversification.

This study focuses on merchandise trade development in the Central Asian countries since 2003, to ascertain whether new trends in markets are apparent and whether the countries have diversified their products. Ideally, all five Central Asian countries would be studied, but the lack of data available for Turkmenistan and Uzbekistan with respect to city-level or disaggregated trade information makes that impossible. Beginning in chapter 2, this study, therefore, focuses only on Kazakhstan, the Kyrgyz Republic, and Tajikistan, and refers to those three as "Central Asia." In chapter 1, where only aggregate trade statistics are used, the term Central Asia still refers to all five countries, unless otherwise noted.

Recent Export Performance

Central Asian countries face two daunting challenges: they are landlocked, and their production base is skewed toward natural resources. Their landlocked geography significantly reduces their market accessibility, which limits their prospects for offshore export diversification strategies. Their heavy reliance on natural resources also significantly reduces the competitiveness of their other exports because of their appreciating currencies. For instance, during 2003–08, the share of total exports from Central Asia going to the EU-15 grew from 27 percent to 35 percent.² But whether this expansion was due to an explicit diversification strategy is hard to say, given the autarkic stance of Turkmenistan and Uzbekistan. High commodity prices have certainly affected Central Asian countries' proceeds from exports of aluminum, cotton, gas, gold, and oil. Yet a look at the countries' export structure and export destinations indicates the potential of a well-thought-out diversification strategy.

Export Structure

Central Asian merchandise exports increased from almost USD 17 billion in 2003 to almost USD 70 billion by 2008 (table 1.1). To a large extent, this reflects the growth in exports of *mineral fuels, lubricants, and related materials* and of *crude inedible materials except fuels* by 4.9 times during the period to reach USD 49 billion. Mineral fuels, lubricants, and related materials accounted for 62 percent of Central Asia's exports in 2008, up from 47 percent in 2003. Meanwhile, non-natural resource-intensive exports (excluding crude materials inedible, and mineral fuels) increased only 3.3 times to reach USD 21 billion. By comparison, during this period Southeast Europe's top three exports were manufactured goods, machinery and transport equipment, and textile products.

Using the five-digit Standard International Trade Classification nomenclature for products, Central Asian countries exported a total of 1,731 products in 2008, up from 1,707 in 2003, compared with Southeast European³ countries' exports of 2,631 products in 2008, up from 2,615 in 2003. In 2008, Central Asian countries' top three export products accounted for 36 percent of total exports, compared with only 8 percent for Southeast European countries, indicating an extremely concentrated export base in Central Asia and a diversified export base in Southeast Europe. In 2008, the Herfindahl-Hirschman index (also called the Herfindahl index), a commonly accepted measure of market concentration, was 0.50 for Central Asia. This indicates an extremely concentrated export base, compared with an index of 0.08 for Southeast European countries (0 indicates equal distribution and 1 indicates maximum concentration).⁴

How can Central Asia match the diversification performance of Southeast Europe? The answer lies in what Southeast Europe did: it favored the expansion of economic activities in its leading cities well-connected to the EU, which helped diversify its exports into manufacturing products. This study makes the case that by targeting relevant markets, connecting leading urban centers to those markets, and facilitating trade along the transportation links connecting them, Central Asia could maximize its market accessibility and expand and diversify its exports much as Southeast Europe is now doing.

Exports of Nonnatural-Resource-Intensive Products

In 2003, the top export destinations for nonnatural-resource-intensive products from the Central Asian countries were Europe and Central Asia, including Russia and Turkey (32 percent); the EU-15 (27 percent); and China (20 percent) (Figure 1.1). By 2008, the EU-15

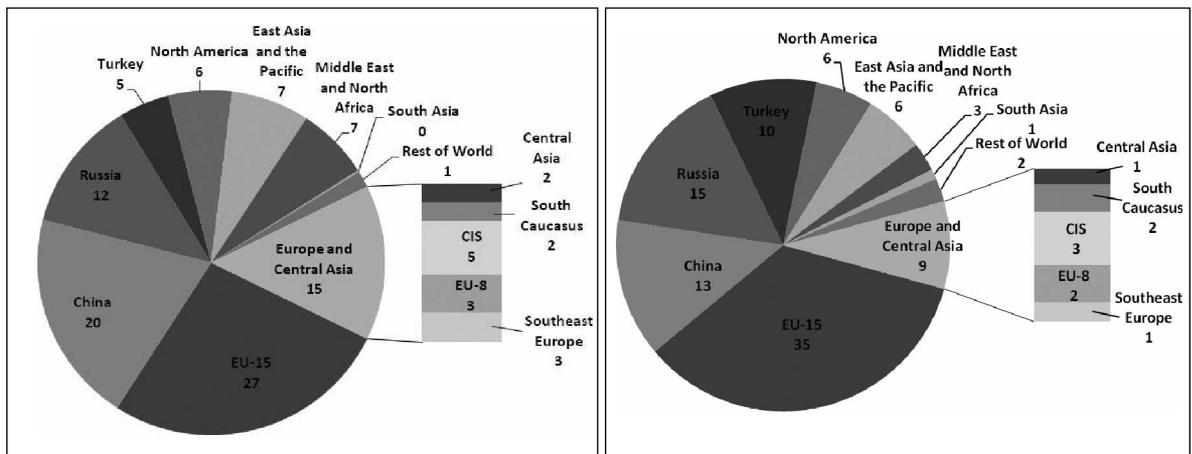
Table 1.1. Trade structure, Central Asia and Southeast Europe, 2003 and 2008

Regions/ Year	Percentage of total exports										Total Trade (USD million)
	Food & live animals	Beverages & tobacco	Crude inedible materials except fuels	Mineral fuels, lubricants, and related materials	Animal & vegetable oils, fats, and waxes	Chemicals and related products	Manufactured goods	Machinery and transport equipment	Textile products	Commodities not classified elsewhere	
<i>2003</i>											
Central Asia	6.47	0.32	14.38	47.41	0.03	3.02	23.31	1.75	1.23	2.08	16,730
Southeast Europe	5.58	1.19	6.75	4.71	0.18	6.25	21.54	16.95	35.92	0.94	35,946
Europe and Central Asia	5.19	0.63	5.23	20.39	0.27	6.49	21.79	24.92	12.63	2.48	455,874
<i>2008</i>											
Central Asia	4.36	0.13	8.42	61.70	0.02	3.16	16.69	1.99	0.51	3.03	70,187
Southeast Europe	6.08	1.59	6.88	8.11	0.45	7.50	24.35	24.53	18.56	1.96	94,668
Europe and Central Asia	4.66	0.63	4.54	29.09	0.32	6.80	18.95	23.69	7.10	4.22	1,343,808

Source: United Nations commodity trade database.

Note: Column headings reflect Standard International Trade Classification categories, revision 3.

Figure 1.1. Destination of nonnatural-resource-intensive exports from the Central Asian countries, 2003 and 2008 (percent)



Source: International Monetary Fund Direction of Trade Statistics database.

had taken the top spot (35 percent), followed by Europe and Central Asia (34 percent) and China (13 percent). While overall exports to Europe and Central Asia remained stable, exports to countries other than Russia and Turkey decreased from 15 percent to 9 percent. Exports within Central Asia remained low, at 1 percent. Central Asian exports are transported overland, suggesting that the north–south corridor linking this region to regional markets (such as China and Russia toward the north and India and Turkey toward the south) is a major axis of trade expansion.

In 2007, 80 percent of Central Asian countries' nonnatural-resource-intensive exports consisted of manufactured goods (which accounted for 68 percent of the nonnatural-resource-intensive exports), transported mainly to the EU-15, China, Russia, and Turkey, and food products (10 percent), exported mainly to Russia, the EU-15, and the Middle East and North Africa. Three-quarters of the manufactured goods exported were metal products from Kazakhstan and Tajikistan destined mainly for the EU-15, China, Russia, and Turkey. Although still limited, production and export of food products and light manufacturing could be intensified with the appropriate set of policy measures to tap into the region's comparative advantage in agricultural products such as cotton and horticulture.

Furthermore, in 2008, imported foods and chemicals represented 15 percent of imported non-natural-resource-intensive products, all from two sources: Russia (5 percent) and the EU-15 (5 percent). Intraregional trade among the Central Asian countries accounted for 3 percent. Central Asia could scale up its intra-regional and extra-regional trade of these goods, which require fairly accessible technology and skills.

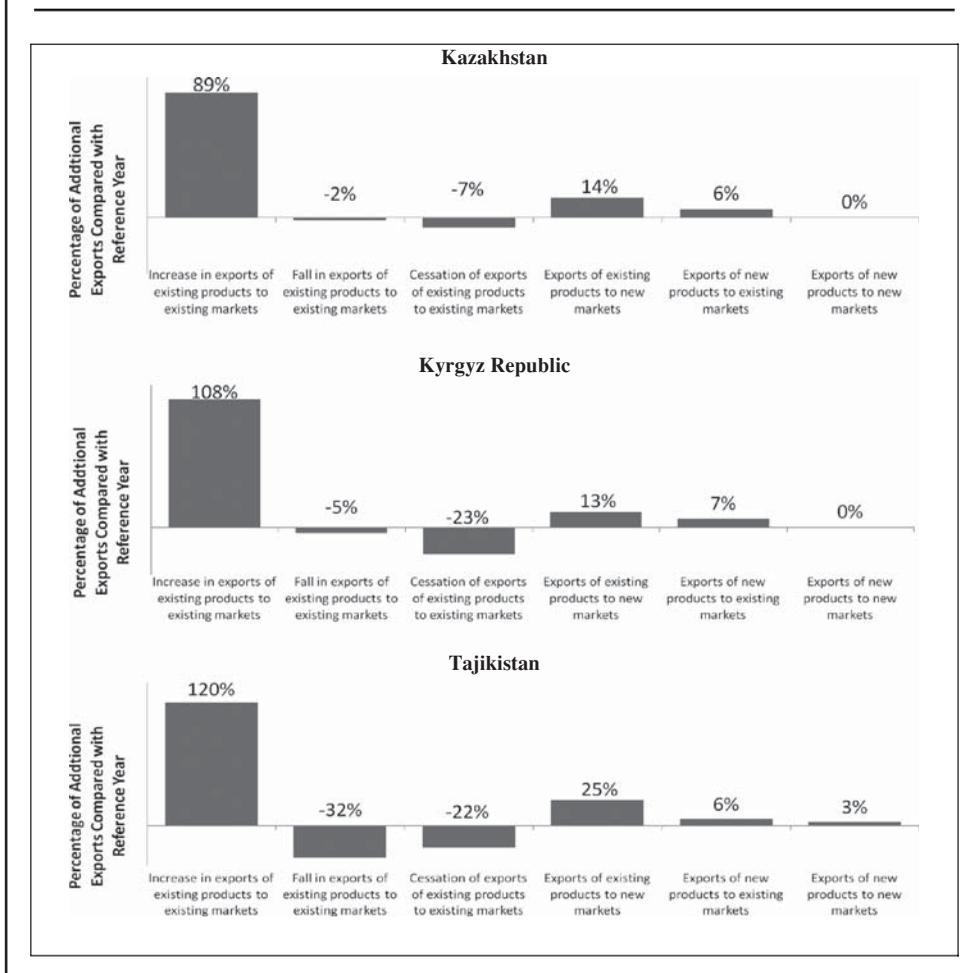
Breakdown of Export Growth of Non-natural-Resource-Intensive Products⁵

The challenge of diversification in Central Asia is clearly illustrated by figure 1.2, which shows sources of export growth during 2003–08. Following Brenton and Newfarmer (2008), export growth is broken down into six components. Three components highlight diversification by intensification of existing trade flows (intensive margin): increase in exports of existing products to existing markets; fall in exports of existing products to existing markets; and cessation of exports of existing products to existing markets. The other three cover diversification by expansion of existing trade flows to cover new products or new trading partners (extensive margin): exports of existing products to new markets; exports of new products to existing markets; and exports of new products to new markets.⁶

As is the case for many developing countries, the intensive margin appears to be the strongest contributor to Central Asian exports of nonnatural-resource-intensive products (Brenton and Newfarmer 2008). Increases in exports of existing products to existing markets accounted for 89 percent of the USD 8.2 billion increase in trade in Kazakhstan during 2003–08; for 108 percent of the USD 400 million increase in trade in the Kyrgyz Republic; and for 120 percent of the USD 350 million increase in trade in Tajikistan. Kazakhstan has increased its exports of chemicals and manufactured metal goods to China and Russia and other large economies. The Kyrgyz Republic has increased its exports of both processed and unprocessed horticultural products to Russia, Kazakhstan, and Turkey. Tajikistan has intensified its exports of aluminum products and some processed and unprocessed horticultural products to the EU-15, Russia, and Turkey.

During the same period, the Kyrgyz Republic and Tajikistan experienced a larger cessation of exports: –23 percent for Kyrgyz Republic and –22 percent for Tajikistan and –7 percent for Kazakhstan. The cessation of exports of existing products to existing markets is an indicator of the viability of exporters' export relationships. The failure rates

Figure 1.2. Sources of export growth, nonnatural-resource-intensive products, Kazakhstan, the Kyrgyz Republic, and Tajikistan, 2003–08 (percent)



Source: United Nations commodity trade database; authors' calculations.

of exports from Central Asia appear to be quite high. Using Vietnam for comparison purposes, while only 6 percent of products exported by Vietnam during 2002–05 were no longer exported by Vietnam in 2006 or 2007, this number was 36 percent for the Kyrgyz Republic and Tajikistan, and 21 percent for Kazakhstan (United Nations commodity trade database). The largest failure rates appear to be for chemicals in Kazakhstan (30 percent) and the Kyrgyz Republic (56 percent) and for beverages in Tajikistan (50 percent). Vietnam's dramatically lower rate may suggest that its firms have solidified their marketing channels and transport links to continue exporting its current set of exports, a worthwhile lesson for the Central Asian countries.

Exports of existing products to new markets have been the driver of the extensive margin in the three countries, accounting for 25 percent of exports by Tajikistan during 2003–08 and 14 and 13 percent by Kazakhstan and the Kyrgyz Republic, respectively.

This includes products exported in 2008 to existing trading partners that did not import those products in 2003, that is, the opening up of new bilateral country-product relationships. For Kazakhstan, the products were mainly metal products exported to some European countries, Russia and Korea; for the Kyrgyz Republic, mainly refined metals and food products exported to Kazakhstan and Russia, China and other Asian countries; and for Tajikistan, mainly aluminum products exported to some European countries, India and the United States. The Kyrgyz Republic's experience shows that diversifying agro-industry activities at the Central Asian level is an achievable goal.

Diversification Potential

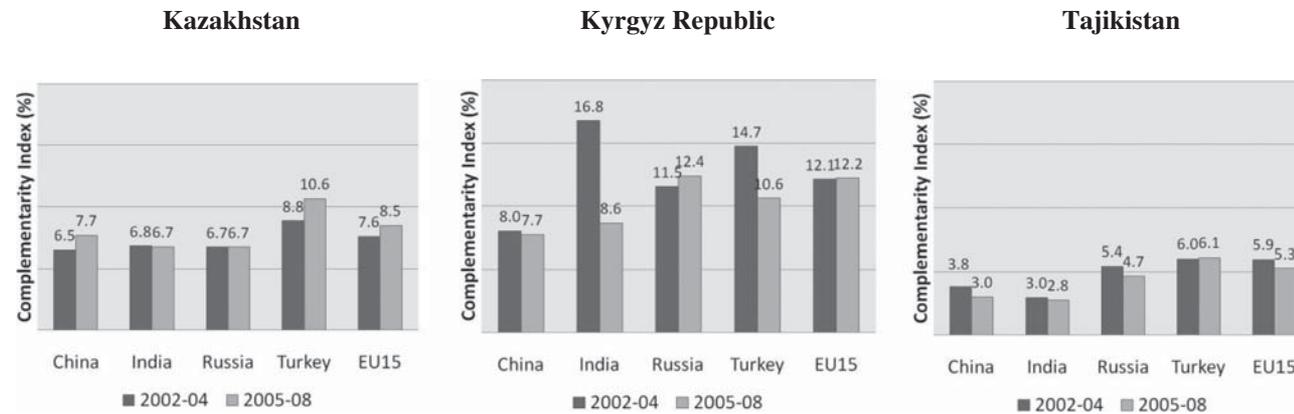
Because Central Asian countries tend to rely too heavily on a few natural-resource-intensive exports, increasing the share of non-natural-resource-intensive exports is the first step in diversification. This may well be equivalent to intensifying the export of very limited products such as agroprocessed products or clothing. Another issue is whether the Central Asian countries can succeed in diversifying their trading partners. Diversifying nonnatural-resource-intensive products into distant markets may be a long shot given Central Asia's geographical and logistical disadvantages. A first step might therefore be to target regional markets such as China, India, Russia, and Turkey, and perhaps the EU via Russia, where the demands for agroprocessed products and clothing far exceed Central Asia's production capacity.

Potential Avenues for Market Diversification

The trade complementarity index for non-natural resource-intensive goods with China, India, Russia, Turkey, and the EU-15 can indicate how well the export structures of Kazakhstan, the Kyrgyz Republic, and Tajikistan match the import structures of those markets.⁷ The index is zero when no goods are exported by one country or imported by the other, and 100 when the export and import shares match exactly. The complementarity index between Kazakh exports and imports by China, India, and Russia was stable at around 7 percent during 2002–08, while Kazakhstan's complementarity index with the EU-15 and Turkey increased slightly from 2002–04 to 2005–08 (Figure 1.3). This compares with higher matches between exports from the Kyrgyz Republic and imports by China, India, Russia, Turkey, and the EU-15. Between 2002–04 and 2005–08, the Kyrgyz Republic's trade complementarity with India was halved from 16.8 to 8.6 percent primarily because of variations in the imports and export of mainly three products: gold, for which the Kyrgyz Republic's export share fell from 13 percent to 1 percent while India's imports share stayed high at 14 to 15 percent; nonwired float glass, for which the Kyrgyz Republic's export share rose from 5 to 10 percent while India's import share stayed low at 0.04 percent; and electrical machinery parts, for which the Kyrgyz Republic's export share rose from less than 1 percent to 7 percent and for which India's import share remained low at less than 1 percent. Tajikistan's trade complementarity with these regional markets stayed constant at around 5 percent, with Turkey providing the best match at 6.1 percent during 2005–08.

By comparison, over the period of 2002–07 the trade complementarity of Cambodia and the Lao People's Democratic Republic with China, Japan, and the Republic of Korea ranged from 2.9 percent to 9.8 percent, with an average value of 6 percent. Given the now more integrated trade between Cambodia and the Lao People's Democratic

Figure 1.3. Average trade complementarity with leading regional markets, Kazakhstan, the Kyrgyz Republic, and Tajikistan, 2002–04 and 2005–08



Source: United Nations commodity trade database; authors' calculations.

Table 1.2. Complementarity gap between Kazakhstan, the Kyrgyz Republic, and Tajikistan and major regional markets, 2008 (percent)

Country or country group	Kazakhstan		Kyrgyz Republic		Tajikistan	
	A	B	A	B	A	B
China	16	30	25	21	33	15
India	21	30	29	17	36	12
Russia	13	36	24	22	28	20
Turkey	13	31	26	19	30	16
EU-15	12	34	24	19	26	21

Source: United Nations commodity trade database; authors' calculations.

Note: A = percentage of the complementarity gap arising from nonmatching product varieties and B = percentage of the complementarity gap arising from unmet demand for existing export products. The complementarity gap is defined as 1 minus the trade complementarity index figure for a set of two countries. For any two countries, one of four outcomes is possible for every product variety: (a) it could be imported but not exported, (b) it could be exported but not imported, (c) more of it could be imported than exported, or (d) more of it could be exported than imported. Column A adds the shares for products for which (a) or (b) hold. Column B adds the shares for products for which (c) holds.

Republic with China, Japan, and Korea, the complementarity of Kazakhstan, the Kyrgyz Republic, and Tajikistan with their major regional markets seems not to be too low a base to build on. Furthermore, when looking at the types of products imported instead of their value, the export potential of Central Asia to China, India, Turkey, Russia, and the EU-15 becomes stronger, as illustrated by Table 1.2, which shows the share of the complementarity gap attributable to nonmatching product varieties and the share arising from unmet demand for existing export products.

The breakdown shown in Table 1.2 indicates that only 12 percent of Kazakhstan's complementarity gap with the EU-15 should be attributed to nonmatching product varieties (a difference between the types of imports the EU-15 demands and that Kazakhstan does not currently supply or between Kazakhstan's exports and what the EU-15 does not want to buy), but 34 percent of the complementarity gap can be ascribed to unmet demand (a much greater demand for imports in the EU-15 than Kazakhstan's exports can fulfill). For Tajikistan and the EU-15, 26 percent of the complementarity gap is accounted for by nonmatching product varieties, while the level of unmet demand accounts for a sizable 21 percent. The numbers are, respectively, 24 (nonmatching products) and 19 (unmet demand) for the Kyrgyz complementarity gap with the EU-15. Given that unmet demand for existing exports indicates potential for future export growth, both in the intensive margin and the extensive margin, Central Asia seems to have some scope for scaling up its exports to China, India, Russia, Turkey, and the EU-15.

Potential Avenues for Product Diversification

Trade economists agree that for a country to increase its export share of nonnatural-resource-intensive goods, the country must undertake reforms—behind-the-border, at-the-border, and beyond-the-border reforms—to foster export expansion and diversification.

- *Behind-the-border reforms* refer to domestic reforms such as improving the investment climate and property rights to increase private domestic and foreign investment, improving production capacity by upgrading technology and production processes, enhancing sector-specific skills and knowledge to facilitate

production and trade deals with global producers, and adopting relevant conformity and assessment standards for their production processes.

- *At-the-border reforms* refer to liberalizing the movements of goods and factors of production across borders by unilaterally lowering barriers, engaging in deep and comprehensive regional agreements, or joining the multilateral WTO framework. This openness can generate general benefits such as a peaceful neighborhood supported by intertwined economic interests or a more predictable trade environment in addition to lowering the costs of importing intermediate inputs.
- *Beyond-the-border reforms* are measures to facilitate trade and transport with respect to international transit and to improve logistics services to reduce the costs of trading.

Aside from Chile's example of successful unilateral trade liberalization, the East Asian countries that engaged in promoting Special Economic Zones (SEZs) have experienced more impressive results than have other developing countries. China, for example, relied heavily on the SEZs along its eastern coast.

Another example is Thailand, which moved successfully from traditional agriculture to modern food processing to major manufacturing by adopting such a spatial approach. Thailand relied heavily on agro-industry during the early stages of its industrialization, an experience that may suggest some lessons for Kazakhstan, the Kyrgyz Republic, and Tajikistan (Box 1.1). Even though it might sound like a picking winner strategy, Thailand's industrialization strategy was rooted in the country's comparative advantage (agriculture) and competitive advantages (Bangkok's hub function and agglomeration economies) and focused on scaling up agro-industry and agroprocessing before testing out other manufacturing sectors, such as integrated circuits in the late 1980s. The strategy unleashed Thailand's agricultural potential by ensuring access to land, establishing institutions to complement fundamental macroeconomic policies, developing the infrastructure necessary for the development of agro-industry, and providing targeted interventions to some promising sectors.

Even Chile's diversification success is an outcome of state intervention through the Fundación Chile, a public-private agency designed to develop firms in new areas in which private investors were not interested and to involve the private sector at a later stage. For example, the Fundación Chile is credited with helping develop the salmon farming industry and turning Chile into one of the world's top salmon exporters (*The Patagonia Times*, 29 October 2007).

Is there a middle way between unilateral liberalization and heavy state intervention in industrialization and diversification that the Central Asian countries can consider? Building on the 2009 *World Development Report* framework (World Bank 2009c), this study proposes a way that focuses on increasing the explicit role of leading cities in the diversification strategy and then improving their connectivity to targeted regional markets. As in the *WDR2009*, policy makers are advised to look at three spatial levels to design their export diversification strategy, by using three main policy instruments: institutions that unite places, infrastructures that connect the places, and incentives that target areas of special need.

First, at the city level, economic density is the main challenge. Trade needs to be driven by urban based activities and services; in small countries with a thin urban hierarchy, the largest city or cities will be the focus. The key here is that these cities may not be delivering localization economies to help producers become more productive and competitive, pre-requisites for increasing exports. Thus policy makers need an intensification

Box 1.1. The Thai experience of agriculture-led industrialization

At the beginning of the industrialization process, the Thai government stabilized the price of rice at a low level while promoting agro-industry diversification for export. Thailand achieved this by putting in place a variety of taxes, including a variable export tax on rice; providing access to agricultural land; and offering incentives to large, export-oriented agroprocessors. The latter incentives ranged from reduced import duties on agricultural machinery to tax exemptions for up to seven years; exemptions from import duties on raw or essential materials, export taxes, and value added taxes on exports and local goods used to produce exports; and reduced electricity charges, domestic air cargo charges, and rail charges for firms in selected provinces. Agroprocessing industries also benefited from the extension of subsidized credit to farmers participating in contract farming and outgrowing schemes, the government's bilateral negotiations with key importing countries to lower tariffs on imports, and a government program to enhance the quality of agro-exports.

The government created specific institutions to accompany this industrialization policy, including the National Economic and Social Development Board, the Joint Public and Private Sector Consultative Committee, two coordinating agencies between the government and the business community, and the Board of Investment to provide incentives to develop new businesses in some selected sectors. The experience of the Charoen Pokphand Group, a Bangkok-based food giant, illustrates how this industrialization strategy was targeted at the private sector.

Charoen Pokphand was created in 1921 as a trading company importing seeds and vegetables and exporting pigs and eggs. The company registered with the Thai government in 1951 and opened a feed mill in 1954. With this mill, the company took the first steps toward vertical integration, as the group not only sold seeds to farmers, but also bought and processed farmers' crops. In 1976, the company moved into poultry farming following an announcement by the Board of Investment that the incentives to develop new businesses were available for this activity. Because of the difficulties of breeding local chickens, the company entered into a joint venture with an American company, Arbor Acres, which continues to provide the Charoen Pokphand Group with chickens. The Charoen Pokphand Group also entered into joint ventures with Japanese firms to market frozen chicken meat in Japan. The company pioneered contract farming in Thailand, including guaranteeing loans to farmers from commercial banks, from the Bank of Agriculture, and from agricultural cooperatives.

By 1979, the company controlled 90 percent of Thailand's poultry exports and 40 percent of the domestic animal feed business. It also used the Board of Investment incentives to establish its own trading company, CP Intertrade, and established plantations to grow beans and maize. Today, with businesses and affiliates operating within the agribusiness, retail, and telecommunications markets, the company employs more than 250,000 people worldwide and its sales for 2006 were USD 14 billion.

Source: Hewison 1989; Jomo and Rock 1998; Manarungsan and Suwanjindar 1992; Pasuk and Baker 1995; Board of Investment 1996 <http://www.cpthailand.com>.

strategy, so that the cities become good enough at producing, say, processed food products to be able to sell it abroad. This means that cities need to attract the right businesses (such as food processing firms and closely related services/suppliers), provide them with a good regulatory environment, and provide the local services that are needed for their operation. If the only way to do this is by using some form of SEZ, then policy makers will need to set up the right institutions, and provide the needed infrastructure as well as incentives to make it work.

Second, at the city-hinterland level—defined here as a one-hour drive away from the city-center—distance to economic density is the main challenge. How best to connect farmers within feasible range of the cities to food processing firms in the main cities? This

is not a one-way relationship, because urban firms also need to work with farmers to increase quality and perhaps even help trigger agricultural intensification. Here, policy makers may also consider establishing institutions to facilitate the economic interaction between the city and its hinterland, along with local infrastructure to connect production and market, as well as targeted incentives such as extension services or credit access for farmers.

Third, at the regional level, economic and political divisions between different countries are the challenges to be overcome. Regional integration can help to scale up supply capacity, while global integration will help to scale up demand. Because Central Asian countries are isolated, quite small, and obviously highly interdependent, formal and informal mechanisms are necessary to pool resources and punch above their individual weight when negotiating access to Chinese or EU markets, for instance. The principle suggested in the *WDR2009* is to “start small, think global, and compensate the least fortunate.”

- *Start small*: Do not go for big formal agreements, but start with manageable, mutually beneficial actions with quick payoffs such as upgrading and better management of the north–south transport corridor connecting Kazakhstan, the Kyrgyz Republic, and Tajikistan.
- *Think global*: Domestic markets are rather small, so think about exporting elsewhere, such as China, India, Russia, and Turkey, as argued in this chapter.
- *Compensate the least fortunate*: Not all countries will benefit equally. For instance, Almaty may become a main export hub, capturing most of the benefits from complementary service activities, so policy makers would need to provide some targeted incentives to better foster the connection of the production networks of the region’s other leading cities to the hub.

In countries with tough economic and physical geography, leading cities and their hinterlands have the strongest diversification potential, and for landlocked countries such as those in Central Asia, the leading cities are the exit points to regional and global markets. Economy-wide liberalization, which is the best option for trade expansion and export diversification, is not inconsistent with this middle approach.

This study looks at the trade diversification potential of the macro-regions anchored on the two leading cities of Kazakhstan (Almaty and Astana), the Kyrgyz Republic (Bishkek and Osh), and Tajikistan (Dushanbe and Khujand) (Figure 1.4). The study is limited to these three countries because of easy access to the data needed, but the framework developed could easily be replicated in other Central Asian countries if their data became available. The study examines constraints facing each country’s two leading cities with respect to the business environment and the connectivity to markets, and proposes a framework for a city-led diversification strategy.

Notes

1. The Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, the Slovak Republic, and Slovenia.
2. EU-15 refers to the 15 countries that were members of the EU before the May 1, 2004, enlargement, namely, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom.
3. Here, Southeast Europe refers to Albania, Bulgaria, Bosnia and Herzegovina, Croatia, FYR Macedonia, Montenegro, Serbia and Romania.

Figure 1.4. The north-south road corridor linking the six leading cities (line added)



Source: Authors.

4. The Herfindahl-Hirschman index is calculated as $HH = \left(\sqrt{(x_i/x)^2} - \sqrt{1/n} \right) / \left(1 - \sqrt{1/n} \right)$, where x_i/x is the share of product in the total exports of a country and n is the total number of products exported.

5. This section and the following sections focus only on Kazakhstan, the Kyrgyz Republic, and Tajikistan and refer to them as Central Asia, using their five-digit mirror exports to all trading partners under the third revision of the Standard International Trade Classification.

6. As used here, "new product" means a product not exported by a Central Asian country to a given trading partner in 2003, but that was exported to that same trading partner in 2007, with the product not being necessarily new in the basket of products exported.

7. The trade complementarity index between countries k and j is defined as $TC_{ik} = 100 - \sum_j \text{abs}(m_{ik} - x_{ij}) / 2TC$, where x_{ij} is the share of good i in the global exports of country j and m_{ik} is the share of good i in all imports of country k .

The Constraints Facing Central Asian Leading Cities

Central Asia's largest cities—Almaty and Astana in Kazakhstan, Bishkek and Osh in the Kyrgyz Republic, and Dushanbe and Khujand in Tajikistan—are also the places with the most diverse production and the main exit points for exports of goods and services. Yet their potential for trade expansion will materialize only if the agglomeration economies generated by these leading cities are better harnessed, and if the leading cities are better connected to the sources of the intermediate products and services they need and to the markets for their final products. Although Central Asia's leading cities are in better shape than other places in the region, with respect to agglomeration economies generated, diversification of the production base, and better connections to domestic and external markets, the six cities lack scale in production and still face high transport costs to their export markets.

To assess the constraints facing these leading cities, the study team undertook three background studies. The first involved focus group discussions with managers of clothing and food firms in Almaty, Astana, Bishkek, Dushanbe, Khujand, and Osh to identify their constraints to participating in global value chains (Thomsen 2009). The second was a survey of 300 firms operating in the trade and transport services sectors in the six cities (100 firms in each country) to assess the business environment in which they operate and identify constraints to their expansion (M-Vector 2009a, 2009b, 2009c). The third was an in-depth study of the export potential of horticulture in the hinterlands of Bishkek, Khujand, and Osh (Global Development Solutions 2009). These background studies were complemented by data from *Doing Business* (International Finance Corporation and World Bank 2009), the 2008 and 2009 business environment and enterprise performance survey (BEEPS), and statistics provided by the statistical agencies of the three countries.

The Constraints to Production Capacity within Countries

In Central Asia, as in other developing regions with disadvantageous geography, rent-seeking behavior and elite capture of local governments in cities and their hinterlands have limited the potential of positive spatial externalities, reducing access to quality intermediate goods and services and contributing to low returns on investment. Furthermore, because some national governments tend to spread their limited capital expenditures thin to provide growth-sustaining infrastructure for lagging regions, authorities in leading cities are often responsible for raising capital needed for expanded infrastructure. This increases perceptions of risk among potential investors, both domestic and foreign, who tend to prefer to engage in activities with safe returns, such as real estate, or to operate in the shadow economy. A successful diversification strategy to harness the agglomeration economies generated by Central Asia's leading cities should build on

the comparative advantages of each city's hinterlands to establish production networks to channel raw materials to processing facilities in the leading cities. The means for facilitating such internalization are backbone services and infrastructure, and business-friendly business environments.

Constrained Backbone Services and Infrastructure

Companies that provide services important for export diversification tend to be based in cities. These include enterprises providing backbone services such as financial services; communications; logistics and warehousing; various business and professional services, especially those needed for developing new products and identifying new markets; and processing and packaging services (for instance, to transform low-value and perishable fresh cherries into higher-value cherry soda, cherry jam, and cherry candy). Such activities benefit from a city's agglomeration economy, but cities also generate diseconomies of scale because of the congestion costs caused by overcrowded urban transportation systems or sprawling informal retail trading. Unless economies of scale in key backbone services are high enough and diseconomies of scale caused by congestion costs are contained, a city's production capacity will be constrained. This seems to be the case for Central Asia's leading cities.

LIMITED BACKBONE SERVICES FOR FIRMS. The global value chain analysis (Thomsen 2009) of the food and clothing sectors conducted for this study indicated that a lack of finance is a common barrier to expansion of these sectors in the six leading cities. Few of the firm managers or owners interviewed have borrowed from local banks. Most respondents noted that loans from local banks are possible to obtain, but only on a short-term basis, at high interest rates, and subject to bureaucracy and corruption. Hence firms commonly use their own capital or attempt to have wholesalers pay 50 to 100 percent of product prices up-front. As a consequence, most businesses tend to use their capital just as working capital, for example, to buy supplies, and consider investment in new equipment to be beyond their reach.

The latest BEEPS data confirm such findings (Table 2.1). Even though the value of the collateral required for a loan in Almaty, Bishkek, and Dushanbe is lower than the average collateral required in Europe and Central Asia as a whole (133 percent), the percentage of firms with credit line or loans from financial institutions is lower in these three cities than the 44 percent average in Europe and Central Asia. Furthermore, 30 percent or more of firms in Almaty, Bishkek, and Dushanbe reported access to finance as a major constraint, compared with an average of 24 percent for Europe and Central Asia. Almaty may be Central Asia's financial hub, but surprisingly, a larger share of firms in Almaty identified access to finance as a major constraint than did firms in Bishkek and Dushanbe.

BEEPS data also indicate that the power supply is more unreliable in Bishkek and Dushanbe than in Almaty (Table 2.1). The economic impact of power unreliability is important in the Kyrgyz Republic and Tajikistan given estimated losses of 13 and 19 percent, respectively, of the value of annual sales. The unevenness of the power supply in Dushanbe makes the situation there worse than the reported figure, with 40 percent of Tajikistan's total electricity supply directed to the unprofitable state-owned Tajikistan Aluminum Company, which manufactures aluminum products from imported ores.

While firms in Almaty experience greater difficulties in obtaining telephone mainlines than do firms in Bishkek and Dushanbe, firms in Almaty are more likely to use

Table 2.1. Access to selected backbone services in leading cities of Kazakhstan, the Kyrgyz Republic, and Tajikistan, and in Europe and Central Asia, 2008 and 2009

Backbone services	BEEPS indicators	Almaty	Bishkek	Dushanbe	Europe & Central Asia
Financial services	Percentage of firms with a line of credit or loans from financial institutions	31	27	33	44
	Value of collateral needed for a loan (Percentage of the loan amount)	108	126	125	133
	Percentage of firms identifying access to finance as a major constraint	36	30	30	24
Power services	Number of power outages in a typical month	4	6	9	5
	Average duration of power outage (hours)	6	5	19	n.a.
	Losses due to power outages (percentage of total annual sales)	6	13	19	4
Information and communication technology	Delay in obtaining a mainline telephone connection (days)	26	12	8	17
	Percentage of firms using e-mail to communicate with clients and suppliers	92	63	59	n.a.
	Percentage of firms having their own website	69	40	31	48

Source: BEEPS data. The data are for 2009 for Almaty and Bishkek and 2008 for Dushanbe. Information on Astana, Osh, and Khujand is not readily available.

n.a. = Not available.

information and communication technology (ICT). ICT plays an important role in reducing the economic distance to markets and integrating urban centers. Such technology helps with negotiations, reduces the need for travel and transportation, and reduces information distortions by allowing easy cross-checking of available information.

Despite significant recent progress, Kazakhstan, the Kyrgyz Republic, and Tajikistan lag substantially behind developed countries with respect to the Internet and the ICT sector in general (Table 2.2). For example, in developed countries, 20 to 36 percent of the population connects to the Internet via broadband, compared with 7 to 14 percent with a basic Internet connection overall in Kazakhstan, the Kyrgyz Republic, and Tajikistan. Total Internet traffic in Kazakhstan in 2008 was only marginally higher than that in Tajikistan (Table 2.2), perhaps because of higher prices paid by business users than by household users in Kazakhstan.

Unleashing the potential of Central Asia's leading cities will require collaborative initiatives to scale up infrastructure related to ICT, power supplies, and financial markets. By coordinating and cooperating on providing and improving infrastructure, smaller countries can benefit from economies of scale. The World Bank (2009c) identifies three types of regional infrastructure that enhance productivity, mobility, and trade between countries:

- *Productivity-enhancing regional infrastructure.* While private firms generally provide regional infrastructure when doing so is profitable—for example, the South Atlantic 3 marine cable that connects West Africa to the global fiber optic

Table 2.2. ICT performance in Kazakhstan, the Kyrgyz Republic, and Tajikistan, 2007

Item	Kazakhstan	Kyrgyz Republic	Tajikistan
Mobile cellular subscriptions (percent)	80	41	35
Telephone lines (percent)	21	9	5
Internet users (percent)	12	14	7
Digital subscriber lines (monthly payment, USD) ^a	31	265	104
Internet traffic (incoming + outgoing, terabytes) ^a	67,539	n.a.	56,000

Source: World Development Indicators database; countries' statistical agencies.

n.a. = Not available.

^aData are for 2008.

network—regional cooperation can help build a sound regulatory framework, as illustrated by rising use of mobile telephones and the Internet in many developing countries. This increases productivity and enhances both intraregional and global trade, for instance, by keeping traders informed about problems along transit corridors and reducing the costs and risks of transport.

- *Mobility-enhancing regional infrastructure.* Developing countries need to foster mobility of production factors. Regional cooperation on financial infrastructure can increase capital mobility, especially vital for small countries, because small financial markets lack economies of scale and tend to be less competitive and less efficient. Small financial markets are also more likely to be incomplete and less able to diversify investments and operational risks. In addition, regulatory infrastructure tends to be more costly and of lower quality than in large markets, and ancillary services such as credit information are more difficult to maintain in smaller markets.
- *Trade-enhancing regional infrastructure.* Good transport infrastructure reduces transport costs, which in turn increases trade flows. Upgrading roads in Central Asia could have a major impact on trade, exceeding the likely gains from tariff reductions or trade facilitation programs (Shepherd and Wilson 2006). However, physical upgrades alone may not be sufficient. Traders face significant bureaucratic delays and other delays, both at border crossings and within countries, highlighting the need for complementary behind-the-border and beyond-the-border reforms.

OVERCROWDED URBAN TRANSPORTATION SYSTEMS. Kazakhstan's first sector-specific loan from the World Bank, in 1994, was for an urban transport project (World Bank 1999). One objective was to restore public transport capacity to adequate levels of service quality in its three largest cities, Almaty, Karaganda, and Shymkent; the project was extended to Astana in 1997, when it became the capital. Another objective was to improve the institutional framework for urban transport by making municipal bus fleets legally independent of local governments and allowing all qualified operators, private and public, to offer public transport services. This project stimulated the emergence of thriving urban transport services across the country, to a point where the main challenge now is the large number of individual transport service providers operating under different regulatory provisions. Indeed, after city governments began awarding route licenses by competitive bidding, many small private operators have also exercised their right to do

business without route licenses under general competition laws. The lively competition has greatly benefited the traveling public and kept fares low. But the overlapping of these two mutually exclusive approaches (competition for market share and competition in the market) has caused confusion among operators and has exacerbated their already precarious financial situation.

This regulatory challenge also needs to be addressed in the Kyrgyz Republic and Tajikistan. In addition to regulation constraints, the leading cities of both the Kyrgyz Republic and Tajikistan also face decaying urban roads because of poor maintenance. Intra-urban roads in Bishkek and Osh are in particularly poor condition, with potholes along major arteries more the rule than the exception. Municipal budgets and national road funds, the main sources of financing for repairing and maintaining urban roads, are insufficient even to cover routine repairs. What is needed is a more sustainable way to ensure the competitiveness of each country's two leading cities, at least, by providing them with urban road networks and appropriate transport regulations.

UNDERDEVELOPED DISTRIBUTION SYSTEMS. Shops and bazaars are the main distribution outlets in many Central Asian cities, although to a somewhat lesser extent in Almaty and Astana, where trade firms (formally registered distribution service providers) account for 55 percent of goods distributed and bazaars account for 45 percent. In 2007, Almaty had 51 bazaars with 15,687 trading spots for 9,014 trade firms, of which 2,912 were retail stores. By contrast, Astana had just 24 bazaars with 13,815 trading spots for 3,004 trade firms, of which 994 were retail stores—the lowest such numbers for any oblast in Kazakhstan.

The World Bank (2009a) documents the role that bazaars play in trade in Central Asia. The study describes three types of bazaars: international bazaars, which service the domestic market and also supply bazaars in other Central Asian countries and in Russia, operating as regional distribution hubs (Table 2.3); countrywide bazaars, which target a large part of a country; and local bazaars, usually located in urban areas and targeting the local urban population. International hub bazaars offer a wide range of products and often act as re-export platforms as well as venues for exports of domestic products. Bazaars are cheaper to build than more formal trade venues, such as malls, and this major advantage helps explain the rapid expansion of bazaars over the last decade.

Although the largest bazaars seem to be efficient in facilitating interactions between traders and sellers, most bazaars lack modern sanitation and storage systems, raising hygiene and food safety concerns, and tend to have poor water and electricity services. Some of the bazaars are literally wet markets with mud surrounding the stalls. The

Table 2.3. International bazaars, selected cities, 2008

Bazaar and city	Number of sales outlets	Estimated monthly sales (USD millions)	Share of estimated monthly sales that is wholesale (percent)
Barakholka, Almaty	15,450	211	60
Dordoi, Bishkek	40,300	331	80
Karasuu, Osh	10,200	94	80
Korvon, Dushanbe	5,430	19	30

Source: World Bank (2009a).

bazaars also add to urban congestion. To unleash the potential of their distribution service in leading cities, policy makers must find the right balance between allowing this traditional distribution channel to thrive while ensuring that bazaars are endowed with the minimum public amenities needed to guarantee food safety and traders' security. Programs undertaken in East and Southeast Asia to upgrade the traditional distribution sector provide some insights on how to proceed (Box 2.1). A number of developing countries have adopted policies that encourage the development of supermarkets and that regulate wet markets to modernize commerce, lower food prices and congestion, and increase public hygiene and economic competitiveness.

Another important constraint facing the distribution sector in Central Asia's leading cities is inadequate storage facilities. While Kazakhstan is well ahead of the two other countries in terms of storage, problems exist in all six leading cities. Kazakhstan's overall storage capacity is estimated at more than 5 million square meters, with nearly 30 percent in Almaty and Astana alone. Almaty offers dozens of storage facilities with rail access as well as facilities to store railroad cars. The cost of storing a railroad car is approximately USD 300 for the first 10 days and USD 0.9 per cubic meter per day thereafter; the cost of storing an 86-cubic meter truck is about USD 167 for the first 10 days. Approximately 45,000 square meters of cold storage exist close to the airport, with more in surrounding areas and further away. Cold, warm, and dry storage are all available. Representatives of all the facilities interviewed for this study noted that they charge rent by the month, with the average cost for dry storage per square meter, inclusive of value added tax, utilities, and security about USD 5 per month, and that for cold or warm storage, about USD 8 per month, with long-term leases negotiable on 10-year terms (Global Development Solutions 2009).

Kyrgyz entrepreneurs interviewed for this study report uncompetitive behavior in the storage sector in Almaty, where storage space is readily available for Kazakh entrepreneurs, but entrepreneurs from other countries appear subject to rent-seeking. This practice prevents modernization of agriculture, due to limited storage capacity in the Kyrgyz Republic (Table 2.4). Furthermore, in the hinterlands of the two leading Kyrgyz cities, farmers are reluctant to store their produce in storage facilities because of frequent electricity outages; the facilities are underutilized, old, and, in many cases, failing. New cold storage units need to be built; at a minimum, many old units need to be repaired.

The situation is not much better in Tajikistan, where most storage facilities were built during the Soviet era and few have been renovated since. Many Tajik storage facilities are operating inefficiently, are not working at full capacity, and do not meet current needs. Mennonite Economic Development Associates (2005) evaluated service providers for the fruit and vegetables processing sector in the Sughd region (capital, Khujand) in December 2005; according to their data, storage facilities in the districts of Bobojon Gafurov, Isfara, Istaravshan, and Kanibadam are, on average, filled to only 18 percent of their total capacity. Much of the fruit and vegetable harvests every year spoil because of inadequate or no storage facilities. Even though prices of agricultural produce increase in the winter, farmers still prefer to sell their produce at a lower price during the harvest season, rather than risk storage to sell their produce in the winter. While the Sughd region seems to have ample storage facilities (Table 2.5), unreliable electricity supply is a major constraint given that electricity is rationed during the winter in Tajikistan and storage facilities are not guaranteed access to electricity.

Box 2.1. Policies for Competitiveness with Inclusiveness in the Supermarket Revolution, East and Southeast Asia

As the supermarket revolution proceeds in developing countries, governments have several options for helping small farmers participate in supermarket channels (or gain access to viable alternatives) and helping traditional retailers coexist or compete with the modern retail sector.

Option 1: regulate modern retail. To the extent that developing countries have regulated modern retail trade, their goal has been to reduce the speed and scope of its spread to protect traditional distribution channels. Regulations have mainly limited the location and hours of modern retail sales. On balance, these regulations have done little to limit the spread of supermarkets. While the regulations tend to target large stores—and thus do not limit small, traditional stores—modern retail outlets come in a wide variety of formats, including neighborhood stores and convenience stores. Few developing countries have policies that favor traditional or mall retail outlets. Instead, most developing countries usually take a *laissez-faire* approach to small shops and hawkers and make minimum public investments in open and covered municipal markets.

Option 2: upgrade traditional retail. A number of good examples of programs to upgrade traditional retail outlets exist, for example, in China; Hong Kong, China; the Philippines; Singapore; and Taiwan, China. In most of these economies, the programs are municipal, sometimes falling under a national umbrella policy. The programs:

- Have several elements in common. The governments involved in these programs have a “broad tent” approach, allowing the development of supermarkets as well as of traditional retailers.
- Are proactive. The Hong Kong, China, Consumer Council’s dictum of “managing and facilitating change,” rather than leaving wet markets to founder and collapse, characterizes all the East and Southeast Asian approaches studied, for example.
- Promote modernization and competitiveness of traditional retailers. Singapore’s approach, for instance, is to cherish but upgrade, while Hong Kong, China’s, policy is to retain but modernize.
- Accept the social and market roles of wet markets, hawkers, and small traditional shops, but encourage them to locate in uncongested areas and on fixed sites and providing training for operators in business skills, food safety, and hygiene. This results in improved hygiene and increased tax payments, while helping improve their physical infrastructure.
- Experiment with privatizing wet market management in some cases, for instance, as in China and in Hong Kong, China.

Option 3: upgrade wholesale markets to better serve retailers and farmers. Small shops and wet market stall operators typically source their products from wholesale markets, which typically buy from small farmers. Upgrading wholesale markets’ infrastructure and services is thus important to the whole traditional supply chain. Private sector actors are helping traditional retailers (and supermarket independents and chains) obtain the services and products they need. Examples are modern cash-and-carry chains that act as wholesalers, such as Bharti/Wal-mart in India, Metro in China, and Marko in Pakistan. However, governments and wholesalers’ associations also need to invest in upgrading wholesale markets to maximize access by farmers and retailers. Such programs have been undertaken in China.

Option 4: help farmers become competitive suppliers to supermarkets. Private sector programs are emerging to help small farmers acquire the assets and services they need to supply supermarkets. China’s Metro, for example, has direct procurement links to fish and vegetable farmers. Agrifood businesses in India, such as ITC, Tata, Godrej, Reliance, and DSCL Hariyali, have rural business hubs that offer consumable farm inputs and technical assistance to farmers and procure from farmers. Governments need to supplement private efforts with public investments in improving farmers’ access to assets, services, training, and information. Some of these assets are public goods, such as regulations on relationships between retailers and suppliers to promote fair commercial practices, wholesale market upgrading, market information, and physical infrastructure such as cold chains and roads. Other assets are semipublic or private goods, such as assisting with market links between small farmers’ cooperatives and supermarket chains; providing training in postharvest handling; and providing credit facilities for making the kinds of on-farm investments needed to meet quality and volume requirements, such as irrigation systems and greenhouses.

Table 2.4. Storage capacity, leading cities and their hinterlands, Kyrgyz Republic, 2008

Location	Number of warehouses	Total storage capacity (in m ²)	Total cold storage capacity (in tons)
Kyrgyz Republic	2,053	350,428	3,848
Osh	209	31,306	51
Aravanski	—	0	0
Kara-Suu	7	510	0
Uzgen	1	220	0
Batken	29	1,579.00	7
Bishkek	884	248,870.40	3,631
Kara-Balta	10	2,475	0
Kant	4	400	0
Tokmok	0	0	0

Source: Statistical Agency, Kyrgyz Republic.

Table 2.5. Storage facilities, Sughd Region Districts, Tajikistan, 2006

District	Fixed asset value (USD thousands)	Number of warehouses	Storage area (m ²)	Vegetables stored (tons)	Melons stored (tons)	Nuts stored (tons)
Asht	17	3	181	30	9	0.3
Bobojon Gafurov	2	4	900	300	0	55.0
Isfara	246	3	3,500	190	38	5.0
Istaravshan	51	2	385	300	95	6.0
Jabbor Rasulov	86	3	657	110	3	45.0
Kanibadam	85	2	496	165	36	2.0
Mastchoh	20	2	132	35	15	0.0
Spitamen	11	2	500	140	25	0.0
Zafarabad	4	1	60	160	55	3.0

Source: Global Development Solutions 2009.

Constrained Business Environment

Heavy administrative burdens on firms, such as frequent and lengthy inspections, bribe extortions, and excessive involvement of the political elite in business, tend to weaken property rights, threaten profits, and reduce a country's attractiveness to domestic and foreign investors. In countries with weak institutions such as Kazakhstan, the Kyrgyz Republic, and Tajikistan, overcoming these kinds of constraints may take a long time. If leading cities could improve their business environment, this could initiate transformation of the private sector. But firms in all six leading cities face obstacles in both their internal and external operating environments.

CONSTRAINED INTERNAL OPERATING ENVIRONMENT. The latest BEEPS surveys raise major concerns about the internal business environment for firms operating in Central Asia. Just 11 percent of firm representatives interviewed in Kazakhstan, 16 percent of those in the Kyrgyz Republic, and 17 percent of those in Tajikistan reported having an internationally recognized quality certificate; this compares with 43 percent in Chad, one of the

world's poorest countries. Only 15 percent of the interviewees in Kazakhstan, 19 percent in the Kyrgyz Republic, and 24 percent in Tajikistan reported using technologies licensed from foreign companies, compared with 36 percent in Mozambique; and only 27 percent of interviewees in Kazakhstan, 26 percent in the Kyrgyz Republic, and 21 percent in Tajikistan reported having their own Web sites, compared with 63 percent in Armenia. Of firm employees interviewed, only 21 percent in Kazakhstan, 16 percent in the Kyrgyz Republic, and 22 percent in Tajikistan were offered some kind of formal training, compared with 63 percent in Kenya.

These statistics are well illustrated by the case of Ojsc Textilshik, a textile firm located at the periphery of Osh that is serviced by a railway junction, a high voltage power line, and hot water pipes. The plant covers 40 hectares, including an 8-hectare factory that produces textile products. Formerly one of the leading firms in Osh and employing thousands of people, the plant closed because of decreasing demand during the global recession of 2008. The firm's major constraint to repositioning itself in the competitive textile sector is its obsolete production equipment, which cannot compete with more efficient producers in China and Turkey. The firm is seeking foreign investors to upgrade its equipment and expand the reach of its products, but potential investors have so far been discouraged by perceived low returns to investment, along with the current economic downturn. The firm's situation is echoed across Central Asia, where the bulk of production equipment still dates back to the Soviet area.

Another constraint to industrial expansion, particularly in the food and textile industries, appears to be fragmentation of the production chain into small-scale, poorly equipped operators. Such fragmentation leads to low quality and low quantity of raw materials for the food industry, and therefore to safety and quality issues. Fragmentation has also blocked development of a shadow textiles sector, whose production and market knowledge cannot be harnessed to scale up the sector.

While Kazakh, Kyrgyz, and Tajik food products have so far enjoyed easy access to CIS markets, the increasing share of supermarkets in Russia's retail trade will soon make food safety and quality the main binding constraints facing exports to CIS markets. Almaty and Astana are following the Russian lead. CIS standards, which are the same standards employed in the former Soviet Union, have little modern relevance, given their poor oversight and safety mechanisms. More robust systems for managing microbiological risks are therefore needed (Wrathall and Haigh 2005). As many countries have adopted the hazard analysis critical control point (HACCP) system as their reference food safety systems, successful export diversification in Central Asia should include HACCP certification of all firms involved in the production chain to jump start and sustain expansion of the food industry.

Urban consumers' tastes and quality perceptions are becoming a major factor in production of food and textiles. Wrathall and Haigh (2005, p. 12) define nonexportable products as "anonymous products, poorly labeled, in unfashionable, outdated packaging that are difficult to store and even more difficult to open, with indifferent, inconsistent quality, with sensory and physical characteristics impaired by insensitive over-processing, produced in indifferent surroundings that are unclean and unhygienic by untrained staff." The need to address these kinds of issues sets the agenda for export diversification in Central Asian cities. All the necessary upgrading processes are increasing returns to scale activities and could benefit from coordinated implementation involving leading cities and their hinterlands through public-private partnerships.

CONSTRAINED EXTERNAL OPERATING ENVIRONMENT. The country-level BEEPS indicators provide a broad look at the external environment in which firms in leading Central Asian cities are operating. The most challenging issues appear to be permits and licensing, regulation and tax issues, and corruption (Table 2.6). With respect to permits and licensing, the average indicator values for the three countries overall appear to be better than for Europe and Central Asia as a whole, although some of the individual country indicators are worse. The situation appears to be worse in Kazakhstan than in the Kyrgyz Republic and Tajikistan, although Kazakhstan fares slightly better on regulation and tax issues.

Table 2.6. External business environment constraints, Kazakhstan, the Kyrgyz Republic, Tajikistan, and Europe and Central Asia

BEEPS indicators		Europe & Central Asia, 2009	Kazakhstan, 2009	Kyrgyz Republic, 2009	Tajikistan, 2008
Permits and Licensing	Number of days to obtain an operating license	26	32	18	23
	Number of days to obtain a construction-related permit	78	68	65	63
	Number of days to obtain an import license	16	23	10	14
	Percentage of firms identifying business licensing and permits as a major constraint	16	25	16	17
Regulation and tax issues	Percentage of senior management time spent on dealing with requirements of government regulations	11	5	5	12
	Average number of visits or required meetings with tax officials in a typical month	2	3	2	2
	Percentage of firms identifying tax rates as a major constraint	40	46	48	56
	Percentage of firms identifying tax administration as major constraint	21	24	32	17
Corruption	Percentage of firms expected to pay informal payments to public officials (to get things done)	17	23	38	41
	Percentage of firms expected to give gifts to get an operating license	13	30	26	39
	Percentage of firms expected to give gifts at meetings with tax officials	13	25	39	33
	Percentage of firms expected to give gifts to secure a government contract	26	55	56	31
	Percentage of firms identifying corruption as a major constraint	34	44	59	38

Source: BEEPS data.

Table 2.7. Main business environment constraints facing distribution and transport service firms, leading cities of Kazakhstan, the Kyrgyz Republic, and Tajikistan, 2009

Constraint	Astana and Almaty, Kazakhstan	Bishkek and Osh, Kyrgyz Republic	Dushanbe and Khujand, Tajikistan
Top three bureaucratic issues affecting transport and logistics services	<ul style="list-style-type: none"> • Unregulated competition from the informal sector • Rules of the game are unpredictable • Lack of clear regulations in some areas 	<ul style="list-style-type: none"> • Rules and regulations change too frequently • Rules of the game are unpredictable • Unregulated competition from the informal sector 	<ul style="list-style-type: none"> • Public services are unpredictable and wages are too high • Unregulated competition from the informal sector • Too much time spent on dealing with authorities
Top three public services affecting transport and logistics services	<ul style="list-style-type: none"> • Tax administration • Telephone and Internet access • Electricity supply 	<ul style="list-style-type: none"> • Tax administration • Electricity supply • Telephone and Internet access 	<ul style="list-style-type: none"> • Electricity supply • Tax administration • Business licensing and operating permits
Top three other external factors affecting transport and logistics services	<ul style="list-style-type: none"> • Utility costs • Customs and trade regulations • Lack of qualified people 	<ul style="list-style-type: none"> • Customs and trade regulations • Utility costs • Lack of qualified people 	<ul style="list-style-type: none"> • Customs and trade regulations • Lack of qualified people • Anticorruption policy

Source: M-Vector 2009a, 2009b, 2009c.

The corruption indicators for all three Central Asian countries are worse than the average for Europe and Central Asia, although the main source of corruption may differ in each one.

To determine how private operators involved in trade were faring in the current business environment, a survey covering distribution and transport logistics service firms was conducted for this study in the six leading cities (M-Vector 2009a, 2009b, 2009c). Major constraints to the business environment (Table 2.7) include the two most common administrative barriers reported: unregulated competition from the informal sector (leading to high congestion costs and a distribution and transport logistics services sector that is financially nonviable); and too much involvement by officials in the business sphere (increasing their opportunities for extorting bribes). Respondents reported that public services whose quality most affects distribution and logistics service firms are tax administration, communication services, and electricity supply, reflecting poor backbone infrastructure endowments in the cities. Respondents also mentioned customs and trade regulation, high utility costs, and lack of qualified people as external factors adding to the poor business climate.

Distribution and transport companies tend to sell almost all their products or services within a specific country. For instance, Almaty-based companies sell 95 percent of their products or services within Kazakhstan, and of the 54 percent who intend to expand their businesses, 42 percent want to expand outside Astana and Almaty, but within Kazakhstan (the highest proportion of the six cities surveyed). Similar situations in the five other leading cities translate into high transport costs, as illustrated by the case of Tajikistan, where domestic transport costs between Dushanbe and Khujand are higher than the cost of exporting a container of the same weight from Moldova to the United States (Table 2.8).

The Constraints to Market Accessibility across Countries

Central Asia's transport network was built to reinforce the interdependence of the then Soviet republics, whereas conflicting economic interests now make cooperation difficult. A second-best solution would be to identify common economic interests between

Table 2.8. Domestic freight rates, Tajikistan, 2009

	Distance (km)	USD per 10 tons of freight
Within Dushanbe	12	14–112
Dushanbe–Tursunzade	56	242
Dushanbe–Kurgan Tybe	99	546
Dushanbe–Kulyab	204	909
Dushanbe–Nijny Panj	206	1,091
Dushanbe–Jirgatal	287	1,697
Moldova to United States ^a	7,668	1,895
Dushanbe–Khujand	341	1,940
Dushanbe–Kanibadan	421	2,424
Dushanbe–Isfara	448	2,546
Dushanbe–Khorog	524	2,606

Source: International Finance Corporation and World Bank 2009; Ministry of Transport, Tajikistan.

^aData from *Doing Business* 2009.

Kazakhstan, the Kyrgyz Republic, and Tajikistan and mobilize policy makers and business communities to cooperate on a regional initiative, with the understanding that such cooperation could result in increasing returns to scale in transport and logistics. By cooperating with Kazakhstan on transport and trade logistics, the Kyrgyz Republic and Tajikistan could significantly improve their market accessibility. The main constraints to market accessibility fall into two categories: transport and logistics services, and international transit.

Constrained Transport and Logistics Services

A recent World Bank (2009b) study identified the three major factors affecting transport costs in landlocked developing countries as unreliability of deliveries, monopolistic trucking services, and unnecessary overheads and informal payments. Few traders in landlocked developing countries have access to door-to-door logistics services and instead rely on an extended chain of distinct operations involving many procedures, agencies, and services, all of them prone to rent-seeking and overregulation. Transporters along trade corridors operate under systems that limit productivity, discourage competition, and often perpetuate poor quality services and excess capacity, raising prices up to as much as double what they should be. The study estimates that the complications of border crossings add additional overhead charges that make prices to shippers between 150 and 200 percent higher than costs borne by transport providers. This cumbersome environment is confirmed by field work conducted in Central Asia for this study (Global Development Solutions 2009; M-Vector 2009a, 2009b, 2009c; Thomsen 2009) that revealed a constrained business environment leading to untapped backhaul cargo capacity. The increasing cargo capacity bringing imports to Central Asia could be harnessed to scale up exports to the countries of origin of these trucks.

A two-tiered trucking industry seems to have emerged in Kazakhstan, the Kyrgyz Republic, and Tajikistan. This consists of a modern sector using relatively new, environmentally clean, safe trucks that offer higher-quality service at a higher price, and an informal sector that offers low tariffs by using old, polluting, and possibly unreliable and

unsafe trucks. As the World Bank (2009b) highlights, this two-tiered system can create a dilemma for regulators, who in principle should strive to enhance the workings of the market while balancing the interests of customers, carriers, and the environment, and among carriers, who balance the interests of the modern and informal sectors. More often than not, the regulators are captured by the modern sector and may design a queuing system to keep informal operators out of the organized part of the market and keep tariffs high. Yet the system also allows the truckers' associations who manage the system to charge commissions as forced intermediaries between shippers and carriers. This tends to reduce truck utilization, increasing unit costs per ton-km of carriage. Restricting competition protects monopolistic pricing and inhibits the development of higher-quality services required by modern supply chains.

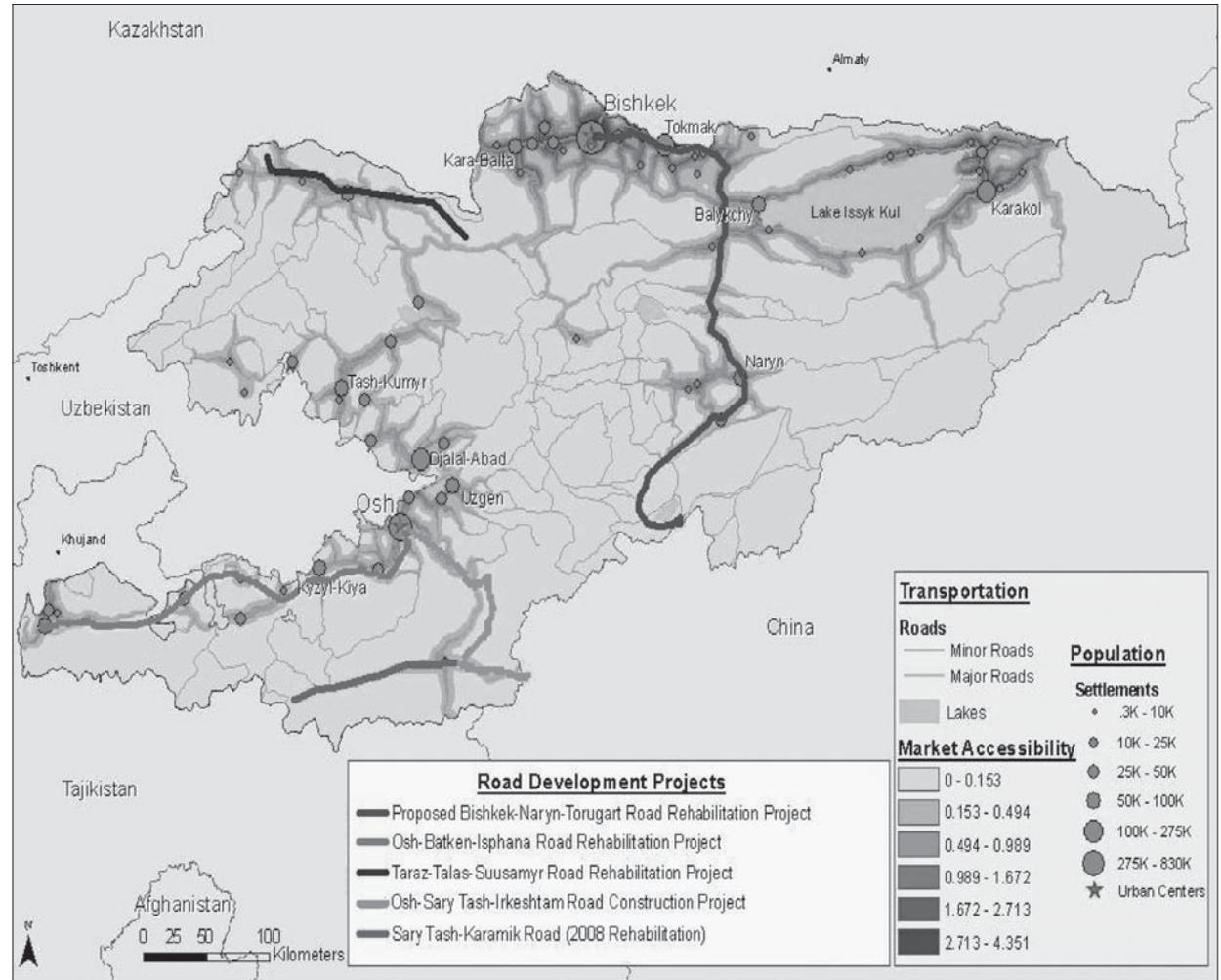
Another problem is the inability to utilize available cargo capacity. Most traffic is one-way, mainly bringing cargo from China to Central Asia. This is due to sizable Chinese customs duties, high transport costs within Central Asia, and poor cargo consolidation services.

Although the Osh–Bishkek–Almaty and Osh–Batken–Khujand routes are used for both imports and exports, the Osh–Sary Tash–Irkeshdam road in the south of the Kyrgyz Republic has so far been used only to import Chinese goods to the Kara Suu bazaar (Figure 2.1). Of the 30 transport companies operating in Kara Suu, only three import products from Dubai, the Islamic Republic of Iran, and Turkey (through Uzbekistan), while all the other firms import from China via the Osh–Sary Tash–Irkeshdam road (highlighted in yellow in Figure 2.1). Goods imported are garments, electronics, and some food products (cotton oil and rice), with nonfood products representing more than 95 percent of the imports. Transporting a 25-ton truck from China costs from USD 3,500 to USD 4,000, but goods are reloaded onto smaller trucks at Irkeshdam to pass through the mountainous border region.

The Tajik situation illustrates how many more Central Asian products could reach regional markets by using the cargo capacity of empty trucks departing the leading cities. Thousands of trucks leave Tajikistan empty each year. Between 2007 and 2008, the number of empty trucks departing from Tajikistan increased by 10,000 to reach 21,317 (Table 2.9). Of empty trucks departing in 2008, 43 percent were Tajik trucks and 42 percent were from non-CIS countries. By facilitating freight consolidation services, Tajikistan could tap into this potential to scale up its existing exports of agricultural and agro-processed products.

Cargo consolidation services are generally poorly developed in Central Asia. The current requirements for such services are complex and do not allow freight forwarders to engage in all the types of activities customers might require. Multimodal transport is also poorly developed in the three countries studied, with Tajikistan having only one multimodal transport firm (Box 2.2) and Kazakhstan and the Kyrgyz Republic having only limited numbers of such firms. In all three countries, traders must usually deal with different service providers when their goods need to be transported via different means, which increases their costs. And while prices and storage capacity in Almaty would theoretically allow the city to be a logistics hub, this is not yet the case. Current obstacles include value added tax collected on goods not in transit (due to lack of a developed consolidation service, goods consolidated are not considered as being in transit); cumbersome customs operations on entry into the country; and uncompetitive behavior that forces non-Kazakh goods to be sold more cheaply by artificially increasing storage costs (Global Development Solutions 2009).

Figure 2.1. The Kyrgyz Republic's Direct Connections to China



Source: Authors.

Table 2.9. Truck cargo between Tajikistan and selected destinations, 2007 and 2008 (number of trucks)

Country or region	Arriving cargo vehicles				Departing cargo vehicles			
	2007		2008		2007		2008	
	With goods	Empty	With goods	Empty	With goods	Empty	With goods	Empty
Neighboring countries	7,343	310	11,110	585	2,159	4,825	2,745	8,901
Afghanistan	381	34	3,392	348	9	280	711	3,351
China	1,984	273	2,369	232	224	1,518	243	2,011
Iran, Islamic Republic	2,786	2	2,485	2	1,027	1,762	616	1,844
Turkey	2,171	0	2,841	1	899	1,242	1,175	1,676
CIS countries	5,340	340	4,963	255	1,961	3,448	1,806	3,164
Kazakhstan	2,137	14	1,472	16	786	1,362	802	662
Kyrgyz Republic	1,341	221	1,662	87	713	691	742	1,030
Turkmenistan	527	0	762	0	2	524	0	755
Russia	172	91	272	131	41	112	14	171
Uzbekistan	1,105	10	739	5	418	702	245	495
Within Tajikistan	4,025	3,395	7,717	3,538	1,430	3,205	1,600	9,252
Total	16,708	4,045	23,790	4,378	5,550	11,478	6,151	21,317

Source: Ministry of Transport, Tajikistan.

Box 2.2. Yashar Bar, a Multimodal Freight Forwarding Company Operating from Khujand

In 2002, Yashar Bar, an Iranian trucking company, established a Tajik affiliate in Khujand to provide multimodal transport services by using empty Iranian trucks to export Tajik products to China, Korea, Thailand, and Vietnam. The goods are transported to the port of Bandar-Abbas in the Islamic Republic of Iran, which takes 8 to 10 days, and then shipped overseas. The company uses the same modes of transport (road and sea) to export ginned cotton, silk, hides, and other products from Tajikistan and to import tea and coffee from India and various consumer goods from Indonesia, Malaysia, and the Persian Gulf countries.

In 2009, shipping a 20-foot container to Bandar-Abbas cost USD 1,800, including insurance, from Khujand and about USD 2,000 from Dushanbe. Shipping a 40-foot container from Dushanbe or Khujand to Bandar-Abbas cost USD 2,650, compared with USD 1,800 from Tashkent. But, these tariffs can vary substantially. The return trip from Tajikistan is cheaper if the product transported does not require refrigeration.

Transport from Dushanbe sometimes requires filling in two invoices to avoid the additional costs of using a 40-foot container for shipping freight insufficient to fill up such a container. In such cases, the company pays for trucks to transport such small cargos and consolidates them in Khujand before shipping to Bandar-Abbas, although domestic freight rates can be high.

Since Yashar Bar started its operations in Khujand, the company has transported Tajik goods worth USD 12 million, which suggests that the freight consolidation concept could be scaled up to improve the market accessibility of Tajik products.

Source: Interview by a local consultant with a Yashar Bar representative in Khujand, May 2009.

Challenges Posed by International Transit

Given their challenging physical geography and limited domestic markets, Central Asian countries need to promote trade and become globally integrated to improve their export competitiveness. In doing so, however, they face numerous hurdles, such as border delays, visa requirements, corruption, and poor transport facilities, which make international transit a significant challenge. Inefficient border crossing operations are the second most important market accessibility constraint facing Central Asia's leading cities and are particularly burdensome along the north–south road corridor linking the six leading cities.

CONSTRAINTS ALONG THE NORTH–SOUTH ROAD CORRIDOR. Inefficiencies along the north–south corridor, as well as for the other corridors crossing Central Asia, include customs valuation problems, inefficiencies at border crossing points, uncertainty created by transit through Uzbekistan, and costs of informal payments and convoying. Across the entire region, customs valuation is unclear and inconsistent and is based mainly on importers' declared value or weight, which favors informal payments to lower the valuation and which also reduces customs proceeds. Customs declarations are largely handled manually, although they are partly automated in Kazakhstan and the Kyrgyz Republic. The documents required for clearance vary from country to country and are excessively numerous (10 to 13 documents, compared with 6 in Moldova). In addition, brokerage services for customs operations seem quite expensive for small and medium-sized traders: USD 150 in the Kyrgyz Republic, USD 250 in Tajikistan, and USD 300 in Kazakhstan for a typical declaration.

Two other sources of inefficiency in border crossing-related operations are the limited use of risk management to control trucks and of payment guarantees. By regulation in all three countries, all import cargo must be unloaded for inspection prior to clearance and release (no risk management), a costly and time-consuming process that encourages informal payments to speed it up. In the Kyrgyz Republic and Tajikistan, customs payments are made directly to customs officers, increasing informal payments and corruption; no bank or guarantee system is in use. Kazakhstan's customs guarantee system handles each customs-related operation separately—in-bond transportation, bonded warehousing, and customs brokerage—thus promoting informal payments to simplify the procedure.

Another challenge is that transiting Uzbekistan by either road or rail creates uncertainties about delivery times and costs. Otherwise, Central Asian countries would likely diversify their food product exports to Afghanistan, Bahrain, Jordan, and the United Arab Emirates. Transiting through Uzbekistan is also becoming increasingly difficult, with Kyrgyz and Tajik truckers reporting many breaches of Transport International Routier seals—a violation of international transit law that increases delays and uncertainty about final delivery. In addition to official transit fees of USD 300 per truck (plus an extra USD 30 for non-Transport International Routier trucks), truckers are assessed an estimated USD 1,000 in informal payments per truck. Non-Uzbek Central Asian truckers need a visa to drive through Uzbekistan and must pay an escort fee of USD 1 per kilometer. Even Kazakh truckers, who used to pass freely through Uzbekistan, have now difficulties obtaining third-country transport permits that allow them to transport Uzbek products on empty Kazakh trucks. In 2006, only 1,000 such permits were issued, one-third of the 3,000 requested. Tajik truckers report that each time they cross Uzbekistan, they are deliberately delayed for at least four hours, in addition to the time

taken for unloading and loading and waiting at customs control points, thereby incurring additional expenses in bribe payments and operating costs. Finally, Uzbek border closings have become pervasive; closings in June 2009, for instance, lasted nearly the entire month, creating disruptions in trade and transport operations.

Once the Osh–Batken road that avoids Uzbek territories (road highlighted in green in figure 2.1) is rehabilitated, and the Anzob and Shakrishtan tunnels between Khujand and Dushanbe are fully operational, crossing Tajikistan via Isfara, Khujand, Dushanbe, Kurgan Tybe, and Nijny Panj en route to Kabul will become user-friendly and competitive. This will allow access to markets such as the Islamic Republic of Iran, Turkey, and the Gulf countries. If the Kyrgyz Republic and Tajikistan cooperated in a joint declaration to CAREC, listing this corridor as their first connectivity priority and requesting assistance to speed up its completion, this road could be added to the list of CAREC priority corridors. Until then, the best road corridor for traders in the Kyrgyz Republic and Tajikistan is the northern connection via Bishkek, Almaty, Astana, and Petropavlovsk toward Moscow. Yet despite this corridor’s better physical condition, administrative barriers translate into large informal payments that deter trade expansion along this route.

In 2008, the Agribusiness Competitiveness Center in the Kyrgyz Republic conducted a monitoring study that documented all administrative barriers and informal payments along the Kyrgyz corridor for a 19-ton refrigerated truck of black cherries from the rural Markaz District in Batken region to Russia via Osh, Bishkek, Almaty, and Astana (Agribusiness Competitiveness Center 2008). To obtain the required shipping documents, the local customs office asked for USD 700 (allegedly for informal payments to the financial police, the local government, law enforcement bodies, the public prosecution department, and other local authorities). By contrast, the services of a customs broker in Bishkek cost just USD 150. (The only legal requirements are a land plot ownership certificate to indicate the origins of the product and a purchase certificate, both free.) Along the way from Osh to Bishkek, the trucker made the following informal payments at various checkpoints:

- Frontier veterinary quarantine (245 km from Osh), to control the spread of animal diseases—the trucker paid the equivalent of USD 7 so that the control agent would not open the refrigerator;
- General road directorate (280 km from Osh)—the official fee is USD 60, but the trucker paid an unofficial fee of USD 30;
- Axle load road control terminal in the Jalal-Abad region (295 km from Osh)—the officer estimated an overload of 1 ton and asked for USD 160, and the trucker made an informal payment of USD 100; and
- Chychkan ecological control terminal (419 km from Osh)—the trucker made an informal payment of USD 24 to pass through.

Truckers driving Kyrgyz trucks incur all these costs on the domestic leg of a journey. Reportedly, foreign carriers pay almost twice as much. Truckers must also make additional informal payments of USD 750 while transiting Kazakhstan (for example, for passport registration, load registration, certificate registration, and Transport International Routier document checking) and of USD 295 in Russia. Such informal payments can easily add up to about 5 percent of the value of the products transported.

Truckers can face many other challenges, including how long they must stay in transit or destination countries. Consider a truck going to an EU country. The number of EU members has increased significantly since 2004, along with the accession of many

Eastern and Central European countries that must now abide by EU regulations governing such matters as how long truckers may drive without a rest break. Because of such regulations, plus the time needed for transit, loading, unloading, traffic jams, and so forth, a driver might need to spend up to 20 days in EU countries. Yet transit visas are valid only for 10 days and visa extensions are not guaranteed.

Finally, in the absence of a guarantee against the value of the load, conveying is usually required for customs transit under the national road transit systems in Kazakhstan and Russia. But one major problem with conveying is the high fee charged for the service. According to existing regulations, customs conveying rates in Kazakhstan range from USD 14 for less than 50 kilometers to USD 900 for more than 2,000 kilometers; in Russia, the fees range from USD 60 for less than 50 kilometers to USD 30 per 100 kilometers beyond 200, with a minimum of USD 180. Usually one customs official escorts convoys of fewer than 10 trucks. A drawback to convoys is that accumulating sufficient vehicles for a convoy takes time, as much as a day or more at light traffic border crossing points. Finally, all vehicles in a convoy must arrive at the exit border crossing point together, causing a significant additional delay for processing.

CONSTRAINTS TO THE REGIONAL HUB FUNCTION OF ALMATY. Almaty has the potential to serve as the major Central Asian hub, but those transporting goods via Almaty to reach larger neighboring economies face many constraints, including the underdevelopment of international logistics and issues associated with the railway system. Air transport is still extremely expensive. Road transport is competitive and an area of potential growth, but is still hampered by multiple informal barriers to international transit and cumbersome border crossing operations.

Almaty has 2,050 warehouses, or 14 percent of Kazakhstan's 5.3 million square meters of active warehouse space. The distribution network is quite well developed, with suppliers working directly with trade firms. Yet in terms of international transportation, Almaty's multimodal transportation is not well developed, forcing traders to use different freight forwarding companies for each leg of their shipments. In addition, modern, fully equipped logistic centers that could provide freight forwarding and customs services at an international level do not yet exist.

While rail is the most used mode of transportation in Kazakhstan, the future of rail transit through Almaty will depend on the city's ability to absorb high maintenance costs for planned rail additions, to overcome problems related to incompatible rail infrastructure between Kazakhstan and its trading partners, and to remove unnecessary delays and regulatory bottlenecks. The 272 million tons of rail freight transported in Kazakhstan in 2008 are not disaggregated by oblast, so determining how much rail transport moves in and out of Almaty is difficult. In 2008, a total of 6,750 tons of freight were transported from Almaty by air and 129 million tons by road (appendix 2). Kazakhstan's 14 international railway junctions include 9 with Russia, 3 with Uzbekistan, 1 with the Kyrgyz Republic, and 1 with China—at Dostyk–Alashankou, the main railway connection between China and Central Asia, with traffic going to Aktogai station, then through Almaty to other destinations (transit trade accounts for only a small share of freight passing through Dostyk–Alashankou). Estimated carriage costs between Almaty and major regional markets by different modes of transport are shown in Table 2.10.

Excellent rail connections between Almaty and Moscow do not traverse Uzbekistan. Turkey and India are accessible via Uzbekistan and Turkmenistan. But because Central Asia's rail gauge is different from the standard gauge used in China and the Islamic Republic of Iran, and from the separate Indian gauge, shipping fresh produce via rail

Table 2.10. Average carriage costs to selected destinations by way of Almaty, Kazakhstan, 2009

Item	Destination			
	Delhi	Istanbul	Moscow	Urumqi
Airfreight (USD per 1 kilogram) ^a	2	1.90	2.20	2
Number of carriers	2	2	3	1
Available tonnage per week (tons)	20+	20+	20+	20+
Dry trucks hauling up to 20 tons (USD/load)	n.a.	5,500	4,000	5,000
Refrigerated trucks hauling less than 20 tons (USD/load)	n.a.	6,500	4,500	6,000
Rail (dry), 24 tons in 20-foot container (USD/container)	n.a.	4,000	2,000	1,500
Rail, 55-ton load in 1 wagon (USD/wagon)	20,000	n.a.	n.a.	n.a.
Cost of storage at point of departure (Almaty) (USD/m ² /month)	n.a.	5–9	n.a.	n.a.
Processing fees (USD)	n.a.	0–200	n.a.	n.a.
Customs fees for export (USD)	n.a.	50–500	n.a.	n.a.
Bribes (USD)	n.a.	300–1,000	n.a.	n.a.
Other costs and fees	n.a.	0–50	n.a.	n.a.

Source: Data from Global Development Solutions 2009.

n.a. = Not available.

^aCosts are approximations.

to China, India, and Turkey requires reloading, a risky process; produce must also be shipped in containers to lessen potential damage during unloading and reloading. Such extra hurdles reduce the benefits normally associated with rail and increase the costs of rail shipments. Yet regardless of destination, rail remains the most cost-effective way to ship goods that do not require refrigeration, or when shipment time is not critical.

Kazakhstan's railways still lack technical capabilities, especially in the fields of signalization, computer systems, and communication, although its rail system is generally more mature than those in the Kyrgyz Republic and Tajikistan. Kazakh authorities plan to build two main railway links totaling 4,800 kilometers from Astana to Aktogai via Pavlodar and Semey and from Shu and Arys to Kokshetau via Kandygash in Aktobe Oblast.

Railway shippers complain regularly about poor up-front examinations before trips on rolling stock required by the state railway company, Kazakhstan Temir Zholy, which uses old and worn-out freight cars. Shippers must lease cars and reorganize wagons to the desired length at their own expense. Burdensome informal payments, collected via the queuing system managed by Kazakhstan Temir Zholy, cause delays for shippers waiting to be assigned cars. Because Kazakhstan Temir Zholy is a quasi-monopoly with limited cars, shippers must submit requests one month before they require the cars to allow Kazakhstan Temir Zholy time to coordinate transportation with targeted countries; shippers providing less than a month's notice must pay fines. Such challenges only compound the railway monopoly's overall inefficiency. Rail transport in Kazakhstan will require much more time, effort, and money to achieve full efficiency, more than either air or road transport.

Although much more open to competition than rail, air transport services remain extremely expensive. All air freight out of Almaty is brokered by a single agent, Europe

Table 2.11. Cost of air freight from Almaty to selected destinations, 2009 (USD)

Destination	Flat rate		Additional cost per kilogram			
	Up to 20 kg	20 to 45 kg	46 to 100 kg	101 kg to 300 kg	301 to 500 kg	More than 500 kg
Beijing	64.8	2.60	2.40	2.20	2.20	2.20
Delhi	53.3	2.60	2.40	2.40	1.60	2.00
Istanbul	71.9	3.28	2.20	1.90	1.80	1.60
Moscow	88.4	3.00	2.90	2.20	2.20	2.10

Source: Global Development Solutions 2009.

Note: Urumqi is not shown in the table. Only one airline, China Southern Airlines, flies to Urumqi from Almaty, but Europe Asia Transit stated that no cost information was available at the time of the study. The following is a breakdown of the charges.

- Airlines fees (Astana Air):
Fuel fee: USD 0.14/kg
Invoice fee: USD 11
- Europe Asia Transit fees:
Processing, handling at warehouse: USD 0.13/kg (minimum charge of USD 13)
Air documents: USD 23
Temporary storage warehouse entrance fee: USD 8/entry
Heavy baggage (over 80 kg): USD 11
- Customs procedures:
Broker fee: USD 175 + USD 12 for each additional page of the manifest.
Passport of business owner if invoice is greater than USD 10,000
Documentation of customs value: USD 12/page
Mandatory customs fee: USD 75
- Shipping fresh fruits and vegetables requires a one-time export license from the Committee of Industry and Trade with the approval of Ministry of Agriculture that is usually free, but requires reporting to various government entities.
- Normal processing time for all the above is three days, but it can be done in advance or in one day with a minimum bribe of USD 300.

Asia Transit, and it is impossible to purchase cargo space directly from any airline. Air cargo rates from Almaty to key destinations, listed in Table 2.11, make the cost of shipping fresh produce to any of these markets by air prohibitive, even without analyzing other costs involved in growing and delivering produce to Almaty.

Kazakhstan's road transport services are the most competitive of all Central Asian countries, with haulage rates from Almaty to key destinations shown in Table 2.12. Yet the price of trucking varies significantly depending on various factors, including truck availability and direction of travel. A truck hired to go from Almaty to Urumqi, for

Table 2.12. Haulage rates and times for an 86-square meter, 19-ton truck from Almaty to selected destinations

Destination	Price (USD)		Time (days)
	Refrigerated truck	Canvas-covered truck	
Istanbul	6,500	5,500	10–12
Moscow	4,500	4,000	4–5
Urumqi	5,000	6,000	4–6

Source: Global Development Solutions 2009.

Notes: Rates to India could not be obtained. Rates vary depending on various factors (cargo, season, packaging, and so on). The rates shown do not include customs procedures at departure and destination points, optional cargo insurance (0.3 percent of the value of the shipment), and bribes.

example, can cost USD 1,500, but if the truck brings goods back from Urumqi to Almaty, the cost may be 4 times as much. Similarly, dry shipments from Moscow to Almaty, which cost as much as USD 5,000, ship for 30 percent less (USD 3,500) when shipped from Almaty to Moscow. For refrigerated trucks, the price could be USD 6,500 from Moscow to Almaty, or USD 1,000 more than from Almaty to Moscow.

The rates shown appear reasonable, especially when compared with the cost of trucking from Bishkek to Moscow, which averages USD 8,000 when using a Kyrgyz company. Kazakh trucks obviously enjoy some privileges that Kyrgyz and Tajik truckers do not; for example, Kazakh trucks can cross Uzbekistan relatively more easily than either Kyrgyz or Tajik trucks. But whether transport is by road or rail (or possibly by air), it appears that everything is subject to negotiation.

Trucking is the most common means of transporting perishable goods out of Almaty. The large trucking fleet and favorable conditions for Kazakh-registered trucks guarantee availability and good prices. With Almaty as a transport hub, trucks and railroads (particularly westbound) would be the most economically feasible modes of transport. Rail could serve the more durable commodities (dried fruits and processed goods), while trucks could be used for perishable items requiring refrigeration and shorter delivery times.

Why Agglomeration is Important

Potential of Leading Cities as Drivers of Diversification

In the early 1980s, China opened its economy to world trade by establishing four special economic zones (SEZs) along its southeastern coast in Shantou, Shenzhen, Zhuhai in Guangdong Province, and Xiamen in Fujian Province. Since then China has established many other SEZs, and is now the world's largest manufacturing country, exporting everything from textiles to advanced electronic goods. During the same period, Bangladesh also embraced the SEZ idea and opened the Chittagong export processing zone in the south of the country. Currently, Bangladesh has eight economic processing zones involved in producing a range of manufactured goods and run under the auspices of a single authority that promotes the government's diversification strategy. Mauritius provides another early example of successful SEZs. By 1985, goods manufactured in Mauritian export processing zones overtook traditional sugar exports to become the country's main sources of foreign exchange, employment, and exports. These and other developing countries such as India, Mexico, and Tunisia have managed to engage successfully in offshore export diversification strategies by creating SEZs, sometimes going against orthodox economic advice that focuses first on such reforms as country-wide liberalization.

An SEZ can result in trade expansion and growth if it exploits natural and economic geography advantages, but an SEZ is not an economic panacea. Of more than 2,000 export processing zones in existence today, few are success stories, possibly because of such fundamental geographical factors as the size of domestic markets and the lack of access to leading world markets. So why do some succeed? China has a large domestic economy, and chose to locate its first SEZs close to Hong Kong, China, with an eye to Japanese and U.S. markets. Bangladesh wisely sited its Chittagong export processing zones three kilometers from the country's major seaport and seven kilometers from an international airport. Mauritius has always been a strategic transit point on Indian Ocean transport routes. The success of Mexico's *maquiladoras* and of Tunisia's offshore export sector is due to their proximity to the large U.S. market, in Mexico's case, and to EU markets for Tunisia.

By contrast, Central Asian countries must cope with extremely disadvantageous geography. The Kyrgyz Republic and Tajikistan are cut off from China by high mountain ranges and deserts, while security concerns in Afghanistan present a transit barrier to the south. The western route via Turkmenistan and the Islamic Republic of Iran to the port of Bandar Abbas or to Turkey is considered a second-best alternative because of uneasy relations between Tajikistan and Uzbekistan; complicated transshipment must occur at the border between Turkmenistan and the Islamic Republic of Iran, due to the change in railway gauge.

Central Asian logistical performances also rank among the poorest in the world. In 2009, Tajikistan, Kazakhstan, and the Kyrgyz Republic ranked 177th, 180th, and 181st, respectively, out of 181 countries on the *Doing Business* trading across borders indicator

(International Finance Corporation and World Bank 2009). The number of documents required to export products ranged from 10 to 13, compared with 6 documents in Moldova; the number of days required to export a standard container ranged from 64 to 89 compared with 32 days in Moldova; and the score on the logistics performance index ranged from 1.9 to 2.3 on a scale of 1–5, with 5 being the best score. Another example: the location of Almaty, a major regional transportation hub, more than 4,600 kilometers from the closest seaports of Poti in Georgia and Novorossiysk in Russia. Astana, Kazakhstan’s capital and a potential transportation hub, is only 400 to 900 kilometers closer to the ports of northwestern Europe and about the same distance further away from the ports of Bandar Abbas in the Persian Gulf and Shanghai in China. In addition to such daunting logistical and geographical challenges, the region lacks economic density. In 2008, the total population of the five Central Asian countries was 59 million people and their total GDP was USD 148 billion. Both were unequally distributed, with Kazakhstan and Uzbekistan together accounting for 71 percent of the region’s population and 85 percent of the region’s GDP.

Given poor market accessibility, shallow domestic markets, and overspecialization in natural-resource-intensive products, no offshore export diversification strategy will succeed unless Central Asian countries adopt bold measures to intensify the production of few nontraditional export products and improve their connections to markets. By focusing on a few locations that generate enough agglomeration economies and provide also exit points to regional and global markets, each government can minimize the costs of such industrialization and external connectivity. The likeliest locations are each country’s main cities. Policy measures to stimulate economic concentration within these leading cities, to tap into the agricultural potential of the hinterlands of these cities (within an hour’s drive away from city centers), and to connect them to regional and global markets through a priority transport corridor will form the basis for a sound space-based export diversification strategy.

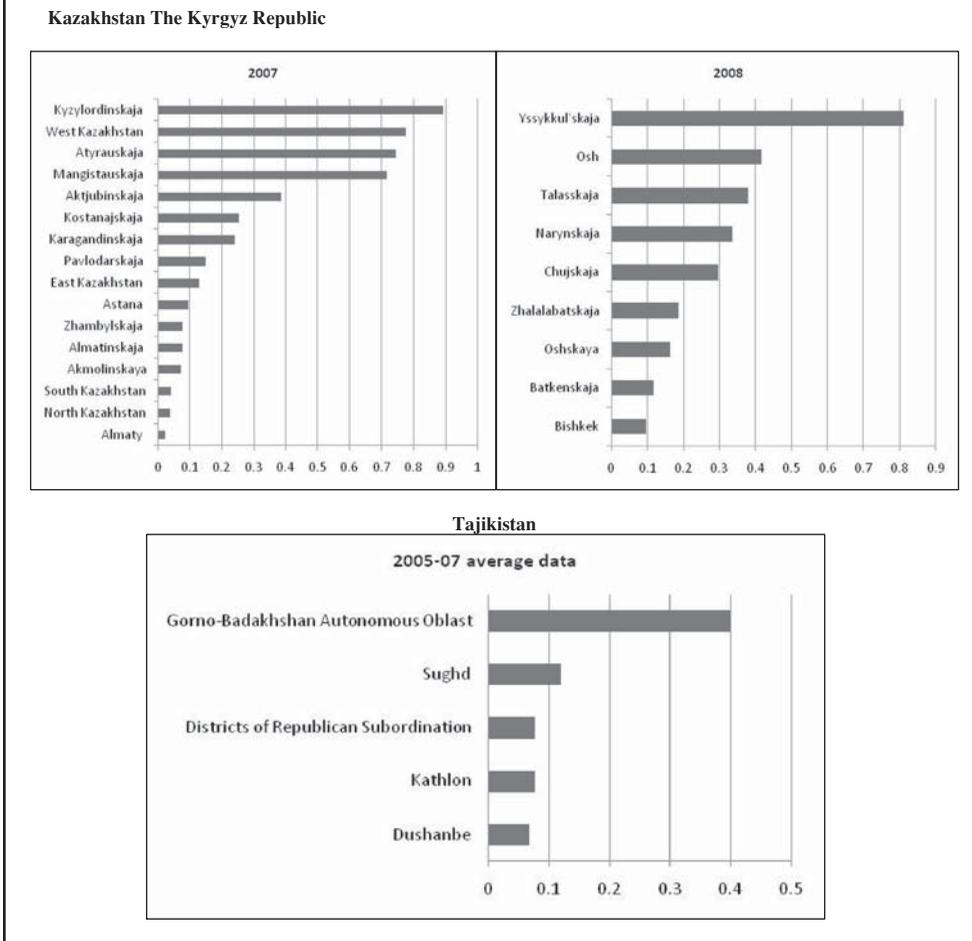
The Competitive Advantage of Leading Cities

All around the world, leading cities play a key role in production and export by delivering a whole range of services sustaining economic activities. Leading cities tend to be well-connected domestically and externally, and tend to offer the most diversified production in a specific country. Leading cities in Central Asian countries are no exception.

Leading Cities Have a Diversified Production Structure

Common sense suggests that the larger a city, the more diversified it will be to provide the necessary goods and services for its workers, firms, and consumers. An examination of subnational statistical data confirms this assumption for Central Asian countries. For Kazakhstan, the study used more than 300 products, classified as five-digit products using the Standard International Trade Classification, produced in the 16 oblasts to compute the standardized Herfindahl index, an indicator of a location’s diversification.¹ For the Kyrgyz Republic, the study used industrial production data aggregated for 26 sectors for the country’s nine oblasts. For Tajikistan, in-kind production data are available for the country’s five oblasts. After transforming the subnational in-kind production data into a ranking index to make them comparable, the study used the data to calculate the standardized Herfindahl index for the three countries by oblast, as shown below.

Figure 3.1. Standardized Herfindahl index by Oblasts for Kazakhstan, the Kyrgyz Republic, and Tajikistan, various years



Source: Authors' computations based on data from the statistical agencies of Kazakhstan, the Kyrgyz Republic, and Tajikistan.

Note: A location is extremely diversified if the Herfindahl index is less than 0.1, moderately diversified if the index is between 0.1 and 0.3, and extremely specialized if the index is higher than 0.3.

Almaty, Bishkek, and Dushanbe appear to be the most diversified locations in Central Asia. This result is particularly interesting, because these three cities are more diversified than larger oblasts containing many cities, towns, and rural settlements, which should boost their diversification potential. But as shown in Figure 3.1, each country offers its own unique situation. Almaty, which lost the status of capital to Astana in 1997, remains the most diversified location in Kazakhstan, just ahead of the oblasts of North Kazakhstan and South Kazakhstan; Astana lags far behind, in seventh place. Bishkek is the only strongly diversified urban region in the Kyrgyz Republic; by contrast, Osh appears to be extremely specialized. The oblasts of Kathlon and the Tajik districts of republican subordination, both geographically close to and relatively well-connected with Dushanbe, also have strongly diversified production bases; by contrast, Sughd oblast is only moderately diversified.

Table 3.1. Top 10 products produced in Kazakhstan's three leading cities, 2007 (USD millions)

Category	Products	Almaty	Astana	Shymkent
Food	Mineral water and other nonalcoholic drinks	150	2.0	5.0
Information sharing	Publishing	144	9.0	4.0
Food	Brewing	139	0.4	49.0
Manufacturing	Manufacture of light metal structures	102	10.0	0.6
Food	Fruit and vegetable juices	73	3.0	0.5
Food	Milk processing, (excluding preservation); cheese production	73	11.0	0.5
Food	Bread and fresh pastries	56	12.0	0.8
Manufacturing	Manufacture of plastic products	35	29.0	3.0
Food	Flour production	18	39.0	57.0
Manufacturing	Processing and coating of metals	18	42.0	0.3

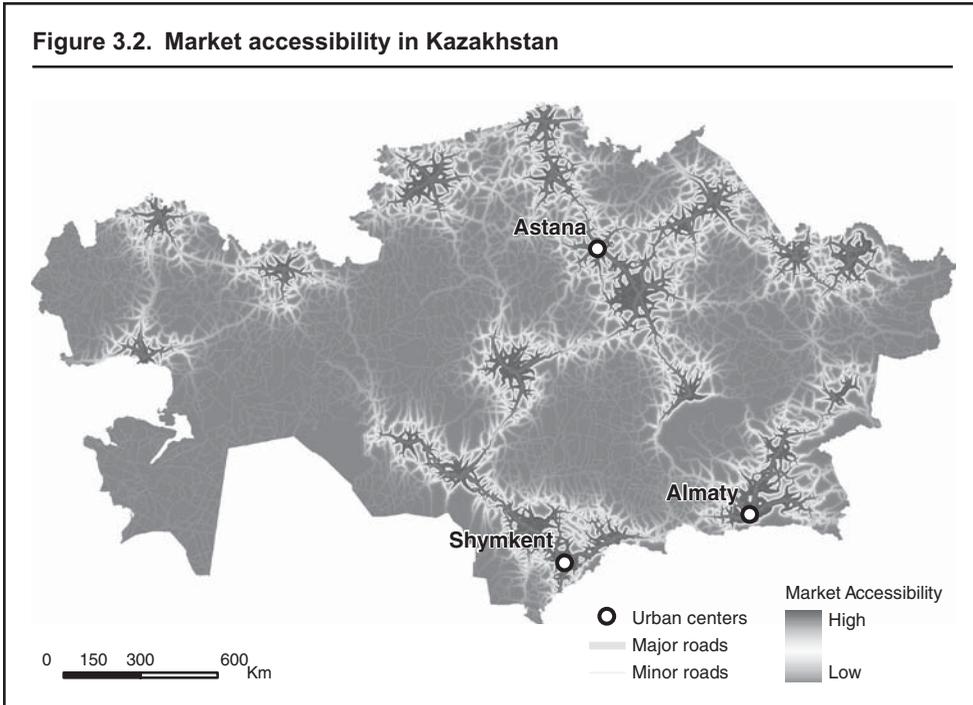
Source: Kazakhstan Statistical Agency data.

Note: Data excludes financial and construction activities.

A look at the top 10 products produced by Kazakhstan's three largest cities (Almaty, Astana, and Shymkent) gives a concrete sense of the diversification potential of Kazakhstan's leading cities (Table 3.1). The products can be classified into three groups: food, information sharing, and manufacturing. In Almaty, 63 percent of the top 10 products fall into the food category, with 19 percent in manufacturing and 18 percent related to information sharing. In Astana, 52 percent of the top 10 products fall into the manufacturing category, with 43 percent in food and 5 percent related to information sharing. By contrast, Shymkent shows 93 percent of its top 10 products in the food category, with 4 percent related to information sharing and just 3 percent in manufacturing.

These figures confirm the concept of locations with different agglomeration economies, and thus different functions. As used here, the term *agglomeration economies* means either the positive externalities derived from the co-location of a large number of firms operating in the same sector, with easy and cheap access to intermediate products and/or a specialized labor pool (*localization economies*), or the positive externalities derived from the co-location of a large number of firms operating in different sectors, with significant cross-sectoral information sharing (*urbanization economies*).

Almaty seems to be closer to becoming a knowledge-based city, with information sharing accounting for a significant share of its production, although food production to feed its more than 1 million inhabitants is still a significant activity. Astana seems to be delivering localization economies for food production, particularly of flour, and some manufacturing activities. Shymkent appears to be far more dependent on agricultural activities. Almaty, Astana, and Shymkent are typical of leading Central Asian cities. Because of their capital city status, Bishkek and Dushanbe could be closer to delivering urbanization economies. The urban sprawl developing around Khujand in Tajikistan also makes it a good candidate for delivering urbanization economies. In the Kyrgyz Republic, natural endowments in the fields of agriculture and construction materials, as well as its strategic location as the gateway connecting the Fergana Valley to China, make Osh a good candidate to deliver localization economies.



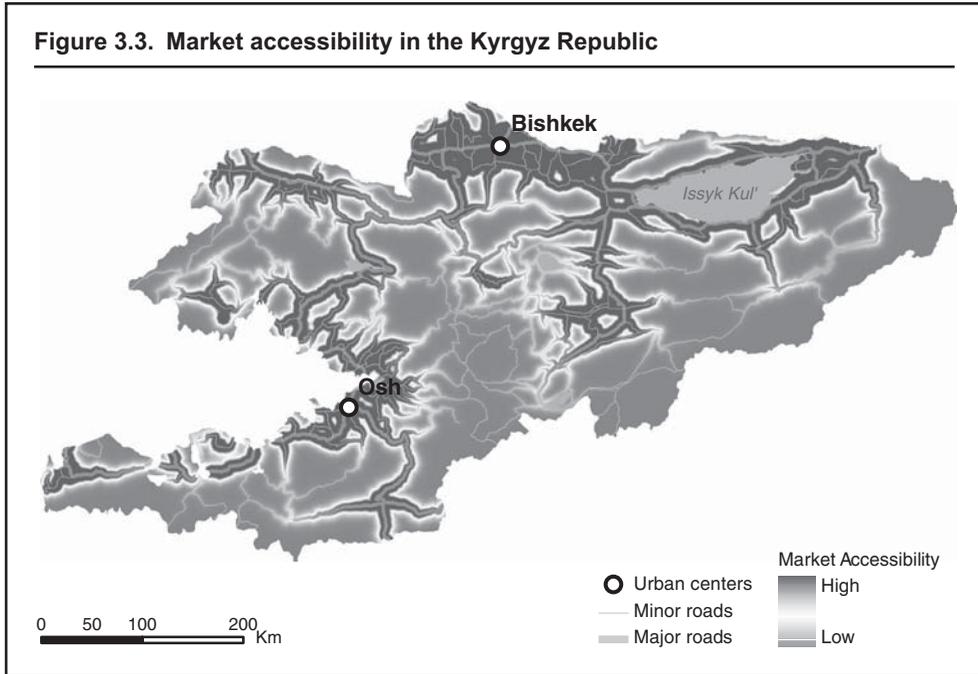
Source: Authors.

Leading Cities Are Well Connected Domestically

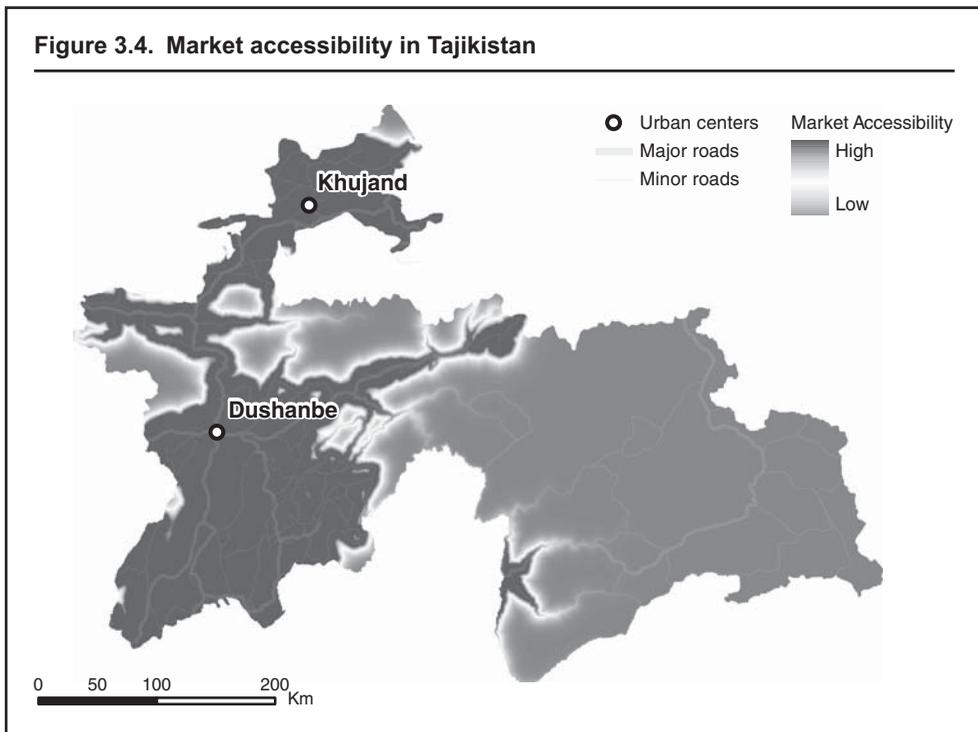
A country grows economically as its leading cities grow and become increasingly connected with each other, with the rest of the country, and with the rest of the world. As stated in Reilly's law (or the urban version of the "gravity law" in physics), larger settlements interact more with each other economically than with smaller settlements, with the interaction increasing as travel time between them is reduced. Geographic information system data can be used to assess the market accessibility of settlements in Kazakhstan, the Kyrgyz Republic, and Tajikistan. Using the size of settlement populations and the travel time between them allows computation of the market accessibility index for all settlements for which population estimates are available.² Conclusions for each country are as follows:

- Kazakhstan is a polycentric country with many hub cities that allow relatively good access to the domestic market (Figure 3.2), but Almaty and Shymkent provide the best connections with concentrations of population in the southern and southeastern regions.
- The Kyrgyz Republic's major hub appears to be the Chu Valley around Bishkek (Figure 3.3). The mountainous nature of the terrain significantly reduces the connectivity between the country's northern and southern hubs.
- Mountains also reduce the connectivity between northern and southern Tajikistan, although Dushanbe appears to be well connected with locations in south Tajikistan (Figure 3.4).

Roads are the main domestic transport infrastructure connecting the leading cities in each country to their hinterlands. Railways also reinforce the connectivity of these



Source: Authors.



Source: Authors.

leading cities, which were the node points of the former Soviet Union's railway network. Domestic connections are also available by means of air transport.

Just an hour's drive west of Almaty, Kazakhstan's route to Bishkek passes through Esik, Uzynagash, and Kaskelen, all towns specializing in agricultural production and supplying Almaty's processed food sector with raw materials, and in return supplied by Almaty with food and nonfood products. The route east from Almaty passes through Talgar and Kapchagai, towns which specialize in construction materials. Astana's hinterland specializes in grain production, with the industrial cities of Termitau and Karaganda less than two hours south by road. Shymkent, a major agriculture and transit point in south Kazakhstan, is near the towns of Lenger, which specializes in agricultural production, and Arys, which is heavily involved in rail freight.

In the Kyrgyz Republic, the regional bazaars of Dordoi and Kara Suu dominate the economic activity of the hinterlands of the two leading cities. Dordoi is less than 30 minutes driving time from the center of Bishkek, while Kara Suu is a 30-minute drive from the center of Osh, at a border crossing point with Uzbekistan. The large bazaars receive everything from textiles to electronics goods imported from China, the Islamic Republic of Iran, and Turkey, goods that are mainly re-exported to neighboring Central Asian countries. Dordoi and Kara Suu also play a significant role in the Kyrgyz Republic's distribution system, and their proximity to leading cities ensures the wide reach of the domestic market.

In Tajikistan, the boundaries of the separate cities of Bobojon Gafurov, Chkalovsk, and Khujand in the north are hard to identify because of the adjacent built-up areas, which are home to more than 300,000 people. The railway terminal serving Khujand is located in Bobojon Gafurov, while Khujand's airport is located in Chkalovsk. The cities bordering the Kyrgyz Republic and Uzbekistan—Isfara and Kanibadam, respectively—are also well connected with Khujand, a two-hour drive to the east. In the south, Dushanbe is located less than an hour's drive from Tursunzoda in the direction of Uzbekistan, Vahdat, and the Rasht Valley. Dushanbe is also only three hours away from the Afghan border at Nijny Panj.

Compared with the extensive Kazakh railway network, which links major cities and leading cities, the railway networks of the Kyrgyz Republic and Tajikistan are sparse. The Kyrgyz Republic's railway system consists of just two isolated sections of track, from Lugovaya in Kazakhstan to Bishkek to Balykchi in the north (75 percent of the system) and several short connections in the south between Osh, Jalal-Abad, Kyzyl-Kya, Kok-Yangak, and Tash-Kumyr (25 percent, including portions in Uzbekistan). The Kyrgyz Republic has no direct rail connections linking the country's north to its south. Tajikistan has three railway lines. The northern line connects Isfara, Kanibadan, and Khujand to Bekabad at the border with Uzbekistan; the central line connects Dushanbe to Uzbekistan via Tursunzoda, site of the country's largest aluminum plant, the Tajikistan Aluminum Company; and the southern line connects Yavan, which is less than an hour's drive from Dushanbe, and Kulyab, in the eastern part of the Kathlon region, to Uzbekistan via Kurgan Tyube, Tajikistan's third largest city.

Finally, domestic air transport also reinforces the connectivity of the leading cities. In Kazakhstan, most incoming and outgoing air freight is shipped via the Almaty airport, which boasts the best infrastructure and facilities for handling international freight. In the Kyrgyz Republic, flights travel the Bishkek–Osh–Bishkek route at least twice a day, while flights between other internal destinations and Bishkek are available only

one to three times per week. In Tajikistan, where air transport is less developed, half of all domestic flights depart from and arrive in Dushanbe, with 40 percent departing from and arriving in Khujand.

Leading Cities Are Well Connected Externally

In terms of international air transport, Dushanbe is by far the least well-connected Central Asian capital city. But the city does enjoy direct connections to Frankfurt twice a week by means of the newly created Somon Air, as well as twice weekly connections to Dubai, Istanbul, Moscow, and Urumqi in China. Bishkek offers daily flights to Istanbul, London, and Moscow and flights four times a week to Urumqi, while Osh offers weekly flights to Moscow and Novosibirsk in Russia. Among Central Asian countries, Kazakhstan is by far the best connected, offering direct flights to some European countries from both Almaty and Astana. Almaty offers weekly flights to a wide range of cities, and the prices charged by the two Kazakh national carriers, Air Astana and Skat, seem competitive when compared with fares of the 19 foreign carriers, as shown in Table 3.2.

The modern airport in Astana has advanced meteorological equipment that permits all types of aircraft to land with no weight limitations and under difficult weather conditions. Astana's airport offers new international flights to Baku in Azerbaijan, Dubai, Bishkek in the Kyrgyz Republic, Novosibirsk in Russia, Dushanbe in Tajikistan, Antalya and Istanbul in Turkey, Sharjah in the United Arab Emirates, and Tashkent in Uzbekistan. In addition, the frequency of flights from Astana to Minsk in Belarus, Frankfurt in Germany, and Kaliningrad and Moscow in Russia was recently increased. The Astana airport has also opened additional checkpoints to accelerate border and customs controls. Yet its multimodal logistics services remain poorly developed, as evidenced by Lufthansa Cargo's recent relocation of its Central Asia hub from Astana to Krasnoyarsk in Siberia, a move estimated to reduce travel time from Germany to Southeast Asia by 40 percent.

Of the five railway corridors that the Eurasian Development Bank considers technically suitable for cargo transportation, three pass through Almaty. They are the central trans-Asian rail corridor linking Kiev, Volgograd, Almaty, Aktogai, Dostyk, Alashankou, and Lianyungang; the southern trans-Asian rail corridor linking Istanbul, Ankara, Tabriz, Tehran, Mashhad, Seraks, Tashkent, and Almaty and continuing to Lianyungang via Dostyk at the border between China and Kazakhstan; and the Europe-Caucasus-Central Asia rail corridor connecting Cantanta, Varna, Ilychevsk, Poti, Batumi, Baku, Tashkent, and Almaty and continuing to Lianyungang in China. A Eurasian Development Bank (2009) report on Eurasian Economic Community transport corridors assesses the potential of the three Almaty-linked corridors, noting the following:

- The central trans-Asian corridor is the shortest route from Asia to Central Europe. It is double-tracked and electrified within the territory of the former Soviet Union and provides access to Poland via Mostiska and to Slovakia and Hungary via Chop.
- The southern trans-Asian corridor has the potential to be an alternative corridor to the central trans-Asian corridor connecting Central Asia with the Black Sea, but faces the problem of different gauges that force transshipment of cargo at two locations, adding to costs and transit time.

Table 3.2. International flights from Almaty, 2009

Destinations	Domestic carriers		Foreign carriers	
	Flights/week	Lowest average fare, economy class round trip (USD)	Flights/week	Lowest average fare, economy class round trip (USD)
Abu Dhabi, United Arab Emirates	0	n.a.	5	448
Amsterdam, Netherlands	4	758	5	897
Ashkhabad, Turkmenistan	0	n.a.	3	537
Baku, Azerbaijan	0	n.a.	2	405
Bangkok, Thailand	4	731	0	n.a.
Beijing, China	5	715	0	n.a.
Bishkek, Kyrgyz Republic	4	111	5	111
Delhi, India	3	495	5	591
Dubai, United Arab Emirates	7	491	0	n.a.
Dushanbe, Tajikistan	2	168	3	219
Frankfurt, Germany	6	751	7	1,056
Istanbul, Turkey	5	536	0	n.a.
Kabul, Afghanistan	0	n.a.	1	1,129
Kiev, Ukraine	0	n.a.	4	479
London, United Kingdom	2	909	5	1,231
Moscow, Russian Federation	7	413	7	355
Novosibirsk, Russian Federation	0	n.a.	1	326
Prague, Czech Republic	0	n.a.	3	794
Riga, Latvia	0	n.a.	3	1,300
Seoul, Republic of Korea	2	694	2	1,011
St. Petersburg, Russian Federation	0	n.a.	4	484
Tashkent, Uzbekistan	2	122	5	227
Tbilisi, Georgia	0	n.a.	1	631
Ulgii, Mongolia	1	521	0	n.a.
Urumqi, China	0	n.a.	7	555

Source: Data collected by local consultant.

Note: Fares were converted to USD at the March 12, 2009, rate of T150.52= USD 1.

n.a. = Not applicable.

- The Europe–Caucasus–Central Asia corridor’s major problem is the tough competition from Russian Railways, whose tariffs are 70 percent lower than those of the Europe–Caucasus–Central Asia corridor for transporting grain, cotton, and containers and 20 percent lower for oil and nonferrous metals.

Road transport is also becoming important. CAREC has identified six corridors as priority roads connecting Central Asia to Eastern and Western markets (CAREC 2008). The International Road Union has developed a new Eurasian land transport initiative focusing on three of the CAREC road corridors that it believes have the potential to compete with

maritime transport between Asia and Europe (International Road and Transport Union 2009). The three roads are:

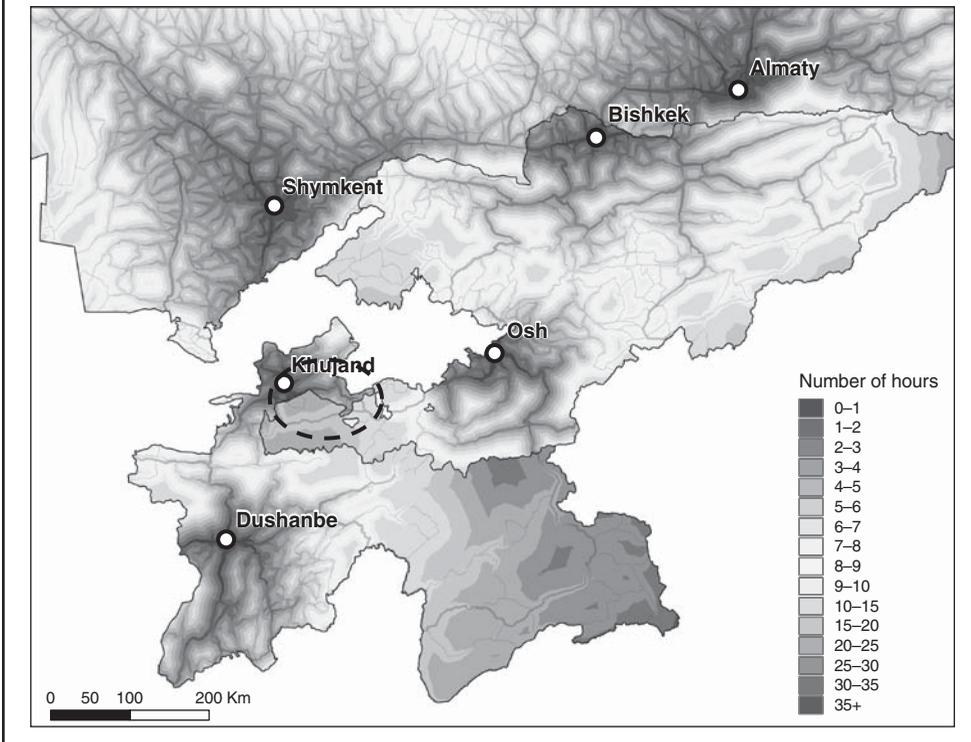
- The northern route, connecting Korgas on the Kazakh-Chinese border to Warsaw via one leg through Almaty, Astana, Petropavlovsk, and Moscow and a second leg through Almaty, Taraz, Tashkent, Atyrau, Astrakhan, and Moscow, with Bishkek connected via a direct road connection to Almaty;
- The central route, connecting Kashgar in China to Irkeshtam on the Kyrgyz-Chinese border, Osh, Tashkent, Bukhara, Ashgabat, Turkmenbashi, Baku, Tbilisi, Poti, and beyond; and
- The southern route, connecting Almaty or Osh to Tashkent, Bukhara, Tabriz, Ankara, Istanbul, and beyond.

Even though these roads pass through some of the leading cities considered in this study, Dushanbe has only a poor connection to these routes—between Irkeshtam and Bukhara via the Rasht Valley—and Khujand is not connected to these routes at all. A north–south connection between Nijny Panj in south Tajikistan to Almaty via Dushanbe, Khujand, Batken, Osh, and Bishkek would be an important stimulus to regional trade via road.

The borders between Kazakhstan and the Kyrgyz Republic have little impact on travel time, because the hinterlands of Almaty, Bishkek, and Shymkent overlap. By contrast, the border between the Kyrgyz Republic and Tajikistan is less densely populated, meaning longer travel times before reaching an urban center. Kazakhstan, the Kyrgyz Republic, and Tajikistan are viewed as autarkical in Figure 3.5, with travel times shown to the two leading cities of each country. The three countries are then shown as a single integrated country (Figure 3.6), with travel times shown to the six leading cities of this hypothetical country. Travel times are estimated based on the quality of the road network connecting each settlement to leading cities. Both figures represent limit cases, with different assumptions: with border controls so cumbersome that no cross-border traffic occurs (Figure 3.6), or with no controls at the border (Figure 3.7). The contrast between the two extremes illustrates how facilitating cross-border controls and operations can connect production locations at the regional level.

The area circled in Figures 3.5 and 3.6 includes the Batken region in the Kyrgyz Republic and Khujand in Tajikistan. A closer look at this area can illustrate the effects of better integration for both countries. Currently, the key challenge is access to markets. For example, if business operators in Batken must route their horticultural exports through Osh, to avoid the administrative barriers involved in crossing an international border, the additional travel time required may make exports uncompetitive. One alternative is to route Batken's exports through Khujand to take advantage of the railway connection to Kazakhstan and Russia via Uzbekistan. If the Kyrgyz Republic and Tajikistan were fully integrated (Figure 3.6), a trip from Batken to Khujand would take much less time than the trip from Batken to Osh. Because of border crossing issues and poor road conditions in the Kyrgyz–Tajik border region, travel between Khujand and Batken currently takes longer than it might otherwise. By improving their connectivity, the Kyrgyz Republic and Tajikistan could scale up their horticultural and other exports. By ensuring that regional roads promoted by CAREC maximize connectivity between leading cities, and by providing complementary institutional reforms to facilitate trade and transport in the territories through which the roads pass, the governments of the Kyrgyz Republic and Tajikistan could design an effective city-led export diversification strategy.

Figure 3.5. Travel time to leading cities of Kazakhstan, the Kyrgyz Republic, and Tajikistan (No Integration with Kazakhstan and Tajikistan)



Source: Authors.

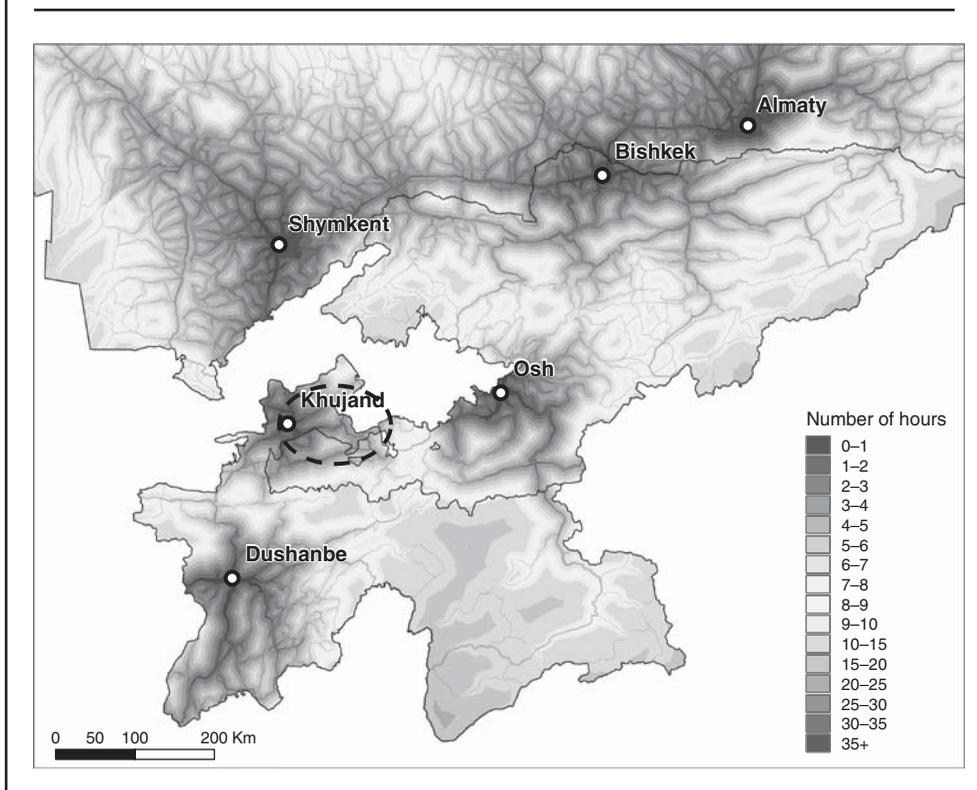
The Need for an Explicit Space-Based Export Diversification

The area within an hour's drive of a leading city is a unique space: it has a core urban center that provides a range of services and access to secondary cities whose economic activities are dominated by surrounding rural areas. The urban center provides good connections with business services and external markets, while secondary cities provide close connections with agricultural production. Yet without a credible mechanism to bind such a unique area into a coherent whole, coordination problems might impede provision of necessary infrastructure, consolidation of production to enhance economies of scale, control of production quality, provision of competitive and good quality transport and distribution services, and establishment of a business-friendly and efficient tax regime. Limited economic interaction between leading cities and their hinterlands and narrowly defined enclave economies are two major constraints facing Central Asian cities.

Limited Economic Interaction between Leading Cities and Their Hinterlands

A good example of limited economic interaction between Central Asia's leading cities and their hinterlands is provided by Bishkek and Osh. Bishkek and its hinterland have an estimated population of 770,000 people. Bishkek is within an hour's drive of a number of secondary cities, ranging from Tokmok in the east (59,000 inhabitants) to

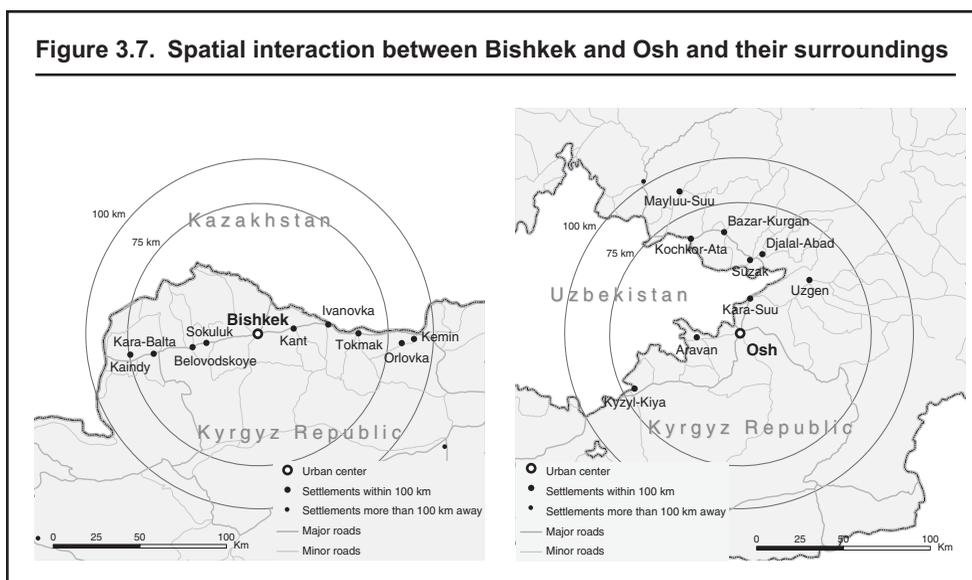
Figure 3.6. Travel time to leading cities of Kazakhstan, the Kyrgyz Republic, and Tajikistan (Full integration with Kazakhstan and Tajikistan)



Source: Authors.

Kara Balta in the west (47,000 people) via Kant (22,000 people), all of them connected by one major road (Figure 3.7). These settlements form an urban sprawl encompassing a 100-kilometer road corridor that passes through land suitable for large-scale agriculture. Osh has a reported population of 320,000 people, including a number of settlements within an hour's drive from the city center. Osh is one of the largest cities in the Fergana Valley, which stretches across the Kyrgyz Republic, Tajikistan, and Uzbekistan. Osh also has the Kara Suu international bazaar in its hinterland.

Better connections between Bishkek and Osh and their respective hinterlands, where agricultural production is strong, could improve the supply of raw materials to the food industry (Tables 3.3 and 3.4). An effective diversification strategy would expand agricultural production in Kant, Kara Balta, and Tokmok and better connect these areas to processors in Bishkek, thus linking production with domestic and external markets. The same could be done for Osh and its hinterland. Yet Bishkek, Kant, Kara Balta, and Tokmok together produce only 1 percent of Chui Oblast's vegetables, 2 percent of its raw milk, 2 percent of its potatoes, 3 percent of its livestock products, and 6 percent of its eggs. By contrast, the cities of Osh, Aravan, Kara Suu, and Uzgen together account for 60 percent of Osh Oblast's vegetable production, 14 percent of its raw milk, 27 percent of its potatoes, 27 percent of its livestock products, and 17 percent of its eggs. An export-led



Source: Authors.

agro-industry strategy similar to the one developed in Thailand in the 1970s could easily expand agricultural production in both areas.

While the agricultural production in the hinterlands of Bishkek and Osh are of comparable magnitude, the production value of foods and beverages in Bishkek is nearly 15 times that of Osh, indicating that the agricultural potential of Osh's hinterland is poorly linked with the city's industrial production in comparison with Bishkek (Tables 3.5 and 3.6). In Osh, small firms account for the bulk of food and beverage production, while large firms account for the bulk of textiles and garments, even though 75 percent of textiles and garment firms are small firms (Appendix 1 contains further details).

Labor productivity differences between Osh and Bishkek reveal a good deal about agglomeration economies. While a worker in Osh produces USD 17,000 of food and beverages during a year, a worker in Bishkek produces triple that amount in the non-metallic minerals sector. Bishkek is 2.70 times as productive as Osh, and in the textile and

Table 3.3. Agricultural production, Bishkek and its Hinterland, Kyrgyz Republic, 2008

Product	Chui Oblast	of which			City of Bishkek
		Kara Balta	Kant	Tokmok	
Livestock products (tons)	76,822	780	372	772	644
Raw milk (tons)	322,117	2,411	1,089	2,305	1,497
Eggs (thousands)	167,367	1,648	1,122	3,806	2,730
Grain (tons, weight after processing)	561,515	—	—	—	1
Potatoes (tons)	181,641	640	841	2,001	202
Vegetables (tons)	381,885	2,393	846	880	1,572
Fruits and berries (tons)	1,617	4	2	4	1

Source: Statistical Agency, Kyrgyz Republic.

Table 3.4. Agricultural production, Osh and its Hinterland, Kyrgyz Republic, 2008

Product	Osh Oblast	of which					
		Aravan Rayon	City of Kara-Suu	City of Uzgen	City of Osh	City of Batken	City of Jalal-Abad
Livestock (tons)	69,523	5,047	12,429	649	1,344	984	524
Raw milk (tons)	251,705	26,088	336	2,403	6,676	2,568	3,898
Eggs (thousands)	40,217	5,155	141	456	1,122	1,191	1,090
Wool (tons, physical weight)	2,138	123	2	16	24	28	19
Grain (tons, weight after processing)	268,648	32,110	89,907	—	3,916	21,583	2,396
Potatoes (tons)	139,148	18,421	16,569	—	2,566	4,639	124
Vegetables (tons)	117,342	16,635	48,546	954	9,433	3,465	2,067
Fruits and berries (tons)	44,106	5,417	12,104	121	1,132	21,855	160
Raw cotton (tons, weight after processing)	31,515	14,446	n.a.	n.a.	n.a.	n.a.	4
Tobacco (tons, weight after processing)	11,309	1,697	n.a.	n.a.	n.a.	n.a.	n.a.

Source: Statistical Agency, Kyrgyz Republic.
n.a. = Not available.

Table 3.5. Main manufactured production in Osh, 2008

Item	Total value of production (USD millions)	Percentage of production value produced by small firms	Total number of firms	Percentage of small firms	Total number of employees	Percentage of employees in small firms
Manufacturing	14.5	67	108	94	1,709	41
Food and beverages	6.8	87	29	97	396	75
Nonmetallic mineral products	4.5	42	17	82	528	23
Textiles and garments	1.3	4	12	75	529	4
Rubber and plastic products	0.7	100	8	100	54	100
Finished metal products	0.5	100	9	100	23	100
Paper industry and printing	0.4	100	16	100	66	100
Machinery and equipment	0.2	100	6	100	67	100
Chemicals	0.0	100	4	100	65	100

Source: Statistical Agency, Kyrgyz Republic.

Table 3.6. Main Manufactured Production in Bishkek, 2008

Item	Total value of production (SOM millions)	Percentage of production value produced by small firms	Total number of firms	Percentage of small firms	Total number of employees	Percentage of employees in small firms
Manufacturing	316.6	33	688	90	14,900	24
Food and beverages	99.6	15	92	83	3,293	14
Nonmetallic mineral products	35.5	29	46	78	1,558	12
Paper industry and printing	27.0	52	172	95	2,136	41
Rubber and plastic products	26.7	44	82	96	567	66
Machinery and equipment	20.7	33	42	90	1,808	13
Metallurgy and metal products	16.9	57	63	87	1,119	29
Vehicle equipment	9.8	5	4	75	549	6
Electrical, electronic, and optical equipment	7.4	40	38	87	685	11
Chemicals	6.7	53	41	95	318	57
Textiles	6.5	72	19	84	596	12
Garments	6.2	91	28	93	480	51
Leather products and footwear	1.2	23	6	83	109	35

Source: Statistical Agency, Kyrgyz Republic.

garments sector, Bishkek's productivity difference jumps to 4.75 times that of Osh. Yet Bishkek faces its own challenges. For instance, small operators account for most of the meat processing activity in Bishkek, most of whom work outside the formal economy, do not pay taxes, and are not subject to regular health inspections (World Bank 2007a). Another major challenge in developing the milk and meat industries in Bishkek is the rising prices of raw milk and meat bought from local suppliers, which is due to limited livestock feed, low productivity in stock breeding due to poorly fed livestock, low levels of mechanization of milk processing, and farmers' price-based strategy to increase their profitability. In the case of raw meat, some processing firms are experiencing a profit decrease of as much as 20 to 30 percent because of rising supply prices.

By developing some form of SEZ in Bishkek and its hinterland and in Osh and its hinterland, policy makers could facilitate economic interaction between city and hinterlands, thereby enhancing city productivity. But the export processing zones established in the Kyrgyz Republic to date are narrowly defined with respect to spatial coverage and instruments used to attract investment.

Narrowly Defined Economic Enclaves

The idea of SEZs is not unfamiliar in Central Asia. In the early 2000s, Kazakhstan became involved in a project to identify promising clusters in various parts of the country, one of which was Almaty as a logistics cluster. While “cluster fever” has since abated, policy makers are still considering how to design a space-based growth strategy. Bishkek has a free economic zone, and Osh’s municipal authorities proposed to the Kyrgyz Parliament that the city’s industrial zone—located at the periphery of the city and serviced by a railway, high voltage power, and water pipes—be converted into a free economic zone, although to date this has not happened. Tajikistan has three free economic zones, located in Khorog, in the periphery of Khujand, and in Nijny Panj on the border with Afghanistan.

All these initiatives have so far centered on narrowly defined areas where tax incentives, and sometimes infrastructure provision, are expected to attract foreign direct investment. This is a tough sell for Central Asian countries facing such cumbersome economic and physical geography. First, they are newcomers in adopting a diversification strategy that has been underway since the 1970s, with well-established global production networks anchored on entire regions like in East Asia. Second, their poor logistics performance adds to their disadvantageous geography to isolate from leading and emerging markets. If an SEZ strategy is to be adopted, it needs to be comprehensive: build on the country’s comparative advantage in designing the features of the SEZs, connect them to the domestic sources of labor and raw materials, and link them to the most attractive regional markets. Farole (2010) suggests for such newcomers to re-orient themselves toward resources-based and labor-intensive sectors (agriculture, minerals, oil and gas, tourism), using economic zones to improve competitiveness in first- and later-stage processing of these resources.

The resource-based and labor-intensive natures of such SEZs require them to be closely integrated to the leading cities receiving them as well as the “resource-rich” hinterlands of these leading cities. Indeed, most of the factors that determine the success of SEZ programs cannot be confined to the zone program alone but require actions at the city, city-hinterland, national and even regional levels. As documented by Farole (2010), one of the main differences between SEZs that have been successful and sustainable and those that have either failed to take off or have become stagnant enclaves is the degree to which they have been integrated to the broader economic policy framework of the country. Successful SEZ programs do not simply view zones as a static instrument of trade and investment policy, put in place and then left to operate on their own, with little effort to support domestic investment into the zones, to promote linkages, training, and upgrading. Unlocking the potential of zones requires clear strategic integration of the program along with government playing a leading, active role along with the private sector.

Broader SEZs anchored in such leading cities as Almaty, Astana, Bishkek, Dushanbe, Khujand, and Osh, and tapping into the agricultural comparative advantage of their hinterlands are more appropriate for boosting Central Asia’s export and growth prospects. For instance, upgrading small-scale suppliers of milk and meat in the hinterlands is more important for securing quality and quantity of supply to support an agro-industry-led diversification strategy in an SEZ located in a transport hub within the leading city, than a traditional SEZ where tax incentives are the only instrument to attract high-tech firms to an industrial complex in the middle of nowhere.

In Central Asia for instance, local producers seem to supply processors only in the form of spot-market types of transactions where price is a dominant coordination mechanism. Little coordination or cooperation among small-scale suppliers takes place, that is, producers work on their own instead of taking advantage of clustering effects. This

Box 3.1. Vertical Contracting in Global Value Chains

Vertical contracting represents a move from spot-market types of links between firms to increased use of contracts as a mediator of exchange between chain actors. Contracts may vary as to how long they are valid and how binding they are. Benefits of contracts for small producers and suppliers include: greater security, improved access to market information, and increased quality when training and support are provided as part of the contract terms. At the same time, contracts also include higher performance requirements related to quality, volume, certification, and the like. With the proper policy support, vertical contracting systems can result in the upgrading of entire industrial sectors.

Source: Bolwig and others 2008.

reduces producer profits because of small sales volumes, repeated price negotiations, and poorly specified quality grades. Upgrading small-scale producers requires development of a stronger coordination mechanism between them and other production chain nodes located in the leading cities. A vertical contracting model of the type outlined in Box 3.1 could be considered along with the SEZ program to broaden its impact.

The ultimate goal of broader SEZs is to use the transformation of agricultural production as a driving force for diversification as suggested by the 2008 and 2009 *World Development Reports* (World Bank 2008, 2009c) and exemplified by Thailand's experience in the 1970s. This implies that within the sphere of influence of leading cities, land markets are working properly and farmers are free to grow what they want. Kazakhstan and the Kyrgyz Republic have a fairly good land market with private ownership and their farmers have the freedom to grow what they want. But the land market is nonexistent in Tajikistan, where farmers are still forced by various means to grow only cotton.

Mainstreaming Space-Based Economic Policies

For many decades, economists have equated space-based policies with the failed policy of subsidizing industrialization in a country's lagging regions. A prime example is Italy's regional development policy to reduce the development gap between the north and the south under the intellectual leadership of Rosenstein-Rodan, creator of the "big push" model of development (Boltho, Carlin, and Scaramozzino 1997). Instead of boosting the economic base of southern Italy, whose firms and workers were already limited, the extensive road and railway infrastructure built contributed to the region's depopulation; afterward, about 2 million workers left the targeted region. In Europe and Central Asia, many single-firm towns and remote economic areas failed after the collapse of the Soviet system, along with its planned economy model and subsidized transportation costs. However, the success of SEZs in Bangladesh, China, and Mauritius shows that sound space-based policies still have their place, but only by strengthening economic concentration in leading regions and not by trying to divert economic activities to lagging regions. The new economic geography mainstreamed by Krugman (1991) boosts this view, and policymakers may increasingly urge economists to propose space-based policy recommendations. This chapter anticipates such a trend and proposes a framework for a sound space-based economic policy.

Structural and Spatial Transformations

In 1971, Kuznets was awarded the Nobel Prize in economics for his work showing that as a country moves from low to medium to high income levels, it goes through a structural transformation from agriculture to industry to services (Kuznets 1971). Traditional

agriculture tends to be replaced slowly as agribusiness activities emerge in response to increased demand from urban areas both within and outside a country (World Bank 2008). These agribusiness activities—storage, sorting, quality control, packaging, transport, processing, distribution, and services related to risk management—are already increasing returns to scale activities where internal and external economies of scale drive productivity and the ability to export. As industrialization takes over in a country, the share of manufacturing and business-related services becomes increasingly important.

As this structural transformation occurs, cities tend to play a larger role in production and trade as traditional agriculture activities require fewer workers and excess workers migrate to cities to participate in the advanced division of labor. In 2008, Krugman was awarded the Nobel Prize in economics for his work showing that the structural transformations proposed by Kuznets were facilitated by this spatial transformation favoring concentration of economic activities in leading urban centers. Krugman's work suggests that growth is lumpy in relation to space and that fighting this lumpiness is fighting growth. This finding clearly challenges the justification for space-based policies that divert economic activities to lagging regions, but leaves room for policy measures that would use space efficiently to maximize benefits from economic concentration. The issue thus becomes the fate of lagging regions in such fully market-led economies. To date, the economic literature has failed to propose a coherent framework that addresses both concentration in leading areas and convergence of lagging regions. The 2009 *World Development Report* (World Bank 2009c) fills this gap.

The 2009 World Development Report Framework

The 2009 *WDR* proposes a policy framework that combines economic benefits of increasing concentration in leading cities with improved welfare in lagging regions by investments in the people living there. The underlying economic principle is to ensure that places are integrated by means of a relevant set of institutions, infrastructure, and incentives. The spatial dimensions characterizing development of the developed countries and the rapidly growing Asian countries are: higher economic density, shorter economic distance, and less cumbersome border crossing operations. The importance of spatial dimensions depends on the geographic scale, primarily on these factors:

- *Density is the most important dimension at the local level.* Distances are short and cultural and political divisions are few and shallow. The policy challenge is to get the density right by harnessing market forces to encourage and promote economic concentration. No country has ever achieved high income levels without urbanizing.
- *Distance to density is the most important dimension at the national level.* For a small country, the challenge is how to improve all connections to its leading areas. Growth seldom comes without the need to move closer to economic density.
- *Division is the most important dimension at the regional level.* While distance also matters at the regional level, divisions associated with the impermeability of borders and different currencies and regulations pose serious obstacles to accessing regional and global markets. Isolated countries seldom achieve growth.

The 2009 *WDR* framework is applied to Central Asia in Box 3.2. For Tajikistan, for instance, the three geographical scales are Dushanbe (density), its hinterland (distance), and regional markets (division). Understanding the transformations along all three dimensions (increasing density, declining distance, and declining division)

Box 3.2. The World Development Report 2009 Framework Applied to Central Asia

The three spatial dimensions are approximated by the following proxy variables: (a) the economic density dimension is approximated by the agglomeration index, a more elaborated urbanization index that takes into account the spatial distribution of the population; (b) the distance dimension is approximated by the index of shipping difficulty; and (c) the division dimension is approximated by the foreign market potential index. The table below reports these proxy variables for the Central Asian countries.

Scores on selected indexes, selected regions and countries	Economic density index (2000)	Distance index (2008)	Division index (2003)
Organisation for Economic Co-operation and Development	60.09	24.92	13.68
Europe and Central Asia	38.63	99.75	3.02
Kazakhstan	46.20	178.00	1.12
Kyrgyz Republic	20.20	177.00	1.42
Tajikistan	17.60	176.00	0.79
Turkmenistan	26.60	174.00	0.81
Uzbekistan	42.90	165.00	0.71

Source: Economic density and distance index: World Bank 2009c; division index: Mayer 2008.

Economic density in Central Asia is low, particularly in Tajikistan and the Kyrgyz Republic, where fewer than 20 percent of the population can be classified as urban. Central Asia's distance index is also sizable, with an average difficulty in shipping index of 174, compared with about 25 for countries of the Organization for Economic Co-operation and Development (OECD). Divisions imposed by borders and other nontariff barriers result in an index value of less than 1.5 for all Central Asian countries, or about one-tenth of the index for OECD countries, thus limiting the OECD's market potential for Central Asia.

The 2009 *World Development Report* identifies regions facing such geographical challenges as "3D" neighborhoods (for low density, long distances, and high divisions). These regions are Central, East, and West Africa; the South Caucasus; Central Asia; and the small Pacific islands. For countries in these six regions, the greatest challenges for diversification away from traditional products are generating domestic economic density (to attract domestic and foreign investment in nontraditional sectors) and ensuring their productive connections to leading external markets.

Source: World Bank 2009c.

can help Tajik policy makers identify the main market forces and the appropriate policy responses at each of these geographical scales by applying one simple rule: invest in growth-sustaining infrastructure in leading locations and invest in people in lagging locations. By investing in education and health in lagging locations, policy makers can help endow residents with portable skills to use wherever they find economic opportunities, whether in the lagging region, the leading region, or outside the country. By investing in a country's leading locations, policy makers can endow these cities with the economic infrastructure necessary to generate localization or urbanization economies that will assist the country in its eventual structural transformation.

From Spatial Transformations to Trade

The cities, towns, and rural settlements of a country coexist and deliver different services to firms and people. Rural settlements tend to engage in agricultural activities, while towns engage in the nonfarm activities that increase the marketability of agricultural

products in urban areas and outside the country. Cities permit sharing of private and public factors of production, pooling of labor markets, and sharing of information. The diversity of cities favors an advanced division of labor allowing specialization in various activities. As a country moves through a structural transformation from agriculture to industry to services, some of its city-based activities become more prominent to the point of being exported—that is, the country starts to diversify away from its traditional export base. Thus a fundamental relationship exists between a city’s potential for specialization and diversification of its export base.

When exploring diversification potential, one must also keep in mind cities’ non-traded goods and services. The heterogeneous firm framework developed by Melitz (2003), now driving all new theoretical and empirical work on international trade, suggests that a particular area of activity comprises three types of firms, based on their productivity levels and distinguished by the markets they can reach. The most productive firms serve global, regional, and domestic markets; the average productive firms serve regional and domestic markets; and the less productive firms serve only domestic markets. Using plant-level data, Yoshino (2008) empirically confirms this market segmentation for Africa. Using firm-level export data for 1996–2005, Eaton and others (2007) find a significant creation of small exporting firms in Colombia from one year to the next, with most failing the following year, but for those that survive, their share in export expansion exceeds that of large firms in less than 10 years.

As a country moves from low to high levels of income, the country first tends to diversify away from its traditional export base, before specializing at high-income level (Imbs and Wacziarg 2003). Hence the growth of cities tends to occur hand-in-hand with higher incomes and more diversified production and exports, implying that a sound diversification strategy needs to put leading cities at the forefront of trade policy.

The low economic density of Central Asian countries and their limited production base, skewed toward natural-resource-intensive products, point to the need for an explicit strategy built on leading cities driving the diversification agenda. The last chapter suggests how to draw on the potential of leading cities to design a successful diversification strategy.

Notes

1. The standardized Herfindahl index (H^*) can be used to easily assess whether a location is diversified or not diversified: $H^* = \frac{\sum_i s_i^2 - 1/N}{1 - 1/N}$, where s_i is the share of sector i in total production and N is the total number of sectors.

2. The index is calculated using the gravity-type relationship $A_i = \sum_j g(W_j)f(c_{ij})$, where A_i is the accessibility measure of settlement i , W_j is the population of settlement j , c_{ij} is the generalized cost of reaching market j from i , $g(\cdot)$ is activity function, and $f(\cdot)$ is the impedance function.

The “How to” of Expanding Trade in Central Asia

The introduction to *The East Asian Miracle* notes that “in a large measure the eight high performing Asian countries achieved high growth by getting the basics right But these fundamental policies do not tell the entire story. In most of these economies, in one form or another, the government intervened—systematically and through multiple channels—to foster development, and in some cases the development of specific industries. Policy interventions took many forms: targeting and subsidizing credit to selected industries, keeping deposit rates low and maintaining ceilings on borrowing rates to increase profits and retained earnings, protecting domestic import substitutes, subsidizing declining industries, establishing and financially supporting government banks, making public investments in applied research, establishing firm- and industry-specific export targets, developing export marketing institutions, and sharing information widely between public and private sectors. Some industries were promoted, while others were not” (World Bank 1993, pp. 5–6).

Such a detailed list seems to dare any creative policy maker to devise new ways to intervene in economic development. Yet while the basics—macroeconomic stability and investment in people—were unanimously recognized as essential to the impressive East Asian economic performance, singling out the most efficient policy interventions has still been difficult.

This chapter uses a city-led export diversification framework to lay out specific policy actions to be pursued by policy makers in Kazakhstan, the Kyrgyz Republic, and Tajikistan seeking to expand their exports in nonnatural-resource-intensive products. This diversification strategy involves three types of policy makers: city-level authorities for city-level interventions, oblast-level authorities for the hinterlands of leading cities, and national authorities for regional-level policy actions. Close collaboration between the three decision-making levels is paramount to the success of the proposed diversification strategy.

A Framework for a City-Led Diversification Strategy

According to the World Bank (2008, p. 2), “In urbanized countries, which include most of Latin America and much of Europe and Central Asia, agriculture can help reduce the remaining rural poverty if smallholders become direct suppliers in modern food markets, good jobs are created in agriculture and agro-industry, and markets for environmental services are introduced.” Leading cities in nonurbanized countries could play an even more important role in the transformation of their agriculture sectors, and more generally, in their production and trade diversification,¹ because (a) the cities facilitate the consolidation and transportation of agricultural products at low cost as a benefit from

the agglomeration economies generated by these cities; (b) the cities are well connected to their agricultural hinterlands, providing a basis for transforming traditional agriculture; and (c) the cities are well connected regionally, allowing the establishment of a regional production network that taps into the competitive advantage of each leading city.

Promoting Economic Density in Leading Cities

Leading cities need to attract the right businesses (food processing firms and closely related services/suppliers, for example), provide them with a good regulatory environment, and provide the local services that are needed for their operation. Given Central Asia's cumbersome economic geography, the only way to make these events happen is by using some form of SEZs. This should be the main policy intervention in all six cities considered in this study.

Ideally, the SEZ should cover the entire city, as is the case in China, from its cigarette lighter town of Wenzhou, which produces 95 percent of the world output, to Yanbu, its underwear capital. Indeed, an SEZ that covers the entire city and its immediate hinterland is larger than an SEZ limited to an industrial park or a transportation hub in the city, implying a lower cost of distortion. However, such larger SEZs may generate more resistance from vested interests deriving a large share of their income from that larger area. Depending on the political economy of each leading city, a "concentric-circle" approach may be considered: first, start with a narrow SEZ but drawing on the country's comparative advantage and major transportation hubs that connect to regional markets; second, progressively include parts of the leading city that are directly involved in the production process in the SEZ (such as labor pockets and other industrial settlements); and at a final stage integrate the hinterland of the leading city providing access to the raw materials transformed in the SEZ. This approach provides for a flexible regulatory regime that becomes more comprehensive as the political economy challenges in the leading cities ease.

The second policy instrument that policy makers may consider is scaling up the urban infrastructure, including the public transportation network, market places, and storage facilities, as needed. The larger the city, the more extended the infrastructure network should be to contain congestion costs.

Finally, in countries where the land market is not well-developed, a set of institutions may be needed to facilitate the rapidly changing land use that may accompany expansion of a city's economic activities.

Improving Leading Cities' Connections with Their Agricultural Hinterlands

Applying geographic information system mapping techniques to Almaty, Astana, Bishkek, Dushanbe, Khujand, and Osh helps illustrate how these leading cities and their hinterlands could provide the means for a space-based export diversification strategy. For each country, build-up areas, as well as the land cover around its leading cities and their hinterlands, are shown in Appendix 3.

The leading cities of Kazakhstan, the Kyrgyz Republic, and Tajikistan, are each surrounded by agricultural hinterlands which may support the intensification of agro-processed activities in these leading cities. But for this to occur, policymakers must provide the necessary infrastructure to connect the cities and their hinterlands, including inter-urban transportation networks, market places for collection and consolidation of agricultural products, and adequate storage facilities in the city-hinterlands.

If existing administrative arrangements are not efficient enough, policy makers may consider an institution to facilitate economic interaction between the leading cities and

Box 4.1. Space-Based Policy in the Republic of Korea

Between 1950 and 1990, Daegu's population swelled from 355,000 people to nearly 2 million, as its thriving textile industry pulled in rural migrants. Korea's policy response was to develop a so-called area approach in which Daegu was integrated with its hinterland by expanding its administrative zone in 1987 and again in 1995, followed by construction of a subway system and expansion of the city's bus system. As a result, manufacturing has deconcentrated from Daegu into the surrounding Gyeongsangbukdo Province, and the local economy has diversified, reducing its reliance on textiles and moving into sectors with higher value added production, such as electronics and automobiles. Daegu now sits at the center of a vibrant urban system surrounded by five cities, all with easy transport access to Daegu.

Source: World Bank 2009c.

their hinterlands. One solution might be to emulate the area approach developed for Daegu in Korea (Box 4.1).

Finally, policy makers could consider targeted incentives to foster industrial agriculture in the city-hinterlands, as in the beginning of Thailand's industrialization, to scale up horticulture or livestock activities, if such action is economically viable.

Securing Accessibility to Regional Markets

Central Asia is a 3D region where thick borders, long distance to large markets, and low domestic economic density are compounded. The third level of policy intervention—securing accessibility to regional markets—is therefore of critical importance. All three instruments suggested in the *WDR2009* should be thoroughly applied: a key institution to unite the three countries, key connective infrastructure between domestic and regional markets, and targeted interventions to compensate countries for short-term losses from this deepened economic integration.

As shown in chapter 1, an intensification of food or light manufacturing in the six Central Asian leading cities would make sense only if access were secured to large regional markets such as those in China, India, Russia, Turkey and the EU via Russia. This means that the north–south road corridor linking these cities—Dushanbe, Khujand, Osh, Bishkek, Almaty and Astana—from the border of Tajikistan with Afghanistan at Nijny Panj to the border of Kazakhstan with Russia at Petropavlovsk forms the backbone of Central Asia trade integration to regional and global markets. To secure this access to markets, policy makers should provide the right institutions that will unite the region's production places and better connect them to targeted markets.

The second policy action needed is to improve connectivity infrastructure on the poorly maintained legs of the most integrative transport corridor to smooth out traffic flow and reduce transport costs.

Finally, because all countries will not benefit equally from this deepened trade and transport facilitation initiative, policy makers in Kazakhstan should provide targeted incentives to reduce the transport costs faced by Kyrgyz and Tajik traders in the short term. Such deep integration would transform Almaty into the region's main export hub, helping it capture most of the benefits from complementary service activities.

How to Promote Economic Density in Leading Cities

At the city level, the key challenge for policy makers is to foster localization or urbanization economies to improve the productivity of firms operating there. Although authorities of leading cities are the main counterparts pursuing this goal, both national

authorities and the business communities operating in Almaty, Astana, Bishkek, Dushanbe, Khujand, and Osh are strategic players who need to buy in to any city-level policy action, given the weight of these cities in their national economies. One necessary institution is an implementation body bringing these three actors together, to be chaired by city-level authorities.

The implementation body's most important policy goal is to establish in each leading city a form of SEZ, where infrastructure conditions and economic regulations are more hospitable than those typical in the rest of the country. Such action makes each leading city's business environment attractive to domestic and foreign investors.

One specific action that the implementation body should consider is to publicly commit to a business-friendly charter within the SEZ, along the lines of the *Doing Business* indicators (IFC and World Bank 2009). This charter should cover starting a business, dealing with construction permits, employing workers, registering properties, obtaining credit, protecting investors, paying taxes, trading across borders, enforcing contracts, and closing down businesses. The charter should reflect international best practices in all aspects of the investment climate, and the implementation body should be endowed with the power to enforce them. Such a credibility-building mechanism will be a powerful marketing tool for attracting foreign direct investment to each city.

The second specific policy action should be to consider scaling up the provision of backbone infrastructures in the SEZ according to the type of agglomeration economy the leading city expects to deliver. For Astana, Bishkek, Dushanbe, Khujand, and Osh, where localization economies are important to tap into the agricultural potential of their hinterlands, the focus should be on improving transportation infrastructure connecting with their hinterlands, on market places and information systems facilitating the collection and consolidation of agricultural products, and on adequate storage facilities in cities and hinterlands. For Almaty, already close to delivering urbanization economies, the focus should be on providing additional infrastructure to support development of a metropolitan area, such as a subway mass-transportation system and cheap ICT and financial services. Better connecting the other five other leading cities to Almaty will allow them to take advantage of Almaty's additional infrastructures.

Finally, Central Asia's growing urban population means that all the cities should pursue establishment of institutions to improve access to urban land for residential and business purposes. Issues to be addressed include urban land titling, transparency of land markets, and flexible land use regulations to adjust to the rapidly changing use of urban land.

How to Improve Leading Cities' Connections with their Agricultural Hinterlands

Almaty, Astana, Bishkek, Dushanbe, Khujand, and Osh are each surrounded by an agricultural hinterland within an hour's drive or less from the city center. The export diversification strategies of Kazakhstan, the Kyrgyz Republic, and Tajikistan should be anchored on these macro-regions to intensify agro-industrial activities. The key policy makers for measures proposed here are oblast-level authorities: in Almaty oblast for Almaty, Akmola oblast for Astana, Chu oblast for Bishkek, Osh oblast for Osh city, Sughd oblast for Khujand, and the Region of Republican Subordination for Dushanbe. Given the key role to be played by private operators located in the leading cities, the implementation body should also be extended to leading city authorities, as well as to business communities operating in the cities and their hinterlands.

Because providing inter-urban infrastructure is the main policy action at this level, national authorities may be involved to secure the financing needs of this infrastructure. Policy makers need to show their commitment to such a city-led export diversification strategy by scaling up the backbone infrastructure and services provided in the macro-regions. The systems and regulations needed to govern intra-urban and interurban transport, retail and wholesale distribution, and logistics and financial services should be improved to facilitate innovation, production, and trade. For instance, public investments may be needed to provide transport infrastructure needed to connect the core city to its mainly agricultural hinterland, as well as to provide market infrastructure investments such as marketplaces, serviced storage capacity, and price information systems to facilitate rural-urban interactions.

In countries such as Tajikistan, where access to agricultural land is not secured, the second policy action should cover enforcing an agricultural land market and land titles in the rural parts of the macro-regions anchored to Dushanbe and Khujand, facilitating industrial agriculture, and providing collateral to farmers. Tajik farmers still lack the freedom to farm. A land market would allow Tajik farmers to sell their land if they wish to move to the core city to seek new economic opportunities.

Finally, policy makers should consider targeted incentives to boost agro-industry and food processing. Such incentives could go hand-in-hand with improved logistics services that Almaty, with its current competitive advantage, could provide, while Astana, Bishkek, Dushanbe, Khujand, and Osh and their hinterlands continue to focus on the production of cotton, cotton fabrics, and food. A vertical contracting system would secure quality, quantity, and timeliness of the intermediate products needed for the food processing and clothing sectors. To date, all attempts to develop outgrower schemes in the southern part of the Kyrgyz Republic and northern Tajikistan have failed because of the lack of trust among farmers, traders, and processors. The credibility-building mechanisms proposed here could help build this trust. Contracting schemes would need to be complemented by enforced safety and quality control systems to ensure the marketability of the food and clothing products. By building on Almaty's advanced food-processing sector, policy makers and the business community of all three countries can work to establish a regional food production network that will ensure their competitiveness in regional and global markets.

By providing easy access to a relatively large population, Almaty, Astana, Bishkek, Dushanbe, Khujand, and Osh can drive the intensification of processed agricultural products and clothing. Urbanites everywhere prefer variety, which partly drives intra-industry trade. Safe, well-packaged, and well-marketed products can find their way to any supermarket or bazaar, but the food industry remains poorly developed in the Kyrgyz Republic and Tajikistan, where safety and packaging are major concerns. An industrial upgrading strategy that includes implementation of the HACCP system, quality control, and modern packaging processes will add to the diversification potential of the leading Central Asian cities and their hinterlands.

How to Secure Accessibility to Key Regional Markets

As a 3D region, Central Asia faces the core challenge of securing accessibility to regional and global markets in the drive for trade expansion. Policy makers at the highest levels in Kazakhstan, the Kyrgyz Republic, and Tajikistan should therefore put the issue of accessibility at the top of their agendas. Indeed, the economic geography challenges facing 3D regions call for a bolder regional integration agenda to overcome high economic divisions

between trading partners and reduce the distance to major regional markets, as well as to boost economic density domestically. If integration succeeds, the new economic geography should help the region's major metropolitan area, Almaty, capture most of the benefits of agglomeration economies, attracting increasing return to scale activities from the other leading cities, in the short and medium terms. Kazakhstan should play the leading role in the cross-country implementation body needed to secure accessibility to regional markets, thus balancing unevenness of short-term gains from the regional integration initiative and securing long-term survival and success.

If export diversification is the underlying goal for Kazakhstan, the Kyrgyz Republic, and Tajikistan as a group, the north-south road corridor linking the six leading cities to Afghanistan and Russia appears to be the highest priority connection (cf. chapters 1 and 2). The major products produced by all three Central Asian countries are traded along this north-south road corridor going to Moscow and all the way to the EU on the northern leg of the corridor, and to Turkey and the Gulf countries via Kabul on the southern leg. The corridor also links the two leading cities of each country. Regional integration anchored on facilitating trade and transport along this north-south corridor should be the bedrock of the connectivity policy of Kazakhstan, the Kyrgyz Republic, and Tajikistan. Integration will strengthen production capacity of their leading cities and will secure the countries' access to attractive regional markets such as China, India, Russia, Turkey, and the EU-15.

To secure access to the key regional markets, the first policy action must be to establish a north-south corridor management institution. The World Bank's Sub-Saharan Africa Transport Policy Program identified as a best practice the establishment of a three-tier corridor management institution for regional transport corridors, to consist of a stakeholder group, a working group, and a secretariat (Adzigbey and others 2008). For Central Asia, the stakeholder group should consist of high-level officials in Kazakhstan, the Kyrgyz Republic, and Tajikistan who are involved in regulating trade and transport facilitation activities and who would serve as the policy-making body. The region's working groups should consist of national implementation committees established in each country and designed as problem-solving groups, with operational procedures encouraging the flexibility necessary for responsiveness to ensure public-private interaction at all levels. Different core groups can be formed on an ad hoc basis, as needed, to address specific issues and to be disbanded once the objective is met. The secretariat of the corridor management institution should be located in one of the six leading cities, maximizing the secretariat's involvement in high-level policy making on regional integration issues.

A major task for the stakeholder group of the north-south corridor management institution is to pursue a quadripartite transit agreement between China, Kazakhstan, the Kyrgyz Republic, and Tajikistan, and complemented by a trade agreement allowing agricultural product imports from Central Asia to reach China via Urumchi or Kashgar, thereby securing access to the Chinese market for their agriculture-related products. So far, the only transit agreement in place between Tajikistan and China covers the Kulma Pass near Murgab in the Gorno-Badakhshan Autonomous Oblast—a mountainous region containing few significant settlements, where long portions of the road are in poor condition, and where severe winter weather closes the road for long periods. The importance of a quadripartite transit agreement with China, covering both the Irkeshtam border crossing point between the Kyrgyz Republic and China (close to Kashgar) and the Korgas border crossing point between Kazakhstan and China, near Urumchi, is obvious. While

some bilateral transit agreements exist between China and Central Asian countries, none of them secure access to the Chinese market for the three Central Asian countries as a group, and effectively reduce their actual access to the Chinese market.

The second major policy action needed to secure access to key regional markets is to rehabilitate and upgrade the poorly-maintained legs of the north-south road corridor, along the route Nijny Panj-Dushanbe-Khujand-Batken-Osh-Bishkek-Almaty-Astana-Petropavlovsk. For instance, improving the Osh–Batken–Isfara–Khujand–Dushanbe connection would allow the Kyrgyz Republic and Tajikistan to bypass Uzbekistan in reaching Russia or Turkey. The entire road badly needs upgrading and rehabilitation. The Khujand-Dushanbe connection currently operates below its potential while the Shakrishtan tunnel remains under construction and according to operators using this route, the Anzob tunnel is deteriorating. Establishment of this suggested road corridor would increase competition with other routes through Uzbekistan and would ultimately improve transit trade via Uzbekistan.

Once the priority highway investments in each country are agreed on, complementary policy instruments—to be implemented by the core group of the proposed corridor management institution—are needed to facilitate trade and transport by addressing various administrative barriers, as well as border crossing and transit constraints. Corridor efficiency (in cost, time, reliability, and flexibility) is imperative for trade competitiveness, particularly for landlocked countries (Arnold and others 2005; World Bank 2009b). To take advantage of Kazakhstan’s more advanced and efficient trucking industry, such new regulations should also include either a clause allowing cross-border trade in trucking services, or a clause facilitating foreign direct investment in the trucking industry between Kazakhstan, the Kyrgyz Republic, and Tajikistan, or both.

Finally, policy makers (particularly those in Kazakhstan) should consider a compensation mechanism to ensure the long-term viability of a deepened regional integration initiative. An obvious choice would be to provide some form of subsidy for reducing transport costs between the Kyrgyz Republic and Tajikistan and the regional hub, Almaty. The subsidy could take the form of advantageous backhaul cargo services offered by Kazakh trucks, of favorable joint-ventures with Kyrgyz or Tajik trucking companies, or of subsidized gasoline prices for Kyrgyz and Tajik truckers shipping goods to Almaty for consolidation. Such a win-win deal would give Kyrgyz and Tajik traders the lower transport costs they need to reach regional markets, while enhancing Almaty’s future as a regional hub, promoting its large range of multi-modal and intermediation services.

Combining these three main policy actions with the two others suggested earlier to promote economic density (SEZs in leading cities) and to improve connections between leading cities and their agricultural hinterlands (adequate inter-urban transportation infrastructure, market places, and storage facilities in the city-hinterlands), is the core of the city-led diversification strategy. Some additional measures may be considered given the specific needs of each leading city.

Note

1. In 2005, the share of each country’s population living in urban areas was 57 percent in Kazakhstan, 37 percent in the Kyrgyz Republic, and 25 percent in Tajikistan. The largest city accounted for 13 percent of the total urban population in Kazakhstan, for 43 percent of the total in the Kyrgyz Republic, and for 37 percent of the total in Tajikistan (World Bank 2009c).

Appendices

Appendix 1. Production Data

Table A1.1. Production by sector, leading cities of Kazakhstan, the Kyrgyz Republic, and Tajikistan, 2008, in USD millions

Country and City	Industry	Mining	Manufacturing	Electricity, gas, and water ^a
Kazakhstan	84,692	52,129.0	28,083	4,480
Almaty	3,180	7.1	2,838	307
Astana	919	0.0	748	143
Kyrgyz Republic	2,345	52.0	1,918	375
Bishkek	521	0.1	415	106
Osh	47	0.0	17	31
Tajikistan	1,722	n.a.	n.a.	n.a.
Sughd oblast ^b	323	n.a.	n.a.	n.a.
Dushanbe	149	n.a.	n.a.	n.a.

Source: Statistical agencies of Kazakhstan, the Kyrgyz Republic, and Tajikistan.

^aIncludes distribution. ^bNo data are available for Khujand; data are available only for the Sughd oblast region as a whole.

n.a. = Not available.

Table A1.2. Domestic production, leading cities of Kazakhstan and the Kyrgyz Republic, 2008

Top Items	USD millions	Percentage of all city production
Almaty	2,563.1	100.00
Ready-mixed concrete	167.3	6.50
Copper	141.4	5.50
Mineral water and other nonalcoholic drinks	123.1	4.80
Polygraphist activity	118.0	4.60
Brewing	113.7	4.40
Cacao, chocolate, and sugar confectionary	91.1	3.60
Light metal structures	83.3	3.30
Astana	806.0	100.00
Ready-mixed concrete	204.4	25.40
Concrete products	73.3	9.10
Maintenance of railway rolling stock	70.6	8.80
Wall blocks	35.8	4.40
Bishkek	394.9	100.00
Foodstuffs, including beverages	100.6	25.47
Electricity, gas and water ^a	74.9	18.96
Nonmetallic mineral products	35.9	9.10
Pulp and paper industry, publishing	27.2	6.90
Rubber and plastic products	27.0	6.83
Tobacco	26.8	6.78
Textiles and clothing	21.0	5.32
Osh	45.5	100.00
Electricity, gas and water ^a	30.9	67.83
Foodstuffs, including beverages	6.9	15.05
Nonmetallic mineral products	4.5	9.97
Textiles and clothing	1.3	2.91

Source: Statistical agencies of Kazakhstan and the Kyrgyz Republic.

^aIncludes distribution.

Table A1.3. Number of firms by type of economic activity, leading cities of Kazakhstan, the Kyrgyz Republic, and Tajikistan, 2008

Country and city	All Firms	Large firms	Medium firms	Small firms
Total				
Kazakhstan	85,014	1,732	5,010	78,272
Almaty	21,961	348	982	20,631
Astana	7,976	144	369	7,463
Kyrgyz Republic	22,418	1,625	3,366	17,427
Bishkek	8,607	584	776	7,247
Osh	1,075	119	128	828
Mining				
Kazakhstan	848	117	147	584
Almaty	47	3	3	41
Astana	18	2	1	15
Kyrgyz Republic	78	n.a.	n.a.	n.a.
Bishkek	6	n.a.	n.a.	6
Osh	2	n.a.	n.a.	2
Manufacturing				
Kazakhstan	7,798	361	766	6,671
Almaty	2,164	58	137	1,969
Astana	523	16	42	465
Kyrgyz Republic	1,681	n.a.	n.a.	n.a.
Bishkek	688	18	53	617
Osh	108	2	5	101
Tajikistan	798	(a) n.a.	(b) n.a.	(c) n.a.
Dushanbe	234	n.a.	n.a.	n.a.
Sughd oblast ^a	233	n.a.	n.a.	n.a.
Services and other				
Kazakhstan	76,368	1,254	4,097	71,017
Almaty	19,750	287	842	18,621
Astana	7,435	126	326	6,983
Kyrgyz Republic	20,659	n.a.	n.a.	n.a.
Bishkek	7,913	566	723	6,624
Osh	965	117	123	725

Source: Statistical agencies of Kazakhstan, the Kyrgyz Republic, and Tajikistan.

^aNo data are available for Khujand; data are available only for the Sughd oblast region as a whole.

n.a. = Not available

Appendix 2. Transport and Distribution Data

Table A2.1. Trade turnover and warehouse capacity, leading cities of Kazakhstan, the Kyrgyz Republic, and Tajikistan, selected years

Country and city	Warehouses		Retail turnover (USD millions)	Wholesale turnover (USD millions)
	Number	Active area (m ²)		
Kazakhstan, 2008	8,405	5,273,175	16,069.9	43,513.6
Astana	665	665,055	1,687.0	8,940.0
Almaty	2,050	755,576	6,552.1	16,242.1
Kyrgyz Republic, 2007	2,053	350,428	2,454.0	n.a.
Bishkek	884	248,870	1,047.8	n.a.
Osh	209	31,306	232.8	n.a.
Tajikistan, 2007	n.a.	n.a.	1,012.8	n.a.
Dushanbe	n.a.	n.a.	181.1	n.a.
Khujand	n.a.	n.a.	n.a.	n.a.

Source: Statistical agencies of Kazakhstan, the Kyrgyz Republic, and Tajikistan.
n.a. = Not available.

Table A2.2. Freight turnover, leading cities of Kazakhstan, the Kyrgyz Republic, and Tajikistan, 2008 (millions of tons/kilometer)

Country and city	All types of transport	Rail transport ^a	Road transport	Air transport
Kazakhstan	369,824.67	215,110.41	63,475.21	69.46
Astana	2,929.45	n.a.	2,881.56	47.89
Almaty	8,298.46	n.a.	8,277.93	20.53
Volume not distributed by oblasts	263,785.40	215,110.41	n.a.	n.a.
Kyrgyz Republic	2,278.60	943.10	1,059.60	47.10
Bishkek	n.a.	n.a.	n.a.	n.a.
Osh	n.a.	n.a.	n.a.	n.a.
Tajikistan	n.a.	n.a.	n.a.	n.a.
Dushanbe	72.50	n.a.	n.a.	n.a.
Khujand	599.50	n.a.	n.a.	n.a.

Source: Statistical agencies of Kazakhstan, the Kyrgyz Republic, and Tajikistan.
n.a. = Not available.

^aFreight transportation by rail is not distributed by cities.

Table A2.3. Freight transportation, leading cities of Kazakhstan, the Kyrgyz Republic, and Tajikistan, 2008 (thousands of tons)

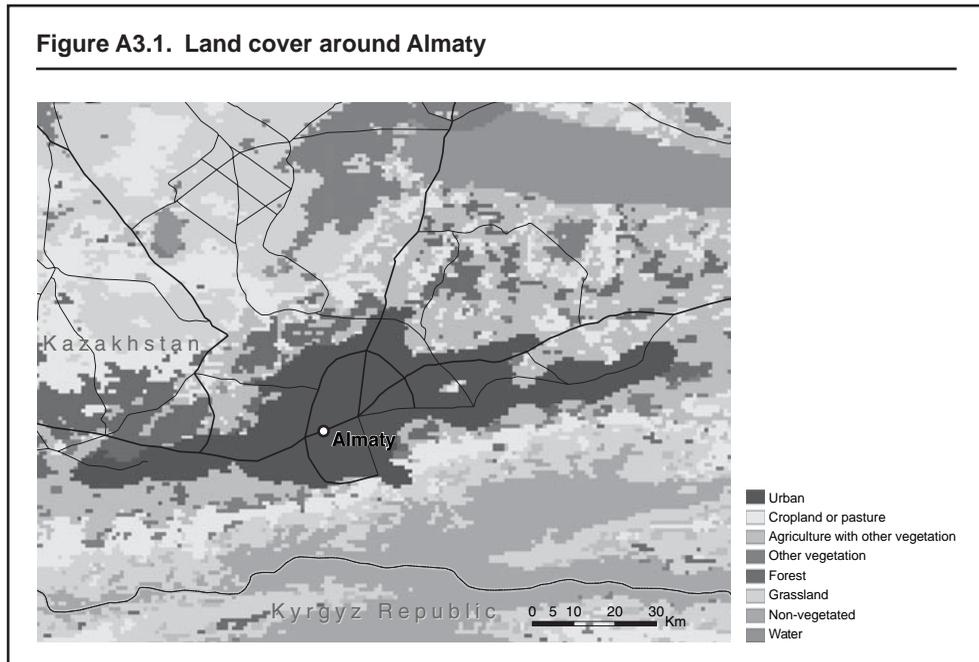
Country and city	All types of transport	Rail transport ^a	Road transport	Air transport
Kazakhstan	2,191,838.66	271,547.47	1,720,924.06	23.71
Astana	58,645.18	n.a.	58,628.79	16.39
Almaty	128,568.35	n.a.	128,561.60	6.75
Volume not distributed by oblasts	397,371.51	271,547.47	n.a.	n.a.
Kyrgyz Republic	31,700.00	1,800.00	29,234.30	0.90
Bishkek	n.a.	n.a.	5,481.30	n.a.
Osh	n.a.	n.a.	1,141.10	n.a.
Tajikistan	47,381.90	14,555.40	32,824.00	2.50
Dushanbe	11,912.20	n.a.	n.a.	n.a.
Khujand	1,441.90	n.a.	n.a.	n.a.

Source: Statistical agencies of Kazakhstan, the Kyrgyz Republic, and Tajikistan.

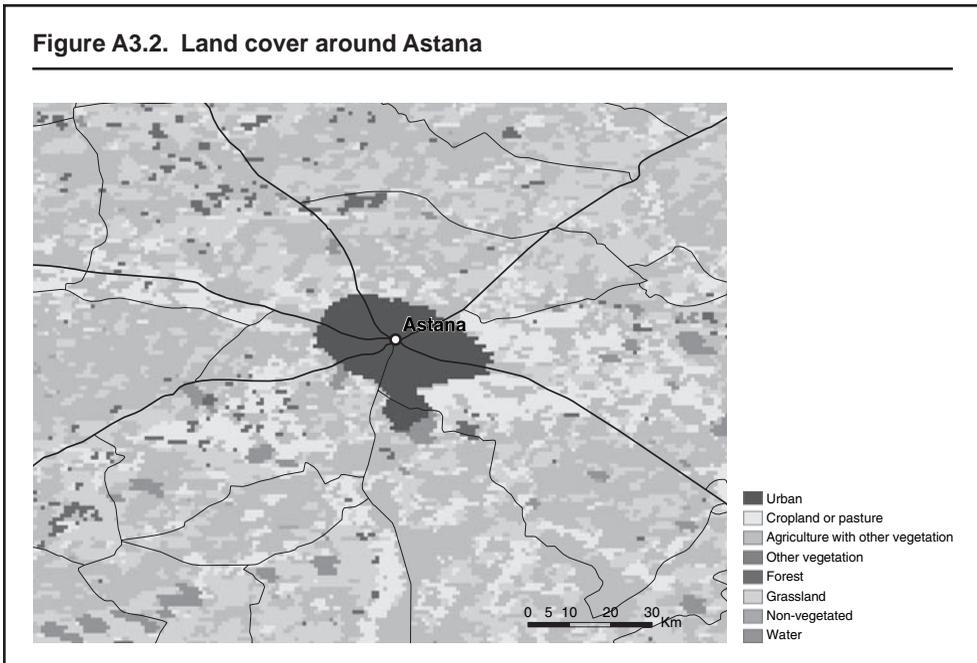
n.a. = Not available.

^aFreight transportation by rail is not distributed by cities.

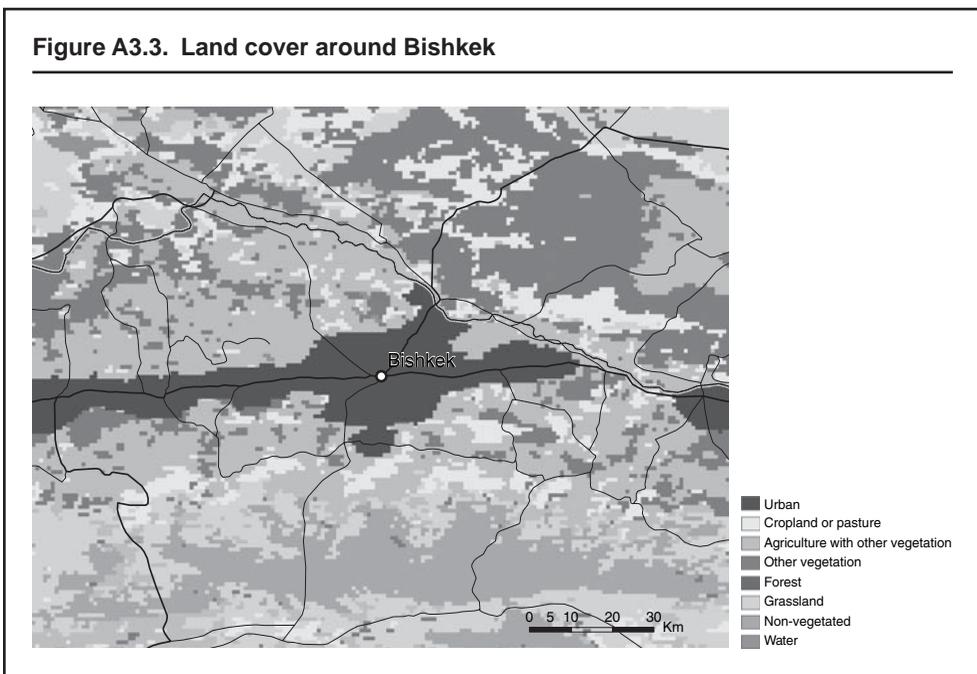
Appendix 3. Land Cover of the Hinterland of the Leading Cities



Source: Authors.

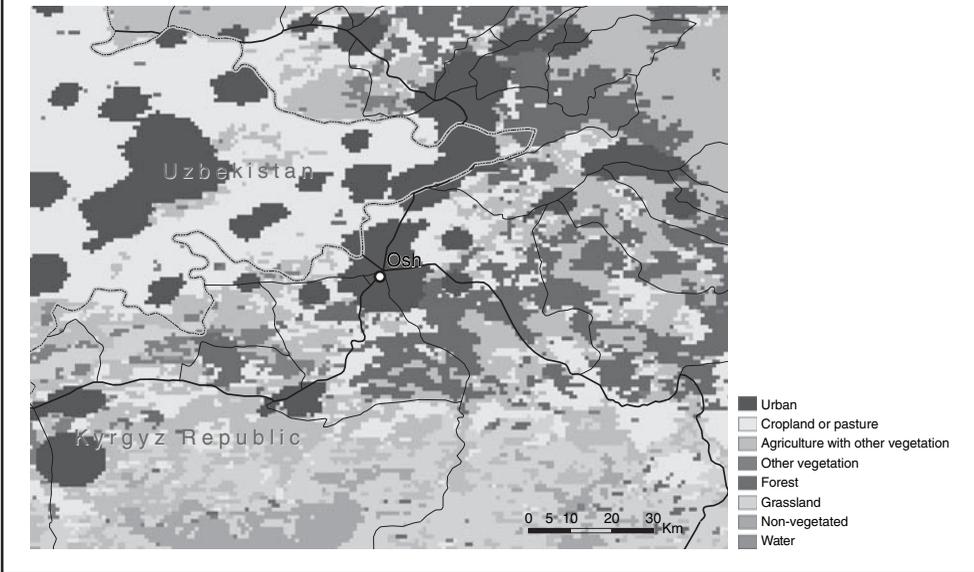


Source: Authors.



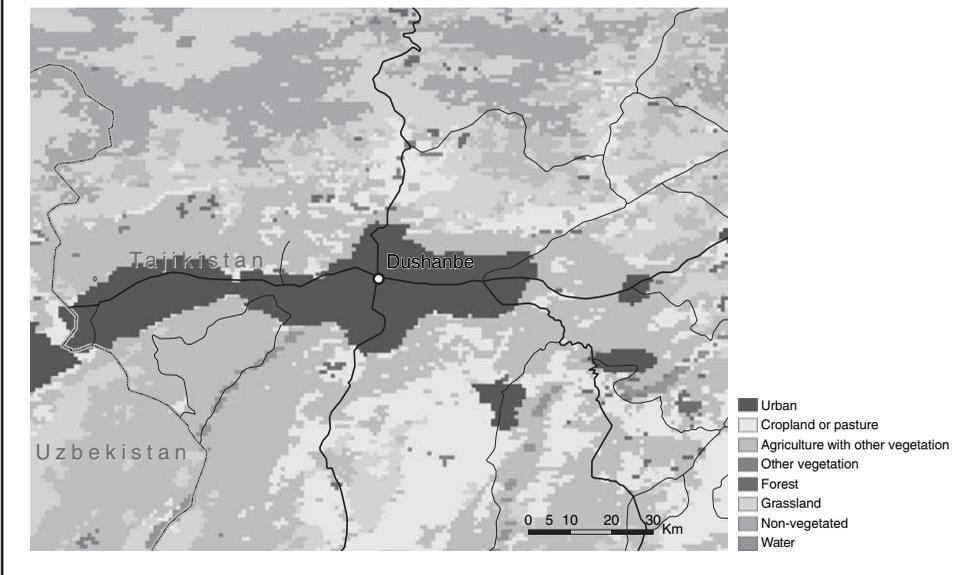
Source: Authors.

Figure A3.4. Land cover around Osh

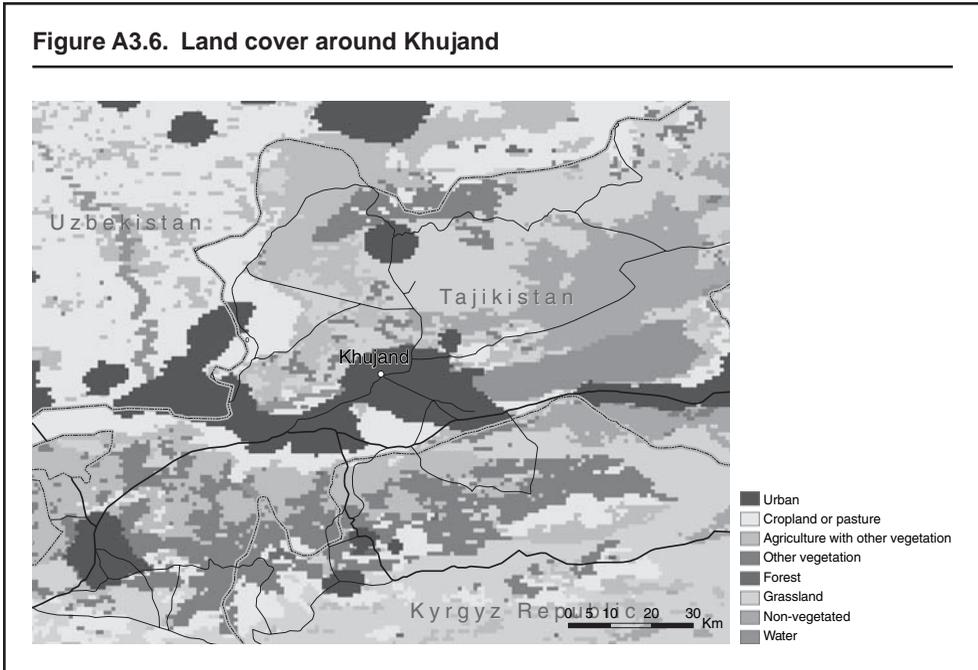


Source: Authors.

Figure A3.5. Land cover around Dushanbe



Source: Authors.



Source: Authors.

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