

6. Regional approach and trade

The dissolution of the Soviet Union into many states of the CIS and the geographic location of the ECA countries adjacent to the Western Europe have significant implications for adopting a regional approach in the operation of infrastructural services to promote internal trade among the countries of the region as well as external trade between the states in the region and Western Europe. Trade with China, Iran, Pakistan and Afghanistan are also significant for the Central Asian Republics. Three aspects of the trade related issues would be discussed in this chapter.

Regional approach to the operation of facilities

First, the location and size of the infrastructural facilities designed and constructed during the Soviet regime became unsuitable for many of the new much smaller FSU states. This was especially so in the energy sector. The energy systems in many of the FSU countries became unbalanced upon their becoming independent states. Some of the small countries could not make the best use of large facilities, unless they could export the output to the other states. Other small states had to depend heavily on energy imports from its neighbors. The complementarities among the hydro, thermal and nuclear power and irrigation facilities which existed during the Soviet rule as a matter of routine allocations within a single centrally planned economy ceased to exist, and the optimal least cost operation of these facilities became a matter of trade among independent states, each of which developed concerns of national energy security. Given the uneven distribution of natural resources and the location of the generation/ production facilities, least cost provision of services depended on the continued adoption of originally designed operating regime supplemented by fair, free and viable energy trade arrangements among the FSU states. The situation relating to the operation of Toktogul Multipurpose Reservoir in Kyrgyz Republic illustrates this point (see Box 6.1)

Countries like Tajikistan and Kyrgyz Republic with large multipurpose reservoirs must export electricity in summer and import electricity and fossil fuels in winter as they do not have adequate thermal capacity or adequate fossil fuels to meet winter power and heating needs. Given the contiguous nature of the FSU countries and the extensive transmission and distribution links both in the power and gas sectors, creating conditions for the orderly exchange of energy based on fair trading arrangements is a matter of high priority. The governments of all four Central Asian states are endeavoring to operate the Central Asian Interconnected Power system as an integrated grid.

Trading takes pace among the national utilities designated for imports and exports, often on the basis of inter-governmental agreements regarding quantities and prices. Throughout the region there is a notable amount of electricity trade on such a basis. Russia is the largest net exporter. Other net exporting countries include Armenia, Bosnia, Bulgaria, Kazakhstan, Kyrgyz Republic, Lithuania, Poland, Romania and Ukraine. Net importers include Albania, Azerbaijan, Belarus, Georgia, Macedonia, Moldova, Serbia Montenegro, Tajikistan and Turkey.

Box 6.1: Water Energy Nexus in the Central Asian Republics

Toktogul reservoir in the Kyrgyz Republic was designed during the Soviet rule as a multi-year storage facility to enable the storage of water inflows in wet years, for irrigation use in downstream countries during the normal and dry years. The irrigation oriented operating regime called for the release of 75% of the annual releases of water from the reservoir in summer months and for restricting the releases during the winter season to 25% of the annual release. Power generation followed the irrigation regime and the excess power produced in summer was fed into the Central Asian Power System for use by Kazakhstan and Uzbekistan and winter deficits in energy in the Kyrgyz Republic was met by allocation of oil, gas and coal needed for heat and electricity from Uzbekistan and Kazakhstan.

Once the Soviet Union was dissolved and these countries became independent, these arrangements came under great strain. Toktogul reservoir came to be increasingly used to meet the power needs of the Kyrgyz Republic, reducing summer releases and increasing winter releases of water causing irrigation problems in summer and flooding problems in winter in the downstream countries. To mitigate this problem, a 1998 Framework Agreement among the upstream and downstream riparian countries sought to compensate the former by the latter for the annual and multi-year water storage services through the purchase of surplus summer electricity from the Kyrgyz Republic and supply of fossil fuels needed for Kyrgyz winter needs. In actual practice the annual agreements concluded under this arrangement proved unsatisfactory and difficult to enforce.

The World Bank carried out an economic analysis which demonstrated that net Syr Darya basin benefits are substantially higher under the irrigation regime of reservoir operation (i.e., a minimum of 6 BCM of water releases in summer and a maximum of 3 BCM of water releases in winter) than under the power regime (i.e., reduced summer releases and increased winter releases). While it duly recognized the major contribution made by the Framework Agreement in an attempt to restore the sensible reservoir operating regime, it pointed out the key areas in which the Framework Agreement should be improved to ensure better implementation. These relate to: (a) the need to pay explicitly for the water storage services in cash; (b) the need to use a multi-year rather than annual perspective to take into account unusually wet and dry years as well as normal years; (c) the need to divide the compensation package for water storage services into a fixed and a variable component; (d) the need to link the fixed portion of the compensation to the value of the Kyrgyz fossil fuel needs for the winter months; and (e) the need to have a monitoring and guarantee mechanism to ensure compliance with agreed obligations.

Further, the Study highlighted the areas for institutional improvement to ensure more effective water and energy coordination, regulation, monitoring and enforcement.

Source: Central Asia Water and Energy Nexus Study, World Bank, 2003

In respect of natural gas the largest net exporter is Russia and other net exporters are Turkmenistan, Uzbekistan and Kazakhstan. Azerbaijan is expected to emerge also a notable exporter soon. All other countries in the region are net importers of gas.

Volume of intra-regional trade in electricity and gas during the 1990s declined from the levels of exchange in the previous decade on account of the inability to pay for imports, and rising concerns of national energy security. Poor financial viability of the importing utilities (caused by high losses, prices below cost recovery level and poor collections) was the major constraint causing the decline in trade within the region, and especially within the CIS. A much greater level of trade governed more by considerations of cost rather than concerns of national energy security would, on the whole, lower the costs of supply, reduce shortages and improve quality. A key prerequisite for such energy trade expansion is the restoration of the financial viability of the importing energy entities.

While trade in electricity is taking place among the national utilities designated to handle imports and exports of power, structural reforms would put the trade on a sustainable and commercial footing. Such reforms in these countries are focused on unbundling the sector and tariffs by function (namely generation, transmission, and distribution) providing non discriminatory transmission access and transparent transmission tariffs.

Such reforms had been carried out substantially in the CEE states to be in conformity with the EU energy related directives and be able to participate in the large EU electricity market. The SEE states are also pursuing reform in this regard and have actually become part of the UCTE covering Western Europe.⁶⁴ They are signatories to the Athens Memorandum (2002) to establish a SEE Regional Energy Market, initially for promoting competition and trade within the SEE energy market, and later for competitive trade in the larger liberalized EU energy market. The competitive trade envisaged under the EU energy directives involves the ability of distribution companies and eligible consumers⁶⁵ to choose their suppliers within and across country borders. They would buy on the basis of negotiated market prices.

Among the CIS countries, reforms of this type are either less advanced or less effective on account of poor payment discipline. Unbundling by function had been done by most countries except Tajikistan. Unbundling of gas and electricity tariffs have also been done in most countries. Competitive wholesale market covers only a small part of the electricity business in Russia. In Kazakhstan most of the sales takes place through bilateral contracts negotiated in a competitive environment between the several generators and large consumers and distribution companies. In most other countries the electricity prices are regulated. Trade across the border is however is between national transmission entities or other nationally specified entities.

Studies are being conducted to explore the possibility of electricity trade among the seven countries surrounding the Black Sea. They cover Bulgaria, Georgia, Romania, Russia, Turkey and Ukraine—all countries with a Black Sea coastline, as well as Moldova. This would involve integrating eventually the CIS interconnected power system of Russia, Georgia, Moldova and Ukraine, the UCTE to which Romania and Bulgaria belong, and the isolated power system of Turkey which will soon become part of UCTE. Preliminary studies have identified complementarities among these systems and the scope for mutual trade among them and a potential scope for export of power from Russia to Europe via Turkey. Pursuit of this would hasten the sector reform process in the CIS to extract the maximum benefit from such trading arrangements (Figure 6.1).⁶⁶

Approach towards partially constructed projects

The second aspect relates to the conditions under which it would make sense to complete the infrastructure projects on which large investments had already been made during the Soviet regime, but which were allowed to languish for want of further funds after the dissolution of the Soviet Union. Because of the large amounts of sunk costs already incurred, they could be completed at relatively low costs compared to new (or Greenfield) projects of similar dimensions. However, in most cases, their dimensions are large in relation to the present and forecast demand in the country and sub-region in which they are located. The completion and operation of such projects would make sense only if most of the output could be exported to the neighboring markets against firm export contracts. Many of these are located in the poorer among the FSU states, which cannot raise the resources needed for such projects. A recently completed World Bank study which evaluated such large hydro and thermal power projects in

⁶⁴ Albania, however, is an exception, which has not yet become a part of UCTE.

⁶⁵ These are consumers with a large annual consumption (such as 25 GWh) to start with, the threshold being lowered in stages to make most consumers eligible in an agreed time frame. Thus eligible consumers would buy at negotiated market prices, while the ineligible or “captive consumers” would buy from the distribution companies at regulated prices. While the generators/ producers would be free to sell a good part of their production at market prices, they will have public supply obligations under which a specified percentage of their production would be directed to the captive consumers at regulated prices.

⁶⁶ *Study of Electricity Trade Potential in the Black Sea Region*- Draft Final report of October 2005 to World Bank by Economic Consulting Associates Ltd, London ,UK

Central Asian Republics and outlined a strategy for the development of these projects to export power to Russia, Iran, Afghanistan and Pakistan initially and also to China eventually illustrates the conditions under which the completion of such projects would make economic sense (Box 6.2).

Figure 6.1: Potential Electricity Trade among Black Sea Region Countries.



Source: Economic Consulting Associates, UK.

Approaches of the above type would enable an electricity export led strategy for the growth of the relatively poorer states. Even in large CIS states like Russia, Ukraine, Belarus and Kazakhstan, demand for electricity is not expected to catch up and exceed the 1989 levels at least for a decade or more. In this context the burden of excess generation capacity in these countries could be turned into a blessing of export capability through rehabilitation of a large number of unutilized generation assets. It would make economic sense, if export contracts with West Europe and other solvent neighbors could be tied up and conditions are created to operate the regional electricity grid (known as “Centrall”) in synchronism with West European Grids (like UCTE, Baltrel and Nordel).

The role of transit countries

This leads us to the third aspect of the trade related discussion, namely the role and significance of the transit countries in the energy trade. Trade activity in the region and between the region and its neighbors has increased significantly during the last several years. Trade in energy, in particular, has a major impact on the economies of a number of countries in the region and Western Europe’s own economy now has a sizable dependence on energy supplies from Russia and other CIS countries that transit through the CIS countries and Central and Eastern Europe.

The energy trade between the CIS countries and Western Europe has been a significant activity for a number of years. In 1989, the Soviet Union supplied about 37% of Europe’s gas, 26% of its oil and 16% of its primary energy. During the transition period, the CIS countries have maintained their share of the

European energy market. In 2003, the CIS countries supplied almost 30% of both oil and gas and almost 20% of primary energy overall.

The CIS energy exporters derive significant benefit from their access to European markets. It is estimated that in 2004, fiscal revenues associated specifically with the export of hydrocarbons amounted to about ten percent of GDP in Russia, six percent of GDP in Kazakhstan and five and a half percent of GDP in Azerbaijan.

Other CIS and Central and Eastern European countries also benefit from this relationship. Ukraine, for example earns about \$1.5 billion per year from the transit of natural gas from Russia to Europe. Belarus, Moldova, Bulgaria, the Slovak Republic and the Czech Republic also benefit from gas transit revenues associated with Russian supply to Europe. Georgia currently earns about \$10 million per year from pipeline oil transit, and in the future, Georgia can expect the transit revenues to increase to about \$50 million a year when the Baku-Tbilisi-Ceyhan oil pipeline becomes fully operational. Georgia will also benefit from the transit of gas from Azerbaijan's Shah Deniz field to Turkey. A number of other countries in the region currently also benefit from oil transit arrangements and there is every prospect that in the future electricity transit will become an activity that benefits both suppliers (in Russia and Central Asia) and transit countries.

There is, therefore, considerable mutuality of interest in this energy trade relationship, and there is every indication that the level of energy trade between the CIS countries and Europe will continue to increase. Oil production in Kazakhstan and Azerbaijan is projected to increase significantly over the next several years resulting in oil exports from them increasing by as much as 90 million tons (or 1.8 million barrels per day⁶⁷) by 2010. Oil production in Russia has reached a level of 458 million tons (or just over 9 million barrels per day) in 2004 and some analysts believe that production would increase to 600 million tons (or 12 million barrels per day) by 2010. This is expected to increase the level of exports by 130 million tons (or 2.6 million barrels per day) mostly to Western Europe.

⁶⁷ World Energy Outlook 2004 of IEA forecasts an export volume increase of 2.0 million barrels per day by 2010.

Box 6.2: Export Possibilities from Partially Constructed Projects in Central Asia

The Regional Electricity Export Potential Study of the Central Asian Republics made a load forecast for the four countries and concluded that through 2020 the incremental demand would be so small that it could be met by rehabilitation of existing generating units and transmission and distribution systems and loss reduction and efficiency improvement programs. It evaluated the technical and economic feasibility of the completion costs of the partly constructed projects and ranked them in the ascending order of the generation cost/kWh from them as shown below:

Rank	Country	Project	Details	Capacity MW	Capital Cost \$ million	Generation cost Cents / kWh economic	Generation cost Cents / kWh Financial
1	Uzbekistan	Talimardjan I	Gas fired TPP	800	100	1.68	1.75
2	Tajikistan	Sangtuda I	Run of river HPP	670	370	1.97	2.44
3	Tajikistan	Rogun I	Storage HPP	1200	785	2.46	2.91
4	Kyrgyzstan	Bishkek II	Gas fired CC TPP	400	196	2.55	2.67
5	Uzbekistan	Talimardjan II	Gas fired TPP	2400	1200	2.76	2.92
6	Tajikistan	Rogun Phase II	Storage HPP	3600	2455	2.83	3.24
7	Kyrgyzstan	Kamabarata II	Run of river HPP	360	280	3.72	3.95
8	Kyrgyzstan	Kambarata I	Storage HPP	1900	1940	7.17	8.54

It identified the possible markets, and compared the sum of the generation costs from the above projects and the associated transmission costs with the marginal generation costs in the export markets, and demonstrated the economic feasibility of exports to Russia, Iran, Afghanistan, Pakistan and China as shown below: (all costs in cents/kWh)

Export Market	Marginal Cost in Export Market	Supply Options As ranked above	Generation cost	Transmission Cost	Landed cost of Imported Power
Afghanistan	3.7	1,2,3 and 5	1.75 to 2.92	0.51	2.26 to 3.43
Iran	3.6	1,2,3 and 5	1.75 to 2.92	0.54	2.29 to 3.46
Pakistan	5.6	1,2,3,5,6 and 7	1.75 to 3.95	0.51	2.26 to 4.46
China	3.6	1 and 2	1.75 to 2.44	0.72	2.47 to 3.16
Russia	3.0	1 and 2	1.75 to 2.44	0.55	2.30 to 2.99

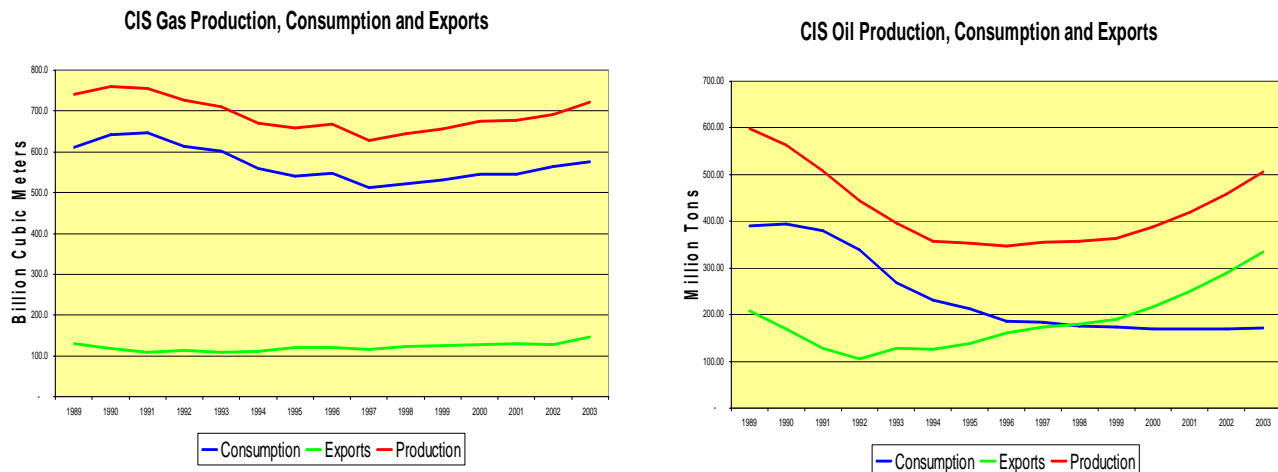
In choosing projects for any given export market, proximity was also taken into account.

The completion of the first ranked Talimardjan thermal project is handled by Uzbekistan itself and it is expected to be commissioned very soon. For the second ranked Sangtuda I hydro power project a public private partnership strategy was suggested under which equity investments would be made by Tajikistan, Russia and the other importing governments, as well as private investors and IFIs. Debt funds would be raised from commercial markets on the strength of the export contracts and on the basis of guarantees from IFIs. Tajik government, RAO UES of Russia, and AES of USA are actively following up on the suggestion and are working with IFIs to structure the transaction appropriately, tie up the export contracts with Pakistan and Afghanistan and cooperative arrangements for the construction and operation of the generation and transmission facilities and the handling of export operations. Iran has concluded a preliminary agreement with Tajik government for equity investments for a downstream Sangtuda II project. RAO UES of Russia is also considering the possibilities of investment in Kambaratta and Rogun Hydro projects.

Source: Central Asian Regional Electricity Export Potential Study, World Bank, 2005

Russian gas production is expected to increase from the level of 608 BCM in 2003 to the level of 655 BCM by 2010 and 898 BCM by 2030. Its net exports are expected to rise from 169 BCM in 2002 to 182 BCM by 2010 and 274 BCM by 2030. This takes into account the considerable amount of gas which Kazakhstan, Turkmenistan and Uzbekistan are committed to supply to Gazprom. Of the total gas exports of Russia, 119 BCM went to Western Europe in 2003. This is projected to increase to 137 BCM by 2010 and 155 BCM by 2030.⁶⁸

Figure 6.2: Production, Consumption and Exports of Oil and Gas in CIS 1989-2003



Russian electricity exports in 2004 amounted to 18.8 TWh and export receipts amounted to \$460 million. Over 57% (10.8 TWh) of this went to Finland. Norway got 188 GWh. Six CIS countries (Azerbaijan, Belarus, Georgia, Kazakhstan, Moldova and Ukraine) as well as China and Latvia were the other notable importers. In the export receipts 69% came from Finland, Norway and China.⁶⁹ In the previous years Russia had also exported to Turkey, Poland and Estonia. RAO UES of Russia has set up a special subsidiary RAO Inter (in which it holds 60% of the equity and the balance of 40% is owned by Rosenergom, the owner and operator of all nuclear plants in Russia) to promote exports to FSU states and to Europe. A recent forecast by the company indicates that exports from Russia might reach 40 TWh by 2020. RAO Inter also sets up subsidiaries in the importing countries and through them gets involved in handling retail sales to maximize its receipts and possibly to improve the system integrity in those countries or provinces.

Russia seeks the Nordic markets through Baltic ring arrangements (known as Baltrel) and markets in Turkey through Georgia, and markets in Moldova, Romania and the Balkans (constituting the so called second UCTE systems, which have recently been synchronized with UCTE of West Europe) through Ukraine. It also has long term interests in supplying profitable markets in China, South Korea and Japan making use of the large hydro resources in the Far East Russian regions. It also aspires to synchronize its grid with West European systems in the not too distant a future. In pursuit of its aims RAO UES has been acquiring generation and distribution assets in Armenia, Georgia, Ukraine, and Kazakhstan. RAO Inter is also eyeing the possibility of importing inexpensive hydropower from CAPS, partly to balance the regional systems in Russia like Omsk and partly to augment its pool of exportable surplus. Acquisition of the generation assets at Ekibastuz in Kazakhstan and in Moldova, offers to buy summer power from the Kyrgyz Republic and Tajikistan, and offers of help to construct Sangtuda, Kambarata and Rogun hydro

⁶⁸ These data are from World Energy Outlook 2004 of IEA

⁶⁹ Annual Report of RAO UES of Russia, 2004

power projects would appear to be part of this strategy. Operation of CAPS in synchronism with the Russian system and the new 500 kV North South line in Kazakhstan should greatly enhance the export possibilities of power from CAPS to Russia. It will however be driven by the competitive nature of the cost of power from CAPS. If Russia succeeds in exporting its electricity to the UCTE countries at prices around 4.0 cents/kWh then it would provide a rationale for import of power from CAPS at prices higher than Russia's own cost of generation. Russia's recent ratification of the Kyoto Protocol may also be a reason for Russia to be looking at importing hydroelectricity from the CARs.

This trading relationship however does face risks and the overarching risk is the potential for failure of infrastructure facilities in the transit countries. Such a failure would create significant transit risks and would increase the potential for geopolitical interference with commercial trading relations. The challenge for the CIS exporters, led by Russia, has been to find ways to mitigate these risks and this goes a long way to explain certain Russian actions over the last several years:

- In the case of gas, for example, the decision to construct the Blue Stream gas pipeline across the Black Sea to Turkey rather than take advantage of lower cost overland routes through the South Caucasus was driven by past problems in dealing with transit arrangements, most notably with Ukraine. For the same reason Russia has been anxious to secure an equity interest in the gas sectors of transit countries. It has, for example, succeeded in doing so in Moldova and some of the countries in Central and South-East Europe (Bulgaria, Estonia, Latvia, Lithuania and Romania) and is currently very interested in negotiating an arrangement with Ukraine that will allow it to take an active role in managing gas transit through participation in a consortium to manage the trunk transmission lines. Russia is also looking at the potential to construct the North Transgas pipeline to connect Russia and Germany via the Barents Sea.
- In the electricity sector, RAO UES has been building or is attempting to build an equity position in the domestic power sectors of countries along potential access routes to international markets.

Concerns related to the availability of infrastructure services along the supply routes have arisen in the past. As an example, there have been occasions when Ukraine has disrupted the flow of gas to certain markets as a result of appropriating gas supplies from the trunk transmission line to meet domestic needs. It is certainly possible to envisage a scenario in which a major failure in the electricity sector in a transit country could lead to interruptions in energy transit activities either as a result of physical problems (such as lack of electricity supply to compression or pumping stations) or as a result of overt government action to draw attention to its problems. One can also envisage the situation in a gas producing country where gas volumes destined for export markets are forcibly diverted to make up shortfalls in the domestic market.

The European consuming countries do not yet appear to have highlighted this as an issue of potential major concern. Russia, however, has identified this as a concern and is pursuing equity investments in the energy sectors of several countries in the region. (Figure 6.3)

A key positive element of Russian involvement is that it is a potential source of capital for investment. The risks associated with energy transit will be more thoroughly mitigated, however, if other stakeholders, such as the European importing countries, also make funding available for the investment needs for the rehabilitation and proper upkeep of the systems in the transit countries and help them evolve into "good transition countries" within the meaning of the term defined by Professor Paul Stevens of the University of Dundee.⁷⁰ While technical assistance is welcome (particularly in the form of grants) what is really needed is direct equity investment support.

⁷⁰ Peter Thomson, The Outlook for Energy Trade Between the CIS Countries and the Western Europe, Presentation made in Leipzig, Germany, March 8, 2005

Figure 6.3: Russian Interest in FSU Energy Sector



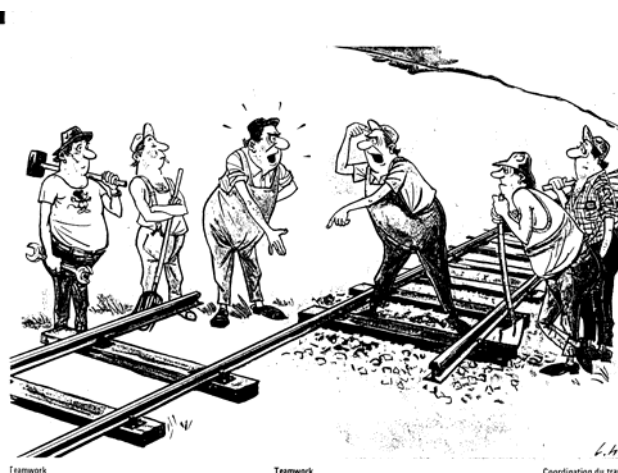
Trade and transport facilitation

The regional approach discussed in relation to the energy sector above is equally important in the transport sector. Trade, a key driver of growth, is dependent on the availability of efficient transport network to reduce transportation and transaction costs and to improve the competitiveness of the country. The direction of trade from CEE is towards EU. This is increasingly the case in respect of SEE states too. The CIS states trade mainly among themselves, the destination of the goods from the smaller states being generally Russia, or Belarus or Ukraine. The Central Asian states trade with Russia through north-south rail links and they also have the potential to increase trade with China, Iran, and Afghanistan if transport links are strengthened.

In most cases, the goods transported by road and rail have to travel great distances and transit through many borders before they reach the destination. In order to reduce the “effective distance to the market”, action is needed not merely in such areas as, proper maintenance of the transport network (especially along the export corridor), and adoption of policies for ensuring inter-operability and promoting inter-modal competition, but also in respect of ensuring access to the transport network based on transparent, fair and stable access fees, harmonizing, standardizing and streamlining customs and border crossing procedures and standardization of rules relating to vehicles axle load, computerizing customs records and information systems, and improving communication on the basis of a regional cooperative approach (Figure 6.2). The latter set of actions (which go under the rubric of trade facilitation) would reduce the time for border crossing, and non-tariff costs to trade and transport and help eliminate or minimize smuggling and the pervasive corruption at the border crossings and contribute to increased trade flows. Wilson, Luo and Broadman estimate that if the ECA countries reach half-way to the EU-15 average

capacity for trade facilitation, their intra-regional trade gains would amount to \$94.5 billion and that their global trade gains could amount to \$178 billion.⁷¹

Figure 6.4: Need for Interoperability and Harmonization in Export Corridors in ECA



Source: Vision for Integrated Trade and Transport Corridors, a presentation by Paulus Guitink, World Bank, June 17, 2005

Under the TACIS program the EU provided technical assistance to 12 ECA countries (including Southern Caucasus) to promote such a regional approach and cross border cooperation. The EU has also funded the technical assistance for the Corridor Europe Caucasus Asia program which promotes the development of a transport corridor on a east-west axis from Europe across the Black Sea through the Caucasus and the Caspian Sea to the Central Asia.

The World Bank had supported the first Trade and Transport Facilitation in South East Europe initiative (TTFSE-I) of 2000 and, based on the successes of that program and lessons learnt, is currently preparing operations to support to a broader initiative (TTFSE-II) (Box 6.3).

Box 6.3: The World Bank Experience in Trade and transport Facilitation in SEE States

The first regional cooperative trade and transport facilitation initiative was designed by the World Bank at the request of six countries of SEE (Albania, Bosnia-Herzegovina, Bulgaria, FYR Macedonia, Croatia and Romania) and the related MOU was signed by them in February 2000. Two more countries (Moldova and Serbia-Montenegro) joined the program later. The program led by the World Bank and supported by EU, USA and other European bilateral donors, focused on: (a) reducing non-tariff costs to trade and transport; (b) reduce smuggling and corruption at border crossings; and (c) improving customs administration and other border control agencies (such as Border Police, Veterinary Control, Phyto-Sanitary Control, Road Taxes). The projects in three countries have been completed and three more would be completed in 2005. Significant benefit flows are already apparent. Bulgaria reports: (a) 81% reduction in clearance time at the three pilot project border crossings; (b) increase in customs revenues by 2.7 times; (c) growth in foreign trade volumes by 2.14 times; and (c) a 17.5% reduction in customs expenses /customs revenues ratio.

For the whole program, annual cost savings in 2004 attributable to the waiting time reduction in the 30 border crossing and inland clearance terminals have been estimated at about \$64 million. During 2001-2004, trade for all

⁷¹ From *Disintegration to Reintegration: Eastern Europe and Former Soviet Union in International Trade*, World Bank (forthcoming).

countries increased by 92%, customs expenses/customs revenue ratio improved by 25%, and customs revenue increased by 2.34 times. The average waiting time (in all border crossings covered by the pilot projects) decreased by 72%.

The TTFSE-II has a broader scope based on the lessons of TTFSE-I and would cover such aspects as interoperability, multi-modal considerations and would also consider more fully rail transport related issues. Similar efforts in rail transport (along Corridor IV and X) would have the effect of more than halving the total transport time, by speeding up processing and cutting down waiting times.

Source: (1) Presentations made in the TTFSE conference in Zagreb on June 17, 2005 and (2) Progress Report for the Program (2004)

The lessons learnt in SEE are also being applied in formulating trade and transport facilitation projects for Georgia and Azerbaijan.