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## Infrastructure investments in Eastern Neighbours and Central Asia (ENCA)

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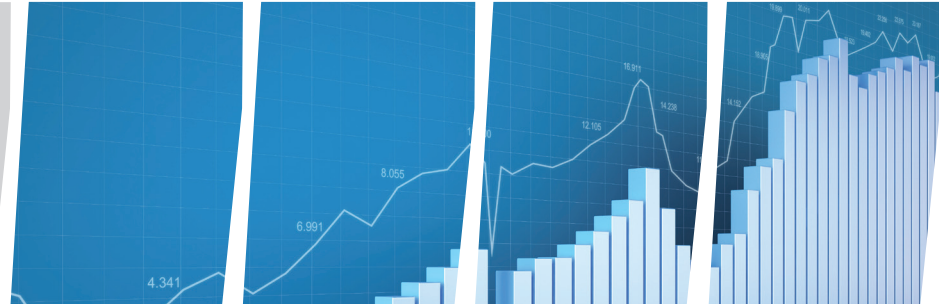
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# Infrastructure Investments in Eastern Neighbours and Central Asia (ENCA)

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**Infrastructure Investments  
in Eastern Neighbours and Central Asia  
(ENCA)**

## **KEY MESSAGES**

- The infrastructure in the ENCA region is a bottleneck for higher economic growth.
- The quality of infrastructure services in the ENCA region demonstrates that the sector is lagging behind in comparison with other regions.
- Investments in infrastructure in the region are seriously impeded by the macroeconomic and regulatory environment.
- Investments in infrastructure followed different trajectories in the two groups of countries – oil and gas importing and exporting countries. In particular, during 2003-2011 oil and gas importing countries have been investing on average 2.8% of GDP, while exporting countries – 2.3% of GDP. Oil and gas importers invested more on average through the whole period, but suffered deeper cuts after the global financial crisis. Moreover, oil and gas importers started from a lower base in terms of infrastructure provisions and those that made market-based reforms are successful in attracting private capital, while oil and gas exporting countries did less do promote private investments in the sector.
- Non-project finance was the main source of investments both for oil and gas importing and exporting countries. However, recently non-project finance has been declining. The opposite dynamic was observed in project finance, as the volume has been increasing recently in both groups of the countries.
- In the funding structure of the infrastructure projects, equity investors, IFIs and commercial banks take the leading role. Among the IFIs, the EBRD has the largest share of overall IFIs' investments in infrastructure. However, recently both the ADB and the EIB have been increasing operations and strengthening their presence in the region.
- Project finance in the region is characterized by low leverage levels as the equity investments on average account for 40% of the projects funding.
- Transport and energy sectors have been the most successful in terms of attracting investments. The volume of public projects in the transport has significantly increased in the recent years mostly due to the large-scale projects financed by the IFIs. In the energy sector the finance was arranged mostly in the form of corporate non-project finance and public projects.
- Despite of the recent entrance in the market, the EIB has managed to get one third of the IFIs market in Moldova and Ukraine. In other countries of the region, the EIB presence is relatively small, but will increase fast due to the expansion of the EIB operations in the region.

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## Introduction

Infrastructure is crucial for generating economic growth, promoting competitiveness and decreasing poverty. In particular in developing countries accumulation of the infrastructure stock and improvement of the service quality are proved to affect positively long term economic growth (Calderon, 2009). There is an increasing perception that inadequate infrastructure can hold back growth and, thus, impede economic development (Calderon et al., 2010). In transition economies, the impact of infrastructure has large positive effects through higher productive efficiency, and is estimated to be high if the institutional reforms are in place (Sugolov et al., 2003). Therefore, developing infrastructure is one of the key tools to support and promote economic growth.

During the 20<sup>th</sup> century, infrastructure has been owned and operated by the public entities as it was considered as a public good. However, during early 1990s the constraints on public finance, caused by higher social expenditures, delayed the maintenance of the existing infrastructure and construction of new assets (OECD, 2011). The infrastructure companies in the form of state-monopolies failed to provide adequate investments, often suffering from poor service controls, chronic revenues shortages, non-payments, etc. Therefore, the state ownership of the infrastructure assets appeared to be less efficient. As a result, many countries conducted divestiture of the infrastructure assets with the aim to improve efficiency and foster new technologies of the network utilities. It was commonly perceived that private companies have more financial, technical, and managerial resources and are better able to control costs, respond to consumer needs, and adopt new technologies and management practice. Privatization significantly improved physical performance and service quality in many developing and transition economies. On the back of revolutionary technological changes and the sector's substantial scope for competitive entry, the telecommunications sector have experienced the most dramatic gains, though other infrastructure sectors have also advanced (World Bank, 2004).

However, the wave of privatization in 1990s did not appear to be best solution to improving the infrastructure. The new models that implied high reliance on private capital appeared to be less reliable in the conditions of financial crises and stock market collapses. Moreover, unbundling of the infrastructure services appeared to have limited competition benefits due to the small scale of the markets in many developing and transition economies. Therefore, there is on-going discussion on how the infrastructure should be managed, owned and operated.

In addition, the sources of investment in infrastructure appear to be at the core of the discussions. According to the OECD report (2007), global infrastructure needs to 2030 are estimated to be about \$ 50 trillion. In addition, the mitigation and adaptation of the effects of climate change over next 40 years would cost around \$ 1 trillion per year (IER, 2008). In particular, introduction of "clean cooking facilities" will cost \$ 48 billion per year – more than five times the level of 2009 (IEA estimates that \$ 9.1 billion was invested globally in extending access to modern energy services (2011)). Such levels of investments are estimated to be hard to achieve by the public finance alone. There was a widespread recognition that the infrastructure gap is impossible to cover without attracting private capital. However, the financial crisis also impeded capacity of the traditional sources of private capital such as banks as they are facing capital and liquidity constraints. Multilateral lending institutions have increased their support to the infrastructure sector during the crisis but do not provide the ultimate solution to the infrastructure gap (OECD, 2011). The principal recommendations proposed by the OECD (2007) were mainly focused on ensuring new approaches to finance in order to attract private capital to the sector (e.g. encourage public-private partnerships (PPPs) or investments from pension funds).

These global policy issues are also relevant to the transition economies which can draw on the lessons and experience gained in other regions. In transition economies, infrastructure performance was deteriorating due to underinvestment, caused by the failure of governments to establish cost-reflective tariffs, especially during periods of high inflation. Under state ownership, prices fell to levels that could not cover the investment

needed to meet growing demand. This problem was put on hold as long as governments were able to provide subsidies and receive funding from international financial institutions. But years of underfunding and failure to address systemic problems led to a significant deterioration of infrastructure assets and resulted in substantial welfare losses. Infrastructure inefficiencies constrained domestic economic growth, impaired international competitiveness, and discouraged foreign investment (World Bank, 2004). Consequently, for transition economies investing in infrastructure is one of the key measures to ensure long-term growth.

Therefore, the paper is aimed to spotlight the key infrastructure investments issues and trends in the Eastern Neighborhood and Central Asia (ENCA) region. As mentioned above, infrastructure investment is an increasingly important issue for transition economies, i.e. for the ENCA countries. Under-investment in the past and a reorientation of trade make infrastructure inadequate to the current needs and constitute a barrier to economic growth (World Bank, 2006). In this context, we have taken stock and look at the evolution and composition of infrastructure finance in ENCA, main funding institutions and IFIs that work in the region. The paper is structured in three chapters – 1) region's macroeconomic and infrastructure overview, 2) infrastructure key funding institutions, 3) country analysis. The conclusion highlights the main findings of the current research and raises issues for the future research in this field.



## 1. ENCA Region Overview

### 1.1. Macroeconomic Overview and Economic Structure

The ENCA region is a diverse group of countries which share a common connection as states of the former Soviet Union. Since the break-up of the Soviet Union many of the countries have made substantial progress in economic growth and transition. The challenges of transition were even greater in Central Asia where the newly sovereign states had to establish new administrative and political systems at a time of dramatic economic collapse, and in the case of Tajikistan, civil war. Moreover, the level of intra-regional cooperation after the break-up of the Soviet Union has proved insufficient to maintain the integrated regional systems of transportation, energy and natural resource management. Therefore, an enhanced level of regional cooperation will be required to establish a sustainable basis for transition and development in the long term.

Macroeconomic performance in ENCA countries is mostly pre-defined by the structure of their economies. Provisionally, the ENCA region can be divided in two groups – oil and gas exporting countries, basically Azerbaijan, Russia, Kazakhstan, Turkmenistan and Uzbekistan, and oil and gas importing countries, like Armenia, Georgia, Moldova, Kyrgyz Republic, Tajikistan and Ukraine.

#### *Oil and Gas Exporting Countries*

Economic structure of ENCA oil & gas exporting countries (O&G Ex) is characterized by strong dependence on natural resources, especially hydrocarbons. Firstly, developments in the hydrocarbons sector have spill-over effects on other sectors of economy. Revenues from the energy exports put current accounts into surpluses and support the budgets by the transfers from the hydrocarbons sector. For example, in Azerbaijan huge transfers from the State Oil Fund of the Republic of Azerbaijan (SOFAZ) help to finance social spendings and infrastructure projects (according the estimations of the Economist Intelligence Unit, in 2012 the state budget deficit – excluding transfers from the SOFAZ – is estimated at 20.9% of GDP). Monetary policy and foreign exchange regime are controlled in the manual mode as the economies are secured by the huge currency inflows and, thus, have strong external positions (official foreign exchange reserves cover on average more than 10 months of future imports – see Annex 1). Ample revenues from commodity exports continue to limit the incentives for undertaking far-reaching economic reforms. Therefore, any liberalisation in these sectors is hardly to be envisaged in the near future.

Secondly, turbulence on the global financial markets and Eurozone crisis do not have significant impact on the macroeconomic performance as these economies are to a certain extent isolated from world financial markets. However, they are considerably affected by the price movements in international commodity markets. Therefore, deepening of the crisis in the Eurozone can lead to a fall in oil prices and dampen the global demand and, thus, have a significant negative impact on the outlook of oil exporting countries. From the other side, the expanding role of China in the region helps the countries to diversify their export routes and increase the sales, providing a pool to the economic growth. Moreover, in the next few years almost all oil-exporting countries in the region plan to develop new oil fields (like Kashagan oilfield in Kazakhstan or Shah Deniz in Azerbaijan), therefore fast growth in gas and oil sales will cause public income to expand quickly. Moreover, investment to build hydrocarbon capacity and production, and new pipeline projects, will provide an additional prop for economic growth.

Thirdly, investments in O&G Ex countries are mostly financed from public sources predefined in the governmental programs. For example, recently Uzbek government announced its plan to invest about \$47 billion in infrastructure development and industry modernization. As mentioned before, huge transfers from the energy sector, make these plans affordable for the oil and gas exporting countries. However, it is worth noting

that the main target for investments is energy infrastructure that is justified by the economic profits the energy sector brings to the whole system.

### *Oil and Gas Importing Countries*

Economic systems of ENCA oil & gas importing countries (O&G Im) are predefined by the dependence on energy imports, that affects their current account and budget balances. Moreover, the recent crisis has caused significant aggravation of macroeconomic performance. Budget deficits were considerably deepened in most of the countries forcing them to revise their public investment plans and to speed up the privatization.

External position of these countries remains vulnerable due to huge current account deficits that plunged below 15% of GDP in some of ENCA countries (e.g. in Armenia in 2009). As the gross reserves started to reach critical levels (less than 3 months of imports coverage), the countries were pushed to ask for external financial assistance. As a result, since 2008 all the O&G Im countries in the region became enrolled into the IMF programs. The level of government debts in the region is not critical (only in Kyrgyz Republic the governmental debt reached 60% of GDP in 2010).

Another important feature of the economic systems of these economies is the economic links with Russia. Russia remains one of the main destinations for migrant workers in the region, where remittance flows provide significant support to the economic growth in some ENCA countries. For example, in Moldova and Kyrgyz Republic workers remittances equal to about 20% of GDP, while in Tajikistan – almost 40% of GDP. Thus, macroeconomic performance of Russian economy affects other ENCA economies through remittance flows.

In terms of investments the economies remain dependent on budget funds for infrastructure repairs and capacity-building. In these countries, the majority of infrastructure companies are still in state ownership and this puts additional pressure on the budget. According to the IMF estimations<sup>1</sup>, quasi-fiscal deficit of gas and electricity sectors considerably varied in ENCA countries ranging from 0.6% of GDP in Armenia<sup>2</sup> to more than 8% in Ukraine (IMF, 2006). The governments continue to invest in infrastructure, mostly due to the loans from multilateral organisations and foreign investment.

Investment climate in the region is considered to be weak; however certain countries managed to make some progress and climbed in the Ease of Doing Business rating (e.g. Kyrgyz Republic and Georgia). Under the guidance from multilateral organisations, some countries appear to be successful in tackling corruption and improving business environment. However, the close links between political and business circles, and the fact that the politics in these countries usually relies on these circles for support, present a significant obstacle to more open and transparent policies in this region.

Therefore, macroeconomic performance in the ENCA region is highly dependent on hydrocarbons sector, commodity markets dynamics and external funding support (for oil and gas importers). Hydrocarbons exporters do not face significant financial constraints and, therefore, are less motivated to attract external funding for infrastructure development. Meanwhile gas and oil importing countries with weaker macroeconomic performance have become much more eager to cooperate with international institutions regarding infrastructure investments (For more details see section 2.2.).

## **1.2. State of Physical Infrastructure in ENCA**

### *Soviet Era Infrastructure Legacy*

ENCA countries inherited from the Soviet era a legacy of extensive interconnected infrastructure facilities. There are a number of issues in the infrastructure sectors that make the ENCA region different from other

<sup>1</sup> The estimations are computed following the end-product approach, and reflect the countries' variable record in tariff policies, bill collection practices, and loss prevention.

<sup>2</sup> Estimations are provided for 2002 only.

parts of the world. Firstly, infrastructure facilities from the soviet time lacked efficient insulation, system controls, etc., resulting in considerable technical losses. A significant percentage of consumers was not provided with meters, and bills on utility services were made on the basis of consumption norms relating to the size of the dwelling and the number of persons occupying it. Moreover, in some countries even the import/export meters for gas were not installed resulting in the need for a great deal of complex calculations to determine the volume of gas imported or consumed. The billing norms for gas and heat almost always tended to be substantially lower than the actual level of consumption and were often subject to abuse. In addition, the infrastructure facilities were designed without adequate environmental safeguards making the rehabilitation of these assets nowadays even more costly.

Secondly, infrastructure enterprises were not organized as financially sustainable entities and were dependent on state budgets for their operational and investment resources. Moreover, since the years of independence, maintenance and rehabilitation works were postponed, mainly due to insufficient investments and widespread corruption resulting in a deterioration of asset quality (World Bank, 2006). During the transition period consumers and industrial demand on infrastructure services significantly decreased, leading to huge reduction of revenues and excess of infrastructure capacities.

Thirdly, infrastructural facilities tended to be of large dimensions, as they were designed to meet the demand in large sub-regions covering several constituent republics, rather than the demand in each republic. For example the Toktogul reservoir in Kyrgyz Republic was designed to provide water for irrigation in Uzbekistan and south Kazakhstan during summer and feed the electricity produced into the Central Asian Power Grid covering Kyrgyz Republic, Tajikistan, Uzbekistan and South Kazakhstan with a central load dispatch center located in Tashkent. During winter, when water was stored in the reservoir, the power needs of Kyrgyz Republic were met mostly by the supply of electricity from the regional grid or gas and coal from Uzbekistan and Kazakhstan. These arrangements which worked smoothly when they were all a part of the Soviet Union, became difficult to maintain when they all became independent republics each with its own national energy self-sufficiency objective. What was previously a matter of national allocation of resources became a matter of international agreements and trade exacerbating: (a) summer water shortage for irrigation and winter flooding problems of the downstream countries; and (b) summer power export problem and winter power and fuel shortage problems of the upstream countries (World Bank, 2006).

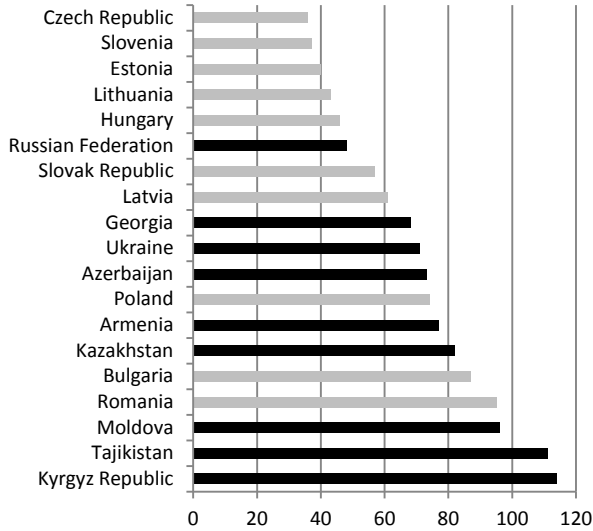
#### *Quality and Stock of Infrastructure in ENCA*

According to the Global Competitiveness Report 2011, ENCA countries rank relatively low for infrastructure. *Figure 1.1.* shows that almost all ENCA countries (except Russia) have a rank below 60 (out of 142 countries ranked) and some of them – even below 100 (Tajikistan 111 and Kyrgyzstan 114, respectively). In comparison with NMSs, which had been at almost the same level of the infrastructure facilities development before the collapse of the Soviet Union, ENCA countries are considerably lagging behind.

The quantity of infrastructure is lagging behind also in comparison with other regions (*Figure 1.2.*). Key physical indicators of the infrastructure sectors in the ENCA region demonstrate that the sectors are less developed in comparison with other region, in particular with the EU new member state (NMS-10) and the EU South Neighbourhood region (FEMIP<sup>3</sup>). Only 90% of population have access to the improved water source in ENCA, while FEMIP regions performs slightly better (92%) and NMS reaching almost 100% of population with access. Quality of the energy infrastructure is also the lowest in ENCA region as the level of electric power transmission and distribution losses exceeds 15%, while in NMS it is below 10%. Due to extremely low indicators of mobile network coverage in Central Asia (e.g. in Turkmenistan less than 15% of population have access to the network), ENCA indicator of telecommunication sector development is much lower than in the FEMIP and NMS regions, where 96% and 99% of population have access to the mobile phone network, respectively. Almost 85% of roads are paved both in the FEMIP and the ENCA regions, while NMS slightly lagging behind due to low levels in Baltic countries (in Latvia only 21% of roads are paved, in Estonia and Lithuania – 29%).

<sup>3</sup> At the EIB South Neighbourhood region is considered within the Facility for Euro-Mediterranean Investment and Partnership (FEMIP).

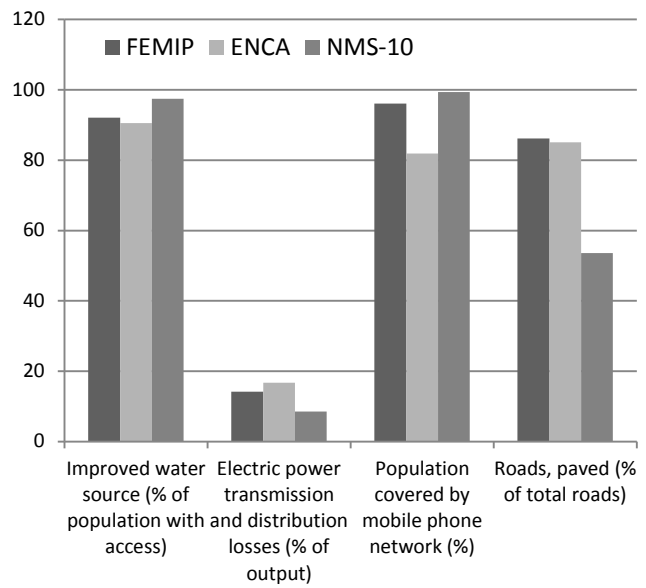
**Figure 1.1. Global Competitiveness Report: Infrastructure, country\* ranks in ENCA and NMS-10, 2011**



Source: World Economic Forum

\* No data for Belarus, Uzbekistan, Turkmenistan

**Figure 1.2. Infrastructure Indicators, average by region, 2009**



Source: World Development Indicators

In terms of sector reforms, ENCA countries are considerably lagging behind the EU New Member States according to the EBRD transition indicators (*Figure 1.3*). The average value of the transition indicators of four infrastructure sectors for ENCA countries is estimated to have medium transition gap, while for EU NMS the average value is above 3.0 meaning small transition gap. The telecommunication sector in the ENCA demonstrates better transition progress, while the transport (both “Roads” and “Railways” indicators) and water and waste water sectors are least reformed.

The comparison of the progress of reforms across groups of countries also demonstrates slight difference between the oil and gas exporting and importing countries (*Figure 1.4*). In all sectors, except ‘railways’, O&G Im countries are more successful in liberalising the infrastructure sectors. In particular in ‘roads’ the transition gap for the O&G Im appears to be medium, while for the O&G Ex – large.

Figure 1.3. EBRD Transition Indicators\*, average for the region, 2012

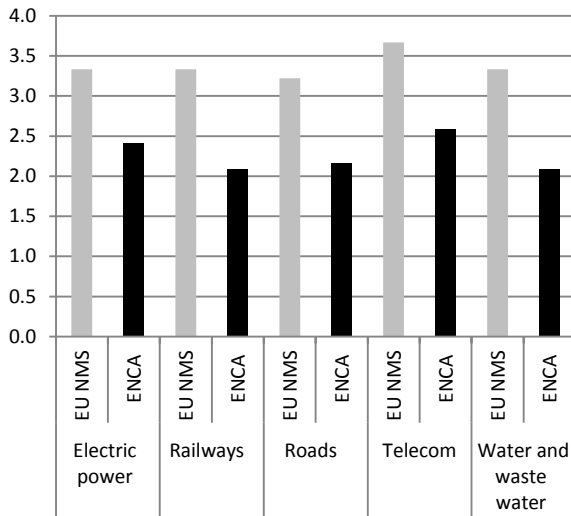
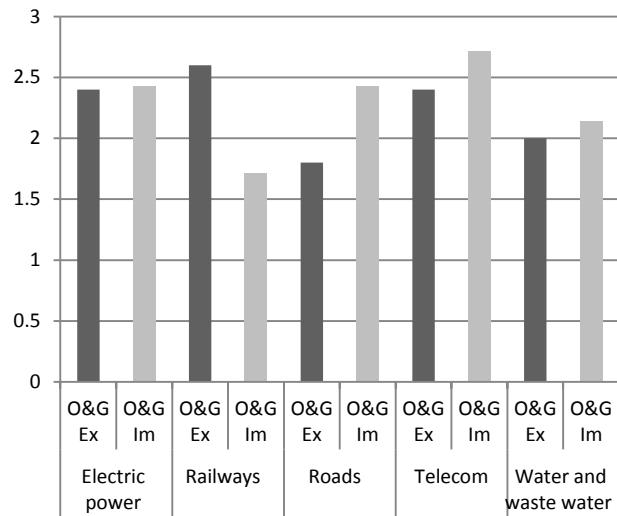


Figure 1.4. EBRD Transition Indicators\* in ENCA, average across country groups, 2012



Transition gaps:  
 from 1 to 2+ : Large  
 from 2+ to 3+ : Medium  
 from 3+ to 4 : Small  
 4+ : Negligible

Source: EBRD Transition Report 2012, p.9

These issues suggest that there are not only tremendous needs to invest in infrastructure in ENCA to meet current growth needs, but there is also a high need to reform the sectors and to make infrastructure facilities more efficient and environmentally sustainable.

### 1.3. Economic and Regulatory Constraints for Infrastructure Investment in the Region

Investments in infrastructure in the region are seriously impeded by the macroeconomic and regulatory environment in the region. Exchange rate volatility, high inflation and rising fiscal deficits are the key macroeconomic constraints for the investments in the region. Moreover, regulation issues and poorly-developed capital markets pose additional obstacles for investments in infrastructure sectors. The regulatory environment appears to be weak as well due to the drawbacks in the legislation concerning private capital participation in the infrastructure sectors. In addition, political risks are present in each country of the region making investments riskier and more expensive.

Despite their structural differences, it appears that all the countries in the region face the same problems in terms of macroeconomic risks. In particular, after outset of the financial crisis all the countries experienced inflations spikes and national currency depreciation (Figure 1.4-5). Recently macroeconomic performance has improved, except Belarus where CPI reached the new maximum of 60% of annual growth and the currency depreciation remains high.

The fiscal position worsened as well. A number of countries experienced a sharp decrease of revenues that resulted in steep growth of budget deficits in 2009 (principally in energy importing countries). Since then fiscal positions improved, but remain vulnerable. As a result the gross government debt has elevated in a number of countries in the region. Although the debt level in terms of GDP didn't reach the critical 60%, there was an upward dynamic, particularly in the O&G importing countries. For example in Armenia and Ukraine the level of government debt surged from less than 15% of GDP in 2007 to more than 30% in 2012.

Apart from worsened macroeconomic performance in the region, regulation that affects business conduct appears another impediment to investments in the region. In particular, according to the Ease of doing business rank (Doing Business, 2012) eight countries in the region are below 50 notches, with four out of them falling below 100<sup>th</sup> notch (See Annex 4). The regulation issues concerning investing in infrastructure range from capital controls to tariffs regulations. Poor transparency in the transactions can hardly enable meaningful accountability. Moreover, political influence impedes the market reforms in the infrastructure sectors as the regulatory bodies remain subject to possible political influence or influential private investors (World bank, 2006).

Financial intermediation in the ENCA countries has been deepening and the share of domestic credit in terms of GDP has been on a rising trend although it slightly decelerated in the recent years (see Annex 1). However, the financial systems still remain fragmented and under-developed lacking long-term funding and suffering from non-transparent regulation and weak protection of shareholders, what limits investors' participation in the ENCA financial markets (Golodniuk, 2005).

Figure 1.4. Inflation, CPI (% change yoy)

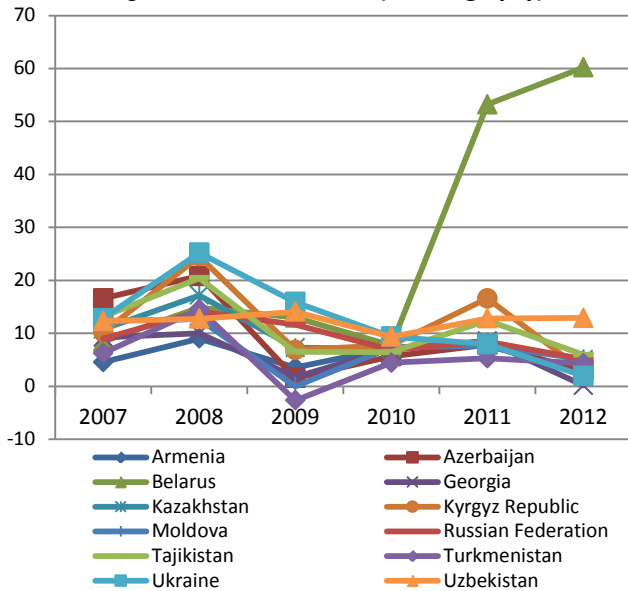


Figure 1.5. Exchange rate annual growth, NC per \$

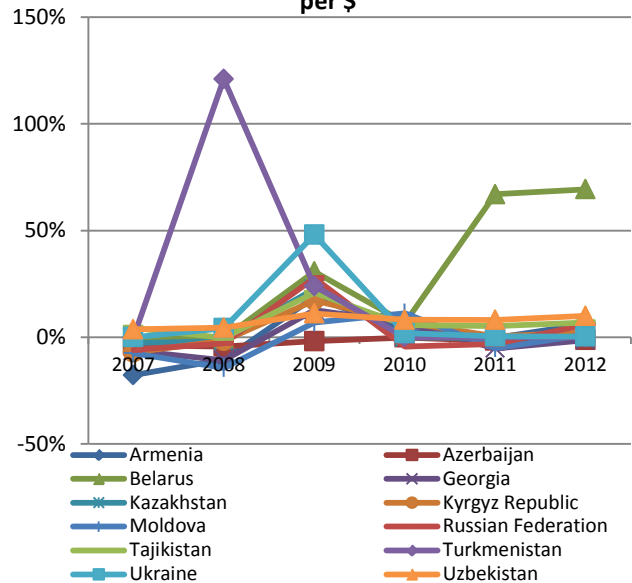


Figure 1.6. General government gross debt (% GDP)

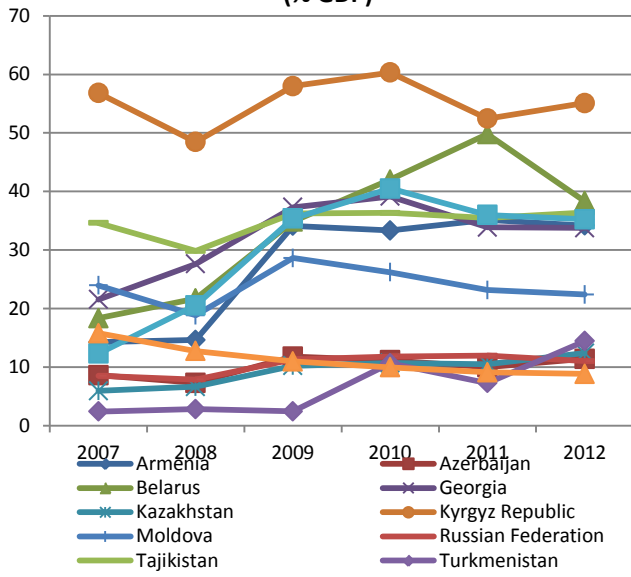
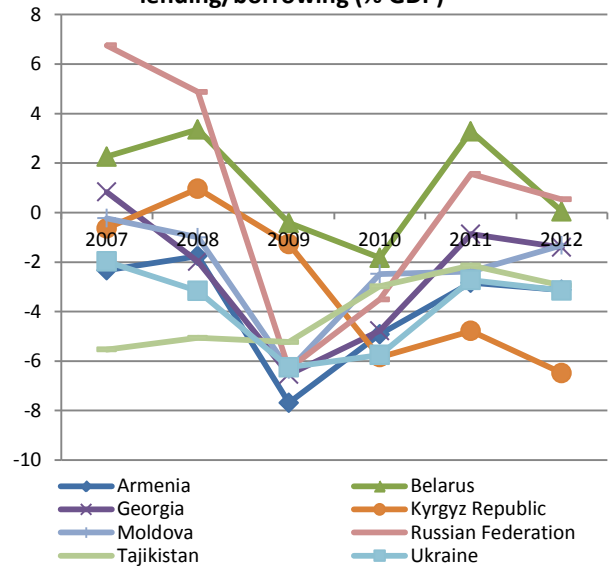


Figure 1.7. General government net lending/borrowing (% GDP)



Source: IMF WEO

## 2. Infrastructure Finance Trends

This section provides estimates of infrastructure funding for the ECNA region, by year, country, sector and source of financing. Investment volumes in the region are estimated basing on the available data from the main IFIs<sup>4</sup> that operate in the region, infrastructure project databases<sup>5</sup> and state statistical agencies of ENCA countries (where possible)<sup>6</sup>.

### 2.1. Definition of Infrastructure Financing

Our definition of infrastructure includes fixed investment in four sectors: transport, energy, water/sewerage and telecommunications. Thus, we do not consider social infrastructure such as schools and hospitals (see *Chart 1*).

We are able to breakdown infrastructure finance into five components: public and private non-project funding as well as three types of project finance: public and private and Public-Private Partnerships (PPPs)/concessions (*for more details - see Annex 2*).

We use public gross fixed capital formation in the four infrastructure sectors to estimate total public infrastructure funding. As we have additional information available on public projects we are able to show the share of total public GFCF financed through project finance.

*Chart 1. Scope of the research*

Project Types	Sectors	Countries
<ul style="list-style-type: none"> <li>• <b>Public Projects</b> (i.e. sovereign loans)</li> <li>• <b>Private Projects</b> (i.e. corporate loans)</li> <li>• <b>PPPs/Concessions</b></li> <li>• <b>Public non-project finance</b> (i.e. budget funds)</li> <li>• <b>Corporate (or Private) non-project finance</b> (i.e. own funds of the companies)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Energy</b> <ul style="list-style-type: none"> <li>• Electricity/ thermal power generation/distribution/ supply grid</li> <li>• Natural gas/oil pipelines</li> <li>• District heating</li> <li>• Hydropower and other renewables</li> <li>• LNG</li> </ul> </li> <li>• <b>Transport</b> <ul style="list-style-type: none"> <li>• Roads</li> <li>• Railways</li> <li>• Airports</li> <li>• Aircraft</li> <li>• Ports</li> <li>• Shipping</li> <li>• Urban transport</li> </ul> </li> <li>• <b>Water and sewerage</b> <ul style="list-style-type: none"> <li>• Flood protection</li> <li>• Sanitation</li> <li>• Solid waste management</li> <li>• Water supply</li> <li>• Wastewater treatment</li> <li>• Irrigation and drainage</li> </ul> </li> <li>• <b>Telecommunications</b> <ul style="list-style-type: none"> <li>• Mobile access</li> <li>• Fixed access</li> <li>• Internet broadband</li> <li>• Satellites</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Eastern Neighbourhood</b> <ul style="list-style-type: none"> <li>• Armenia</li> <li>• Azerbaijan</li> <li>• Belarus</li> <li>• Georgia</li> <li>• Moldova</li> <li>• Ukraine</li> </ul> </li> <li>• <b>Central Asia+ Russia</b> <ul style="list-style-type: none"> <li>• Russia</li> <li>• Kazakhstan</li> <li>• Kyrgyz Republic</li> <li>• Tajikistan</li> <li>• Turkmenistan</li> <li>• Uzbekistan</li> </ul> </li> </ul>

As to private involvement in infrastructure funding we refer to project databases to estimate the volume of infrastructure projects funded through private sources (private project and PPPs). To this figure we add

<sup>4</sup> European Bank for Reconstruction and Development, International Finance Corporation, European Investment Bank, Asian Development Bank, World Bank and Eurasian Development Bank. ).

<sup>5</sup> Database of the World Bank on Private Participation in Infrastructure (PPI), Infrastructure Journal and Projectware database.

<sup>6</sup> Some of ENCA countries do not provide relevant information.



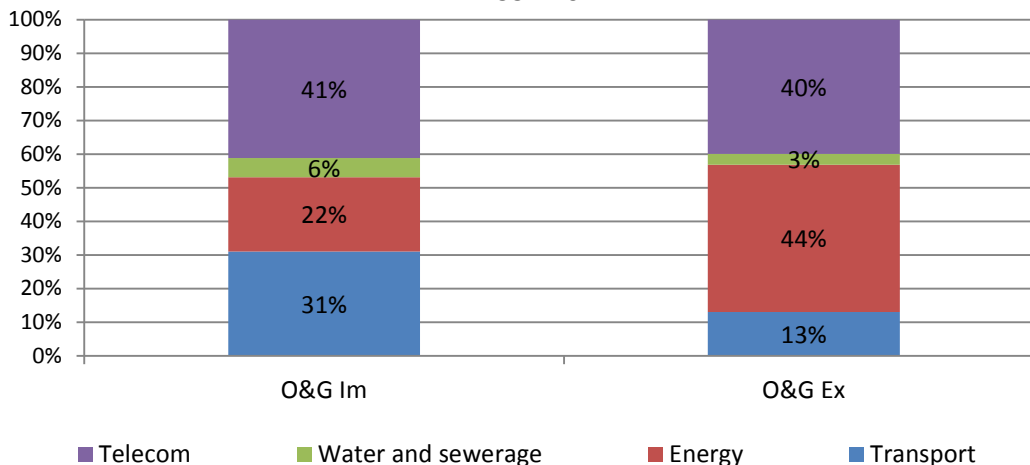
private non-project financing of infrastructure which is based on a database on private infrastructure financing provided by the World Bank. Annex 2 discusses in more detail the definition of our five components of infrastructure financing.

In order to track presumably actual disbursements of the project amount, it is assumed that on average project amount is disbursed within 5 subsequent years after the year of financial closure of the project. Project finance refers to transactions of raising funds through international capital markets, from IFIs, etc., but excludes export credit agency facility financing, which is considered as trade finance.

## 2.2. Evolution and Composition of Infrastructure Investments in ENCA

The total volume of infrastructure projects collected within the scope of this research amounted to \$225 billion<sup>7</sup>, the ¾ of which were implemented in the oil and gas exporting countries<sup>8</sup>. The overall sectoral structure of investments differs in the two groups of countries, although in two groups about 40% of overall investments was spent on telecommunications. In the O&G Ex countries investments were mostly in the energy infrastructure (See Figure 2.1.), while O&G Im – in the transport. In terms of source of finance, \$123 billion were invested at the own expense of the companies (i.e. corporate non-project investments), \$79 billion were channelled through public projects, \$25 billion were invested in the form of private projects, and only \$8 billion – in the form of PPPs and concessions.

Figure 2.1. Investments in Infrastructure by sector, % in total volume over 1994-2012



The dynamic of infrastructure investments in the region are estimated to be significantly different between two groups of countries (Figure 2.2.). In particular, during 2003-2012 oil and gas importing countries were investing on average 2.8% of GDP. The dynamic of infrastructure investments reflected the overall macroeconomic performance in those countries. Therefore, in after-crisis period the volume of investments decreased significantly – from 3.5% of GDP in 2008 to 2.2% in 2012. O&G Ex countries, despite less stringent financial constraints, on average were investing less than hydrocarbons importing countries (in terms of GDP). During the observed period, exporting countries invested on average 2.3% of GDP. The impact of the crisis on the investments was not as obvious as in O&G Im countries and the dynamic differs from country to country. Nevertheless, on average the level of investments in after-crisis period remained almost unchanged – about 2.3-2.5% of GDP.

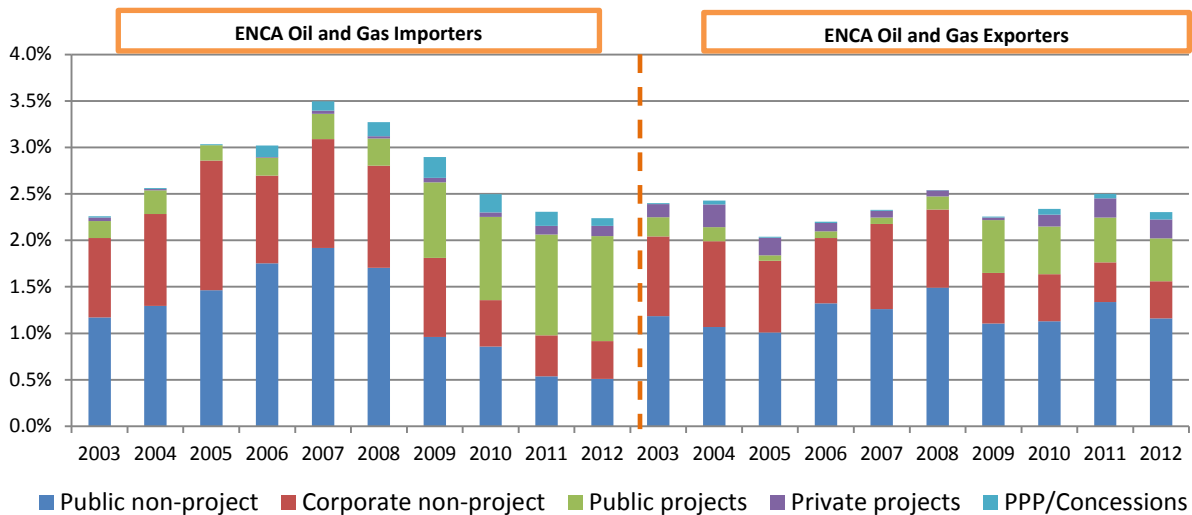
<sup>7</sup> Excluding public non-project investments, the data for which was collected through the IMF estimates on public gross fixed capital investments.

<sup>8</sup> Infrastructure investment in Europe was examined in EIB (2010). The 12 old EU member states invested approximately 3.9% of GDP in infrastructure over the period 2006-2009. However, these estimates followed a different methodology (particularly as regards private corporate investment) and are not directly comparable to the GDP ratios presented for ENCA.

Non-project finance was the main source of investments both for oil and gas importers and exporters – about 2% of GDP. In recent years, there is declining dynamic of non-project finance due to both decreasing public and private non-project investments. As it was already mentioned, basing on the IMF data on gross public fixed capital formation, we estimated the volume of public investments in infrastructure sectors (see Annex 2). For the majority of countries the volume of public gross fixed capital formation in terms of GDP was falling down, what reflected on the public infrastructure investments dynamics in both hydrocarbons exporting and importing countries. The trend is also justified by the macroeconomic performance.

Corporate non-project finance in importing countries was increasing in 2003-2007 due to the on-going privatization process and, thus, increasing investments into capacity development of the privatized assets. However, starting from 2008 the volume of corporate non-project finance began to decrease – reaching only 0.4% of GDP in 2012 (in contrast to 1.2% in 2007). For O&G Ex countries the same trend is observed – private non-project investments fell from 0.9% of GDP in 2007 to 0.4% in 2012.

Figure 2.2. Infrastructure Finance in ENCA, in % of GDP



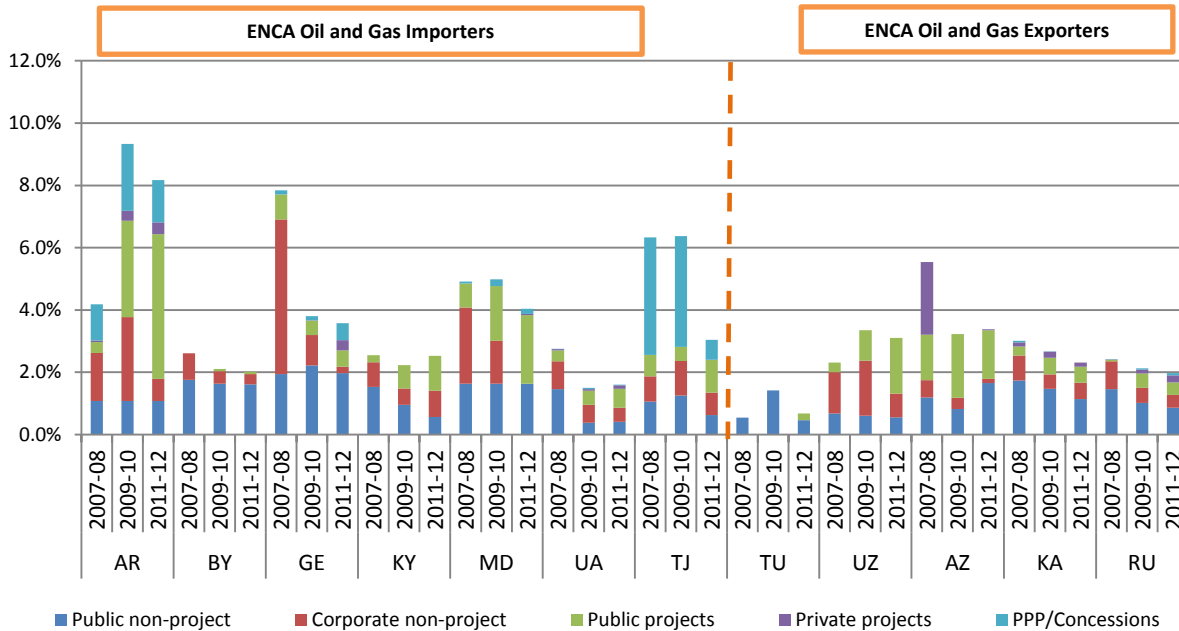
Project finance has been increasing in the region. In O&G Im countries project finance grew from 0.4% of GDP in 2007 to 1.3% in 2011. In O&G Ex countries project finance grew even faster (from 0.1% of GDP in 2007 to 0.7% in 2012) as the countries have launched number of energy pipeline projects with significant project costs (See Section 4). In both groups project finance has been growing due to increasing number of public projects. However, it should be noted that for oil and gas importers this mostly reflects the increasing number of sovereign loans from different IFIs, while for hydrocarbons exporters – mainly projects financed by the public entities (e.g. Eastern Siberia-Pacific Ocean Oil Pipeline, the equity for which is provided by Russian public company Transneft). Private projects are not significant in the O&G Im countries, unlike in O&G Ex, where the share reached 0.2% of GDP in 2011. There were some concession projects in O&G Im countries (mostly in Armenia and Tajikistan), while in O&G Ex, in particular in Russia, few PPP projects were recorded; nevertheless their share remains quite insignificant in two groups of countries.

**2.3. Infrastructure Investments by Country and by Sector**

In the cross-country comparison of the infrastructure investments in terms of GDP there are large differences among countries (Figure 2.3.). For example, in Armenia and Georgia in different time periods there was a

surge of investments up to 8% of GDP, while in Ukraine investments never exceed 4% of GDP<sup>9</sup>. Huge spike of investments are mostly observed in the countries like Tajikistan and Armenia due to the small size of this countries, therefore the level of the investments in infrastructure in terms of GDP appears to be high. Nevertheless, this indicates the impact of the infrastructure projects for the development of small economies. In the energy resource-rich countries the level of investments does not exceed 3% of GDP with Azerbaijan being the only exception due to its large-scale pipelines projects (see Section 4.5.).

Figure 2.3. Infrastructure Finance as % of GDP, by countries

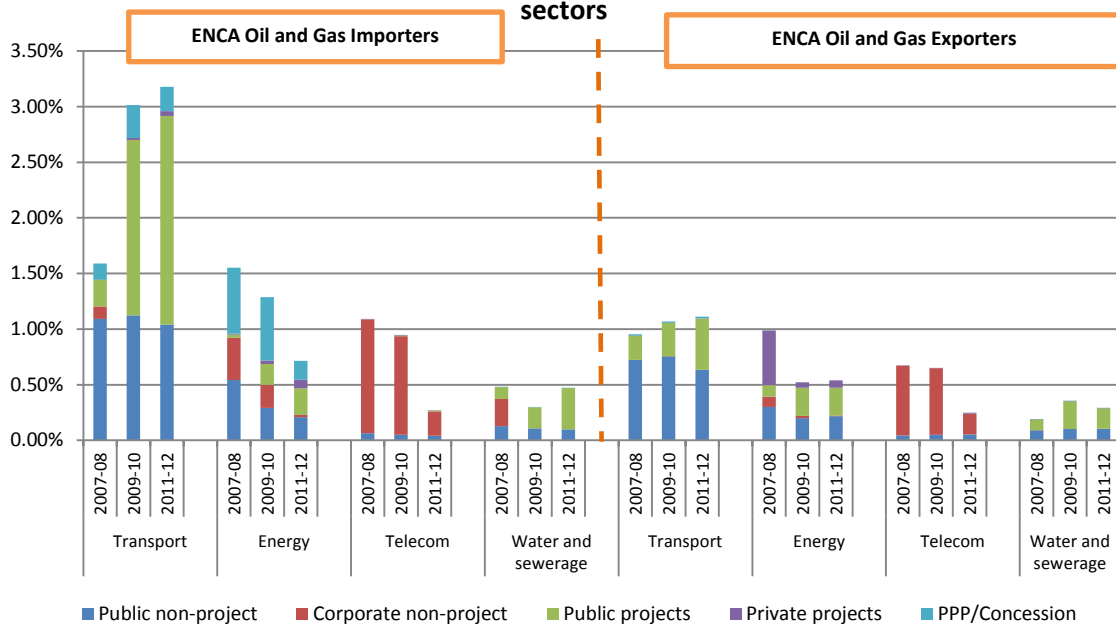


Apart from different volumes of funds invested in infrastructure in the two groups of ENCA countries, the breakdown by sources of investments differs across sectors as well (Figure 2.4). The *transport sector* in ENCA is mostly publicly-owned; therefore public non-project finance is the main source of funding. However, there is a growing share of public projects in the two groups of countries. Concession projects in transport were tracked mostly in Moldova and Armenia. In Russia, there were concession and PPP projects, however due to its low volume in terms of GDP, it does not constitute a big share in the sectoral structure of investments. In the *energy sector*, due to different structures of the sector, the sources of funding differ across countries. In some countries energy companies have been privatized recently; therefore an increasing number of energy projects is privately funded in the form of project and non-project finance. There were also a few concession projects mainly in Armenia, Georgia and Tajikistan. The telecommunication sector is mainly privately-owned in both groups of countries; consequently, private non-project finance was the main source of investments in the sector. Water and sewerage almost entirely relies on public non-project funding (World bank, 2004).

The dynamic of investments across sectors has been downward in recent years, except in the transport sector. In the two groups of countries there was a growing number of public projects to finance transport development. However, it should be noted that the volumes of investments appear different in two groups due to the smaller size of economies in O&G Im countries and, therefore, larger share of investments in GDP terms. In addition, in the O&G Ex countries investments in the energy sector remained unchanged during last 4 years (except Azerbaijan – see Section 4), unlike in O&G Im countries where it decreased significantly. Investment growth in the water and sewerage sector in two groups of countries were not hit by the macroeconomic developments, and remained almost on the same level due to increased funding in the form of public projects.

<sup>9</sup> According to the data available Turkmenistan has the lowest level of investments in fact, however, due to the lack of data on this country, the analysis of the investments in the country can be misleading.

Figure 2.4. Infrastructure Financing in ENCA, by type of projects and by sectors



### 3. Project Finance Funding Institutions

#### 3.1. Methodology

The estimates in this section are based on the Infrastructure Journal database that discloses data of the project transactions. However, one should keep in mind that this database contains only big-scale projects and the data on the additional finance or refinancing of the project, what is not included in the main database of projects<sup>10</sup>. Therefore, it does not include projects in small countries like Armenia, Moldova, Georgia, etc., which are usually small-scale. Nevertheless, this data demonstrate the main financing institutions that can be of high value for the purpose of this research. The overall picture of the main financing institutions can be biased as the database does not include sovereign loans by the IFIs, but only IFIs participation in big-scale projects. Therefore, it is not very representative for taking this funding structure for granted, but it gives approximate picture of what institutions are involved in financing large-scale infrastructure and what are their sector preferences. The following analysis is based on transaction details for 21 projects that are considered to be infrastructure projects according to the definition described in Section 2.1. The overall volume of projects is estimated at \$ 26 billion.

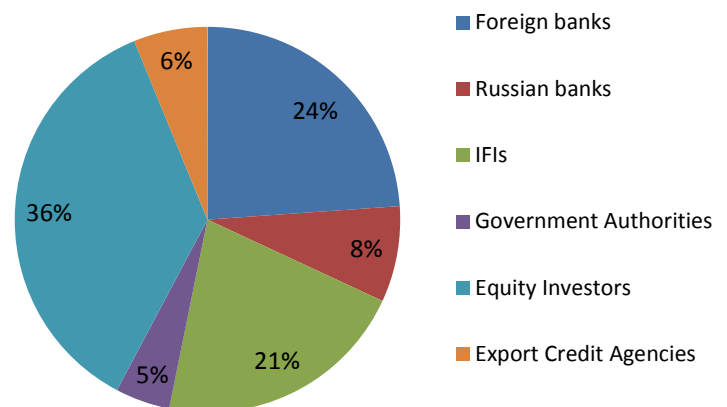
Keeping in mind the above-mentioned concerns, the main financing institutions are split up in the following groups: equity investors, IFIs, commercial banks (Russian and foreign-owned), governments and export credit agencies.

#### 3.2. Structure of Investments by Institutions

Figure 3.1. demonstrates the average structure of investments, where 36% of the projects are sponsored by equity investors, the rest is provided from various sources. In particular, foreign and Russian commercial banks provide together 32% of funding, followed by the IFIs (21%), Export Credit Agencies (6%) and governments' support (5%).

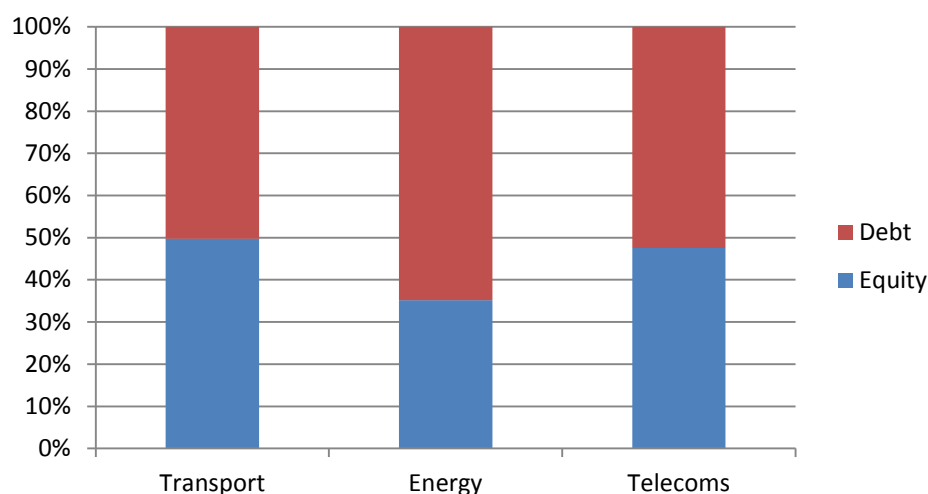
The analysis suggest that the average debt/equity ratio for the projects covered equals 60/40 (Figure 3.1.). According to the leverage levels applied in World Bank working paper on funding sources for Infrastructure projects with private participation in developing countries (Izaguirre et al., 2011), the estimated level of the ratio suggests that on average infrastructure projects in the region are poorly-leveraged. For example, the lowest level of leverage was recorded for Pulkovo Airport PPP project, where Debt-Equity ratio equalled only 32/67.

Figure 3.1. Financing Institutions



<sup>10</sup> The idea behind the main database is to apply the same logic to all the project data available. As the data on additional finance or refinancing for projects not covered by the Infrastructure Journal is not available in other sources, this data is not considered in order not to lead to misleading conclusions based on the fragmented data.

Figure 3.2. Debt-Equity Ratios Across Sectors



Source: Infrastructure Journal Database

### 3.3. Finance by Equity Investors

*Equity Investors* represent mainly project sponsors and include companies of different ownership structure – either public or private corporates, or investments funds specializing on infrastructure. *Public corporate* companies take the biggest stake in infrastructure investments in the form of sponsors' contribution. For example, Gazprom is the key sponsor of the Nord Stream gas pipeline project, while Kazakhstan state-owned energy company KazMuniasGas was the only equity investor in the Kashagan Oil Field Bridge project. *Private equities* are companies that own infrastructure assets (e.g. Russian telecommunication holding Sistema), construction companies (e.g. Vinci) or fully-privatized infrastructure companies.

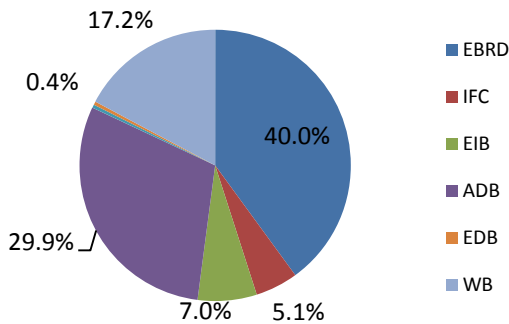
In 2010, the first *private equity infrastructure fund* - Macquarie Renaissance Infrastructure Fund (MRIF) – was created in the region with the aim to invest directly in infrastructure in Russia and other key CIS markets (Macquarie, 2012). The fund equals to \$630 million, which are contributions from the following investor: Vnesheconombank (the Russian State development bank), the IFC, the EBRD, Eurasian Development Bank, Kazyna Capital Management (a subsidiary of the Kazakh sovereign wealth fund), Macquarie and Renaissance investment companies. Portfolio of the Fund is composed of the following companies:

- *Brunswick Rail Ltd. (Russia)*: \$US125 million. Brunswick Rail is freight transport company which operates lease contracts for railcars.
- *GSR Energy (Russia)*: US\$83 million. GSR supplies both heat and electricity to more than 100 industrial customers located in St. Petersburg region Kolpino. The fund's investment will finance the company's expansion via the construction of an energy efficient combined heat and power plant to meet increasing demand.
- *Russian Towers (Russia)*: US\$50 million. The company is an independent operator and developer of telecommunications tower infrastructure in Russia, serving the mobile telecommunications industry. The investment is part of a \$100 million equity investment round in which MRIF is acting as a Lead Investor. The Company's current shareholders, UFG Private Equity and the EBRD, have invested an additional \$15 million alongside MRIF in this round.

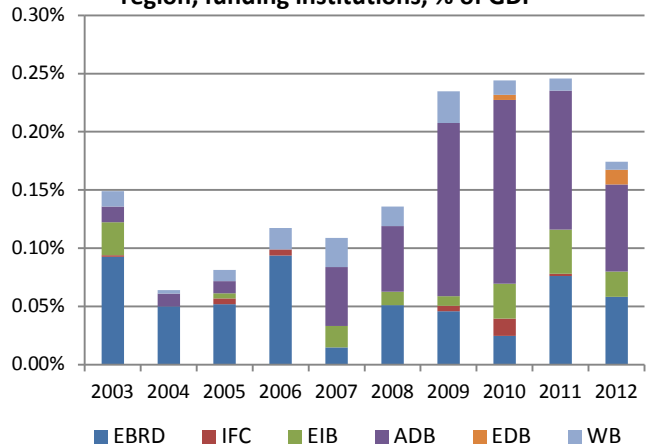
### 3.4. Finance by IFIs and Local Development Institutions<sup>11</sup>

There are six IFIs active in financing infrastructure in the region (*Figure 3.2*). The European Bank for Reconstruction and Development (EBRD) is the main creditor providing 40% of total IFI funding over the last 20 years. The second largest player is the Asian Development Bank (30%), followed by the World Bank<sup>12</sup> (17%) and the European Investment Bank (7%). The IFC projects in infrastructure were quite small on the regional level and took the share of 5%. Recently-established Eurasian Development Bank (EDB – see below) has recently started to launch infrastructure projects in the region.

*Figure 3.2. Investments by IFIs*  
(by the volumes of funding during 1994-2012,  
% in total)



*Figure 3.3. Infrastructure Finance in ENCA region, funding institutions, % of GDP*



The funding of infrastructure through IFIs has evolved over time (*Figure 3.3*). The World Bank was the main creditor of the infrastructure projects in the ENCA region after the collapse of Soviet Union when funding from international institution and capital markets for the ENCA region was still unavailable. Infrastructure funding from the WB reached more than 0.1% of ENCA GDP in the late 90s. The EBRD is the largest player since 2001, at a time where funding from the WB was already of less macroeconomic significance. The ADB appeared as a significant source of infrastructure funding in 2000. It has considerably increased the number of operations in the region since 2007. Funds provided by the EIB are of macroeconomic significance only starting from 2007, but since then have increased considerably. In fact, the EIB was already the third largest IFI funding infrastructure in the region in 2011, reaching roughly 0.04% of ENCA GDP. The total volume of the IFC projects in infrastructure in the ENCA region is estimate to be less than \$1 billion over the observed period.

Sectoral preferences of infrastructure investment of the main IFIs do not differ considerably. Transport and energy infrastructure appear to be the most attractive sectors for the IFIs funding. In particular, almost 63% of the ADB projects were transport projects; 45% - of both the EBRD's and the EIB's projects in the region. The energy infrastructure appears to be a priority for the EIB as more than 45% of the portfolio compose energy projects, while the share of energy projects in the EBRD portfolio equals to 36%, and is estimated to be much lower in the ADB portfolio (only 18% of the ADB projects in the region). However, ADB is focused on the developing water and sewerage infrastructure. The water sector has the biggest share in the ADB portfolio (18% of projects), in the EBRD's portfolio, as well as the EIB's, the share of water projects equals to 10%.

<sup>11</sup> Due to the operational differences between the institutions there are likely to be differences in the time lag between commitment and disbursement of funds and therefore the share of specific institutions in total commitments should be treated with caution.

<sup>12</sup> World Bank in this context refers to IBRD and IDA. Only loans (not grants) provided by the IBRD and IDA are considered within the scope of this research. IFC is considered separately.

The telecommunications sector has significant share only in the EBRD portfolio (9% of projects), while ADB and EIB did not invest substantial funds in this sector.

Domestic development institutions have recently started to appear in the region. Firstly, Russia has developed three funding institutions active in some ENCA countries: VEB bank (on the basis of former Vneshekonombank), Sberbank and VTB bank (Dmitriev, 2012). Secondly, Kazakhstan has also established a Development Bank, fully owned by the State Welfare Fund of Kazakhstan "Samruk-Kazyna". Apart from providing export loans to Kazakhstani companies, the bank is involved in small-scale infrastructure projects (DBK, 2012). Thirdly, to boost their idea of a Eurasian Economic Union, Russia and Kazakhstan have founded the Eurasian Development Bank (EDB), aiming at promoting growth and infrastructure in the region. In addition, the China Development Bank has announced its intentions to invest in infrastructure projects in the ENCA region (mostly in Central Asia). In fact, it announced in June 2012 a \$10 billion loan for investments in energy and transport (The Hindu, 2012).

### 3.5. Finance by Commercial Banks

Commercial banks do not constitute a big share of infrastructure finance in the ENCA region due to the high risks and decelerating rate of return of infrastructure projects. Nevertheless, commercial banks provide a bunch of risk capital as subordinate debt. In the ENCA region investments by commercial banks into infrastructure assets was negligible, however according to the Infrastructure Journal (IJ) Database the volumes of investments has been growing since 2007.

The main private banks that invested in infrastructure were mostly subsidiaries of the European banks. However, recently finance from the Russian banks has been growing as well. Among the European banks, the largest volumes of investments were made by BNP Paribas, Société Générale, UniCredit, ING Bank, Intesa San Paolo. As commercial banks invest mostly in financially viable projects, the oil and gas sector was the most attractive for private investments in the ENCA region. In particular, the biggest project that received investments from the commercial banks was Nord Stream Gas Pipeline (Phase I), a natural gas pipeline project between Germany and Russia that reached financial closure in 2010. Total project volume equalled to \$7.6 bln, 30% of which was equity capital financed by Gazprom, German-based chemical company BASF, German energy company E.ON, French utility company GDF Suez and Dutch state-owned gas infrastructure company Nederlandse Gasunie. Debt composed \$ 5.3 billion, arranged in four syndicated loans with 10- and 16-year maturity. The debt facility was financed by the 23 commercial banks<sup>13</sup>, majority of which were European banks.

Another project that received substantial support from the commercial banks was Sakhalin LNG project in Russia. The project is aimed to deliver liquefied natural gas to customers in Japan, Korea and the North American West Coast. Gazprom and Royal Dutch Shell were the key sponsors of the project. Subordinated debt was arranged by the US, Japanese and European banks<sup>14</sup>. The overall volume of the loan from the banks equalled to \$1.6 billion. In addition, an export loan of \$3.7 billion was provided by the Japan Bank for International Cooperation (see below). The project cost amounted \$5.3 billion (debt-equity ratio equalled 100/0).

Commercial banks also provided support to PPP projects in Russia. For example, Pulkovo Airport PPP with VTB Capital and Fraport as the key sponsors received from the commercial banks about \$ 260 million. The project was substantially supported by various IFIs - Eurasian Development Bank, Nordic Investment Bank,

<sup>13</sup> In particular, Bank of Tokyo-Mitsubishi UFJ, BBVA, Credit Suisse, Dexia Group, DZ bank, Espirito Santo Investment, Fortis bank, Natixis, Nordea, Raiffeisen, West LB, Bayern LB, BNP Paribas, Caja Madrid, Commerzbank, Crédit Agricole Group, Deutsche bank, ING bank, Intesa San paolo, Mediobanca Banking Group, SMBC, Société Générale, UniCredit participated in debt facility for Nord Stream project.

<sup>14</sup> Bank of Tokyo-Mitsubishi UFJ, BNP Paribas, Credit Suisse, Mizuho Financial Group, SMBC, Standard Chartered Bank.



Black Sea Trade and Development Bank, EBRD and IFC provided overall about \$650 million in the form of loans.

### **3.6. Finance by Export Credit Agencies**

The finance from export credit agencies does not amount a big share of investments in infrastructure in the region. However, there were few big scale projects, where export agencies were involved. As it was mentioned before, Japan Bank for International Cooperation (formerly The Export-Import Bank of Japan) provided a loan for Sakhalin LNG project. Another export credit agency China Exim Bank was also involved into big scale projects, but provided mostly loans to oil refineries financing in Central Asia, what is not considered as infrastructure finance in the scope of this research.

### **3.7. Government Support**

Financial support from the government appears to be high in financing the infrastructure in the region. The government support usually appears in the form of guarantees and grants. For example, in 2012 Russian government provided \$1.6 billion grant for Western High Speed Diameter Motorway projects.

## 4. Countries Infrastructure Finance Overview

The following section provides more details on country specific trends in financing infrastructure. The country analysis includes macroeconomic overview, infrastructure finance trends, main sources of finance, sectoral investment developments and key IFIs that operate in each country. The infrastructure investments in fourth O&G Im countries (Armenia, Georgia, Moldova and Ukraine) and three O&G Ex countries (Azerbaijan, Kazakhstan and Russia) are analysed in more details, while for the rest of the countries in the region the detailed analysis is impeded by the lack of reliable data. The list of the EIB projects in each country concerned – in *Annex 3*.

### 4.1. ARMENIA

Infrastructure finance in Armenia was quite volatile during the observed period (*Figure 4.1.*). Unlike in other ENCA countries, infrastructure investments in Armenia were poorly correlated with the overall macroeconomic environment. This can be partly explained by empirical data gathering which provides only approximate estimation of infrastructure finance. During 2003-2007, despite high GDP growth rates the overall level of investments was kept at around 3-4% of GDP. In 2008-2009, on the back of record FDI inflow (more than 8% of GDP) significant increase in investments of up to 9% of GDP was observed in 2008. Afterwards, the investments remained on the same level, but the structure of funding sources has changed dramatically.

#### **Sources of Finance**

Besides private and public non-project finance as the main source of finance, concessions projects significantly contributed to the overall picture of infrastructure finance as they equalled 2% of GDP in recent years. Corporate non-project finance significantly varied over the period from 0.3% of GDP in 2006 to 3.2% in 2009 (mostly due to significant investments by telecommunication companies – see below). Project finance (apart from concession projects) was on the rise since 2009 on the back of increased funding from the development organizations.

Figure 4.1. Total Infrastructure Finance by type of finance, in % of GDP

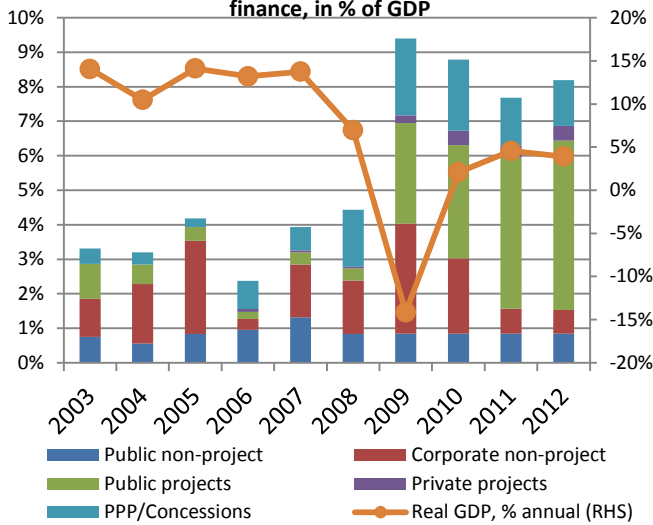
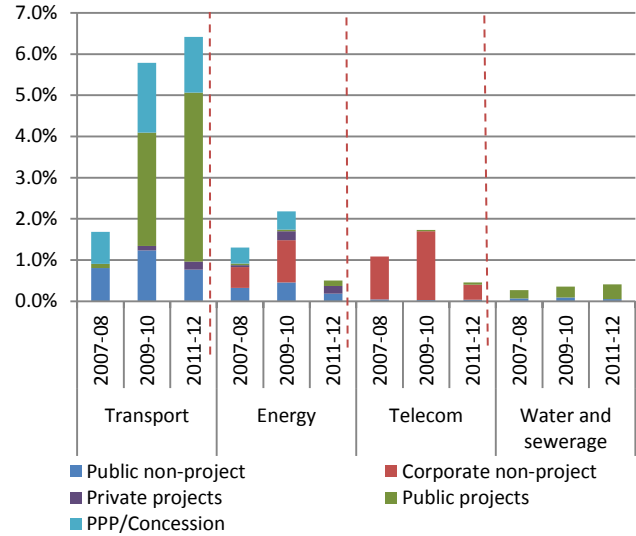


Figure 4.2. Infrastructure Finance by Sectors



### Sectoral Developments

In the sectoral investments structure, transport, energy and telecommunication sectors have been the most successful in terms of attracting investments (Figure 4.2.).

- The *transport* sector is mostly financed by the public funds (i.e. from the budget). In 2006-2008 there were 4 concession projects in the transport sector, which amounted to 2.1% of GDP. Armenia-International Airports, subsidiary of Argentine Corporacion America, was awarded three concession contracts to modernize Shirak airport and construct two terminals at Zvartnots International Airport in Yerevan. Another concession took place in the railways sector as Russian Railway Company (RZhD) was awarded a 30 year concession contract to operate the Armenian Railways; in particular, RZhD agreed to invest US\$400.0 million in the rehabilitation of Armenia's rail infrastructure and US\$170.0 million in renovation of the rolling stock. Public projects in transport were mostly financed by the ADB. Together with the EDB it invested in rural roads within the North-South Corridor highway upgrade project, and provided few loans to finance urban and rural transport development. World Bank invested in rehabilitating approximately 190km of roads within the Lifeline Roads Improvement Project. Moreover, EBRD provided a loan to the Argentine Corporacion America as a supplementary financing for the construction of the passenger terminal at Zvartnots International Airport (what was recorded as a private project).
- Investments in the *energy* sector on average equalled to 1.3% of GDP in 2007-2008 and fell to 2.2% in 2011-2012. The key finance sources of the sector are public and private non-project finance, although in 2007-2008 share of concessions composed almost 0.4% of GDP due to concession agreement granted to Gazprom to finish the construction of fifth unit of the Hrazdan power plant, which started in 1980 but was stopped following the Soviet Union collapse. Gazprom committed to invest more than \$200 million in the project what would increase the installed capacity of the plant. Corporate finance composed about 0.5% of GDP over the observed period. In 2002, Electric Networks of Armenia (AEN) was privatized by British Midland Resources Holding and later resold to Inter RAO UES, the subsidiary of Russian energy company RAO UES. During 2006-2010, the company invested about \$275 million in the extension of physical assets, part of which was financed by the loans of EBRD, VTB and Vnesheconombank.
- Investments in the *telecommunication* industry are dominated by corporate non-project finance. There are three main telecom companies which operate in the country: ArmenTel, VivaCell MTS and Orange Armenia. ArmenTel was the first one to receive the telephone license and was privatized by the US-based company, and later resold to the state-owned Hellenic Telecommunications Organization (OTE), the Greek national operator. However, after the conflict with the Armenian Government on failure to invest sufficient funds to increase internet and mobile phone penetration, ArmenTel was resold in 2006 to Russian company VimpelCom and renamed to Vimpelcom Armenia. During 2006-2011 the company

invested about \$330 million in the network extension. In 2004, another company K-Telecom (owned by Lebanese investors), was awarded licenses for mobile telecom services. In 2007 the company was acquired by Russian company Mobile TeleSystems and renamed in VivaCell MTS. All in all, during 2004-2011 about \$250 million were invested in company’s physical assets. In 2009, Orange Armenia, a 100% subsidiary of France Telecom, was the last company to receive the license to operate on the Armenian telecom market and at the end of 2009 it declared to have invested US\$140 million in capital expenditures. As a result, the sector investments equalled to 1.6% of GDP in 2007-2008 and 6.2% in 2011-2012.

- Investments in the *water sector* are estimated to be less than 0.1% of GDP, which is mainly financed from the public sources. There were two public projects in the sector financed by the ADB, the EBRD and the World Bank, however due to the small projects volumes the share of GDP was negligible.

**IFIs infrastructure investments in Armenia**

Among the main IFIs, the ADB holds more than a half of all infrastructure investments in the country, followed by the World Bank (Figure 4.3-4). ADB was mostly focused on the projects in the transport and water sectors, while the World Bank was investing in each infrastructure sector in the country. EDB, after making the investments of more than \$300 million into North-South Corridor (Phase 2) development, got the market share of 14%. The EBRD conducted investments in the energy sector mainly and takes the share of 10% of all infrastructure investments by the IFIs in the country. The EIB entered the country in 2010, therefore up until 2012 EIB share equalled only 2% of total IFIs’ investments.

Figure 4.3. Investments Share of Key IFIs in Georgia, % of total

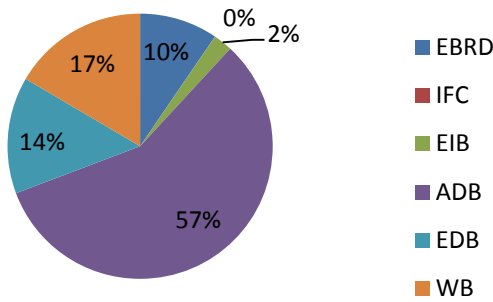
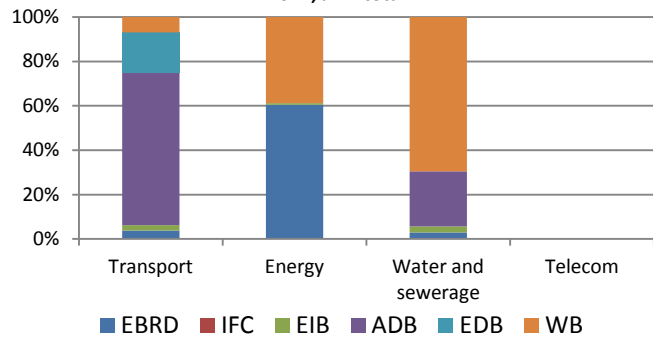


Figure 4.4. IFIs’ investments in Armenia by sectors, 1994-2012, % in total



## 4.2. GEORGIA

Infrastructure finance volumes in Georgia have significantly varied over the recent years. The trend of infrastructure finance mostly reflected the macroeconomic performance in the country over the observed period. During the 2006-2007, Georgia’s real GDP grew on average by almost 10%, what coupled with surge of credit growth and positive budget balance over the period (see Annex 1). In addition, the institutional environment has been considerably improved – the country was upgraded in Ease of Doing Business rank from 100<sup>th</sup> notch in 2005 to 18<sup>th</sup> in 2007. Moreover, as a number of infrastructure companies were privatized, Georgia experienced an inflow of FDI (17.2% of GDP in 2007), part of which was pumped into modernization and extension of infrastructure facilities. Therefore, the volume of infrastructure investments surged to almost 10% in 2007 (Figure 4.5.). However, starting from 2008 on the back of economic slowdown investments in infrastructure fell to 3.5% of GDP in 2012.

### Sources of Finance

The largest share of projects is financed from the public and private sources as non-project investment. The volume of private non-project investments has considerably increased in 2006-2008 as a result of privatization deals in the energy, telecommunication and water sectors. In the after-crisis period investments were considerably decreased mostly on the back of reduced public and private non-project finance, while the volume of project finance has risen. Two concession projects were tracked in the country, with the overall volume of \$230 million in the year of financial closure.

Figure 4.5. Total Infrastructure Finance by type of finance, in % of GDP

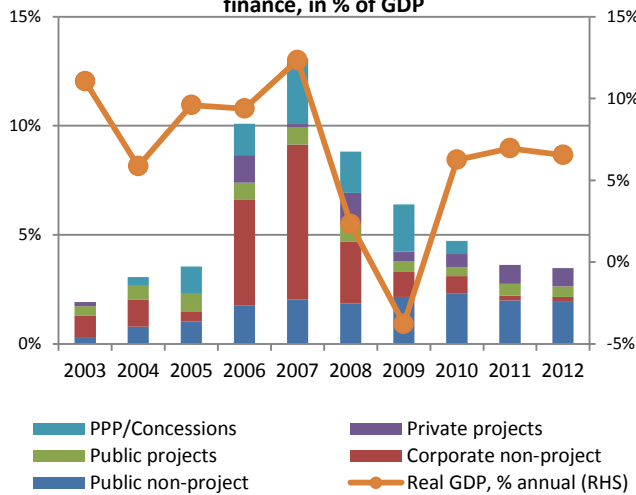
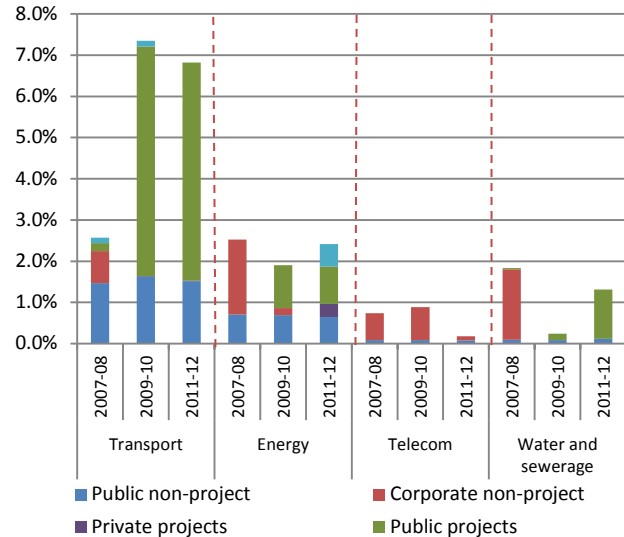


Figure 4.6. Infrastructure Finance by Sectors



### Sectoral Developments

The transport and energy sectors received the largest volume of investments within the observed period (2006-2012) (Figure 4.6.).

- Investments in *transport* in Georgia are mostly dominated by public non-project (i.e. budget) investments. The investments in the form of private non-project finance in transport in Georgia reached 0.8% of GDP on the back of the acquisition by Ras al-Khaimah (RAK) Emirate of the United Arab Emirates of the 51% share in the Poti Sea Port, which is one of the largest ports in the Caucasus region. Investments in the

form of public projects were on the rise in 2009-2012 due to increased number of sovereign loans from different IFIs in Georgian transport sector. In 2006, a concession deal was recorded in the transport sector as TAV Urban Georgia was awarded a BROT contract to construct a new terminal at the Tbilisi International Airport.

- Investments in the *energy* sector were estimated to be on average about 2% of GDP during 2007-2012. After Czech energy company EnergoPro acquired 6 hydro-power plants and 2 electricity distribution companies in 2007, the private non-project investments reached 1.8% of GDP in 2007-2008 as the company had committed to invest in facilities modernization according to privatization contracts. In the post-crisis period the volume of public non-project finance remained unchanged while the volume of private investments decreased considerably and were replaced by public projects. In 2011, a concession took place as Turkish holding Anadolu Endustri was awarded a BOT contract to construct a transmission line from Akhalske station in Georgia and to the Borcka station in Turkey in order to guarantee the electricity supply to the Georgian market in the three winter months and export power to the Turkish market in the remaining nine months of the year.
- *Telecommunication* in Georgia is mostly privately-owned, therefore private non-project finance remains the main source of finance. Due to growing competition to extend the network among the main telecom companies in the country (Magticom, Geocell, Megacom and Vimpellcom) the level of investments in the sector reached 0.7% of GDP in 2007-2008; however, it slowed down to 0.2% in 2011-2012 on the back of depressed overall macroeconomic performance.
- *Water and sewerage*, traditionally financed from the budget, received the record volume of private investments in 2007 due to privatization of Tbilisi Water System by Multiplex Solutions (Geneva-based company) and its commitment to invest \$ 350 million in rehabilitation of the water distribution network in the city. The ADB launched three projects aimed to improve water supply and sanitation in 6 secondary towns of Georgia of overall volume \$700 million. In 2007-2012, investments in the sector equalled on average about 1.1% of GDP.

### ***IFIs infrastructure investments in Georgia***

Among the IFIs that work in the country, there are three key investors – the ADB (57% of total IFIs' investments over the last 20 years), the EBRD (17%) and the World Bank (12%). ADB started its operations in Georgia in 2009 and mostly focused on transport, water and sewerage sectors, while EBRD mostly invested in the energy sector (*Figure 4.7-8*). World Bank, starting from mid-1990s, was one of the main investors in Georgia's transport sector. The EIB stepped into the Georgian market only in 2010 with projects in energy, transport and water as well as the banking sector (*Annex 3*). Overall, the EIB's share is estimated to be about 11%, making the EIB fourth biggest IFI in the country.

Figure 4.7. Investments Share of Key IFIs in Georgia, % of total

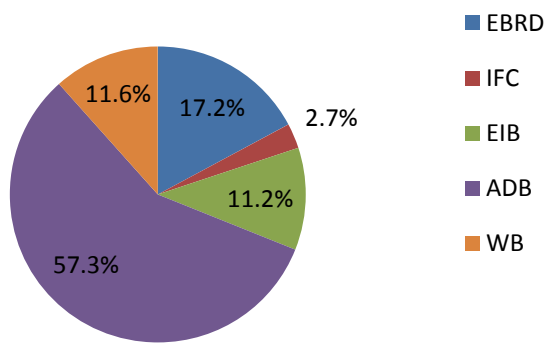
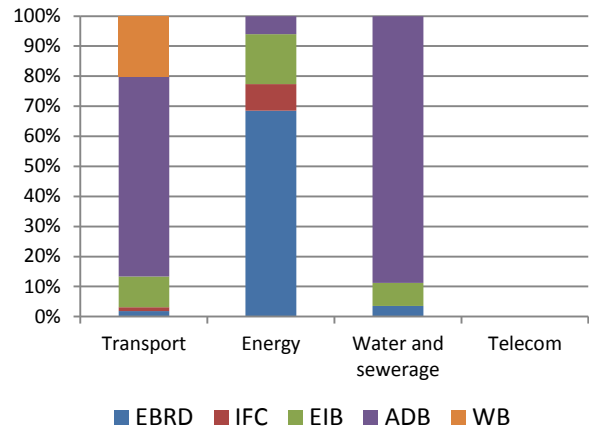


Figure 4.8. IFIs' investments in Georgia by sectors, 1994-2012, % in total



### 4.3. MOLDOVA

Investments in infrastructure were accelerating before the crisis and reached 5.5% of GDP in 2007 from about 2% in 2003. The dynamic of investments can be partly explained by the favourable macroeconomic performance. Fast GDP growth in line with significant FDI inflows (FDI almost tripled during the period – from 2.8% of GDP in 2003 to 8.7% in 2008) and fiscal performance favoured investments in infrastructure both from public and private sources. However, in 2009 on the back of worsening macroeconomic environment (real GDP decreased by 6% in 2009, fiscal deficit surged to 6.4% of GDP), investments in infrastructure plunged below 4% of GDP. Sluggish GDP growth reflected on the investments level as it continued to fall to 3% of GDP in 2012 (Figure 4.9).

#### Sources of Finance

The main sources of financing infrastructure were public and private non-project finance. However, in the recent years due to worsened macroeconomic growth there was a decreasing trend of gross fixed capital investments what reflected on budget spending on infrastructure assets. In addition, despite of improved business environment (Ease of Doing Business improved in recent years from 94 notch in to 81 in 2011) private non-project investments were considerably reduced. As a result, in 2010-2012 infrastructure investments were mostly financed by the IFIs in the form of sovereign loans. The share of public projects increased from 0.7% of GDP in 2007 to 2% in 2012. During observed period there was only one concession project in 2008 (see below).

Figure 4.9. Total Infrastructure Finance by type of finance, in % of GDP

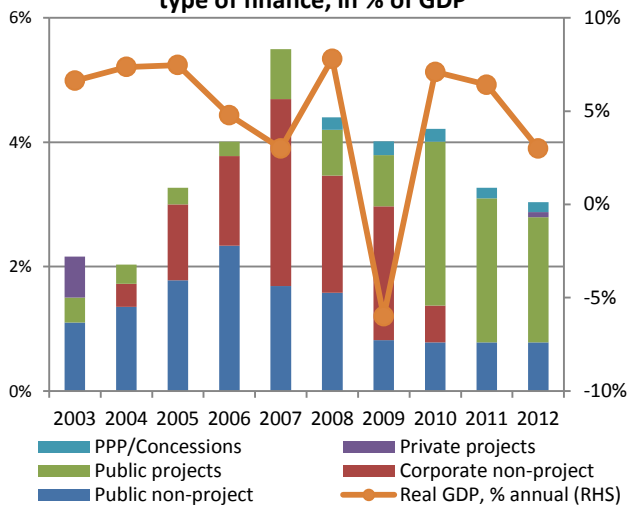
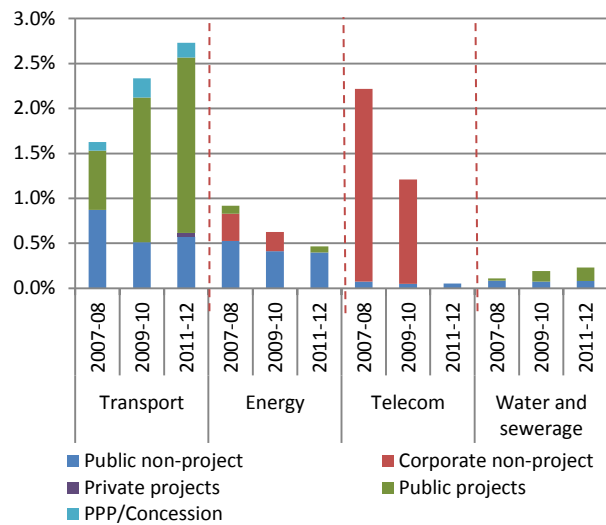


Figure 4.10. Infrastructure Finance by Sectors



### Sectoral Developments

The transport and telecommunication sectors received the biggest volume of investments during the observed period (Figure 4.10.). In almost all the sectors, investments were decreased in 2009-2012, only in the transport and water sectors the volume of investments was raised due to the increased number of public projects.

- The main source of investments in the *transport* sector was public non-project finance (i.e. budget funds). However, recently investments in the form of public projects have been growing as well – from 0.4% of GDP in 2003 to 2% in 2012. In 2008, the first concession project was signed between the Government of Moldova and Moldovan-Greek joint venture company to construct oil terminal at the Giurgiulesti International Port (on Danube river); Azpetrol (Azerbaijan company) also committed to invest in port development in particular in construction of dry-cargo and passenger terminals. The project cost amounted to \$60 million.
- Public and private non-project finance was the main source of investments in the *energy* sector in Moldova. In 2000, Spanish energy company Union Fenosa privatized three local electricity distribution companies in Moldova, which covered 70% of country population. The company declared to have invested about \$170 million in capital assets from 2000 till 2009.
- *Telecommunication* sector infrastructure is financed mostly from the own sources of the companies. There are two market players in the sector – Moldcell and Voxtel (rebranded as Orange in 2007), which in total invested \$400 million in the network extension during the observed period. There is also a state-owned operator, Moldtelecom, which controls over 99% of the fixed line telecom market in the country; however there is no data available on investments of the company. In 2007, Cyprus-based company, Eventis Mobile, got the license to operate on the market, and at the end of 2007 it launched commercial operations following a \$35 million investment in building the network. However, in 2010 the company went bankrupt.
- Moldova's *water and sewerage* sector appears to be least attractive for investments. There were a few new public projects in the sector in the observed period. In 2010, the EIB and the EBRD provided a sovereign loan Moldovan Government to upgrade municipal utilities in order ensure provision of adequate supply of drinking water and improve wastewater treatment systems. In addition, €10 million of grant were provided from the EU's Neighbourhood Investment Facility (NIF).



### IFIs infrastructure investments in Moldova

Among the main IFIs, the EBRD and the EIB have almost the equal share of investments – about 30% of total IFIs investments in the country (Figure 4.11-12). The EIB stepped into the country in 2007 and has been increasing its operations since then. In 2012, two EIB infrastructure projects in the transport and energy sectors in Moldova reached financial closure amounting to about 4% of GDP. World Bank is the third biggest IFI with a share of 24% of total IFIs finance in the country. IFC took a stake of only 13% of the market. The EBRD and the EIB mostly finance in transport and energy sectors, while the IFC focused mainly on the telecommunication sector.

Figure 4.11. Investments Share of Key IFIs in Moldova, % of total

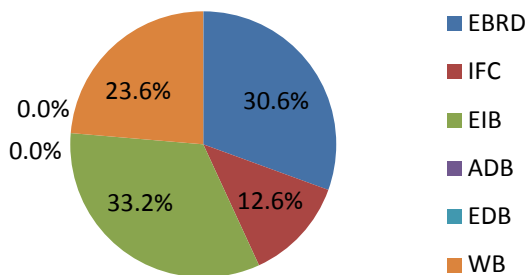
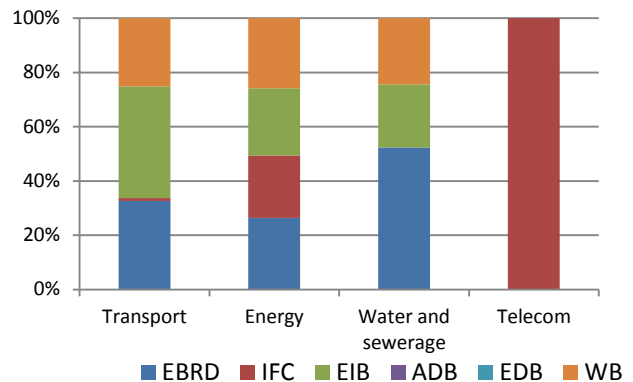


Figure 4.12. IFIs' investments in Moldova by sectors, 1994-2012, % in total



## 4.4. UKRAINE

Investments in infrastructure in Ukraine are estimated to be above 2% of GDP in the period of economic growth, but it was considerably hit by the recession in the recent years (Figure 4.13). The trend of infrastructure finance is partly explained by the overall macroeconomic performance. During 2003-2007 in the period of high GDP growth (up to 12% yoy in 2004), accelerating growth of domestic credit and huge FDI inflow (see Annex 1) the level of investments in infrastructure assets was kept above 2% of GDP up until 2008. In 2009, real GDP plunged by 15% in real terms and still has not regained the pre-crisis level. Moreover, deepened budget deficit (-5.6% of GDP in 2009) considerably reduced budget investments in infrastructure assets. In addition, overall business environment significantly aggravated recently – in 2011 Ukraine was downgraded in the World Bank “Ease of Doing Business” rank to 152th notch from 124<sup>th</sup> in 2005. All in all, the infrastructure finance fell to 1.5% of GDP in 2010-2012.

### Sources of Finance

The key sources of infrastructure finance were private and public non-project investments composing more than 2% of GDP during 2003-2008. However, starting from 2009 the share of these investments diminished to less than 1%. At the same time the share of project finance has significantly increased from 0.1% in 2003 to more than 0.7% in 2012 mostly due to increased share of public projects. Private projects equalled to less than 0.1% during the observed period. There were two concession projects in 2008 and 2009, which, nevertheless, did not constitute big share in terms of GDP.

Figure 4.13. Total Infrastructure Finance by type of finance, in % of GDP

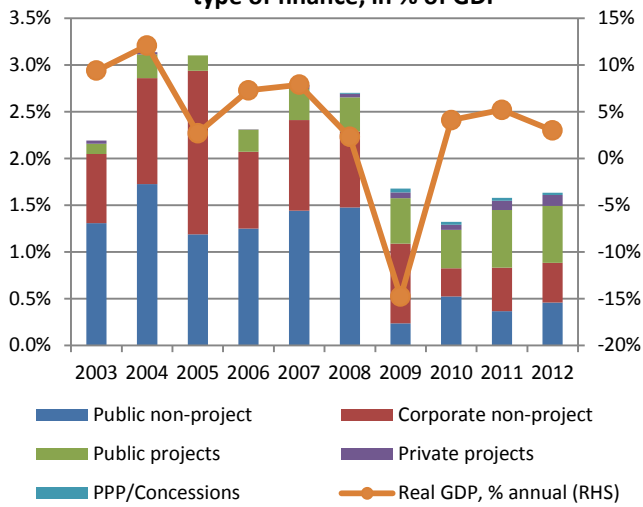
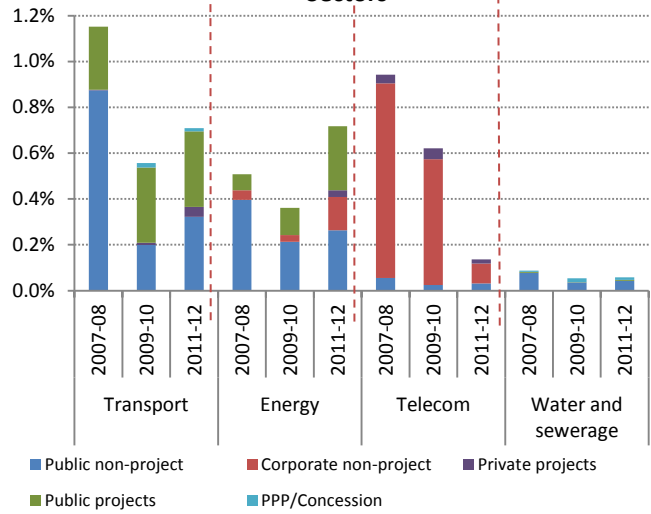


Figure 4.14. Ukraine: Infrastructure Finance by Sectors



### Sectoral Developments

The largest share of infrastructure investments during the observed period (2006-2011) were absorbed by transport and telecommunication sectors (Figure 4.14). The investments in the transport and energy sectors have been on a rise in 2011-2012, while investments in the telecommunications and water sectors were on the downward trend.

- Investments in *transport* were dominated by public non-project finance (i.e. from the budget), which equalled to 0.9% of GDP in 2007-2008. Starting from 2009 due to increased pressure on the budget, public non-project investments in the transport sector decreased to 0.3% of GDP. From the other side, the volume of public projects in the sector significantly increased mostly due to large-scale projects in roads rehabilitation financed by the EBRD, World Bank and the EIB (Annex 2). In 2009, Interleaseinvest, privately-owned provider of rail cargo transportation that serves clients from key Ukrainian industries, acquired 3,000 new freight railcars, which is considered as the only “private project” in transport sector during the observed period. The only concession project in transport sector was awarded in 2008 to Brooklyn-Kiev Group, which signed BOT contract with Odessa seaport to construct a new container terminal.
- Total investments in the *energy* sector in Ukraine equalled to 0.5% of GDP in 2007-2008 and grew to 0.7% in the recent years mostly due to increased public project finance. Public projects were mostly aimed to rehabilitate Ukrainian hydro-power plants and improve power transmission. Corporate non-project investments were financed by privatized energy company Vostokenergo (it operates three thermal power plants) in increasing electricity generation capacity, and by two privately-owned companies in renewable energy development (60 MW Ohotnikovo solar PV plant in Southwestern Crimea and 120 MW Novoazovskiy wind farm in Donetsk region).
- Investments in *telecommunications* were estimated to be about 0.9% in 2007-2008 and lowered to 0.1% of GDP in 2011-2012. The sector investments were mostly held by the main GSM operators (VimpelCom, Mobile Telesystems and DCC/Astelit GSM). Overall, the companies invested about \$8 billion in mobile network extension in Ukraine during the observed period. Apart from that, about \$300 million were invested in the development of telecoms and media infrastructure in Ukraine through Oisiw Limited a Cypriot special purpose co-investment vehicle managed by Sigma Bleyzer Southeast European Fund IV (considered as a “private project”).

- The *water and sewerage* sector received on average less than 0.1% of GDP of investments during observed period. As the water supply sector is fully publicly-owned, finance from the budget was the main source of investments. Nevertheless, in 2008 Rosvodokanal, Russian private operator of water utilities was awarded 25-year BOT contract to operate Luganskvoda, a water supply and sanitation utility serving a population of 6 million people in Lugansk region.

**IFIs infrastructure investments in Ukraine**

Among the main IFIs that work in the region, the EBRD takes the leading role having 43% of total IFIs’ investments in the country (Figure 4.15-16.). The EIB has recently considerably increased the volume of operations in the country (reaching the share of 33% on IFIs market in the country), 92% of which are investments in infrastructure sectors (see Annex 3). World Bank Group institutions cover the rest of the market. Across sectors the EIB invested in each sector, except telecommunications, while the EBRD had operations in each infrastructure sector.

Figure 4.15. Investments Share of Key IFIs in Ukraine, % of total

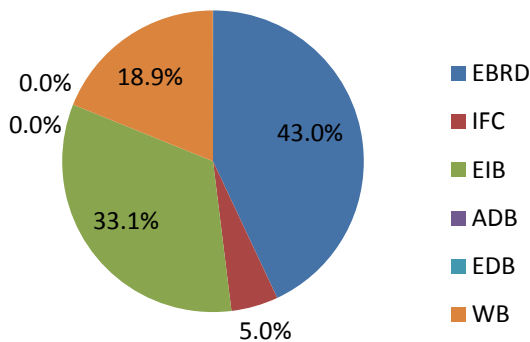
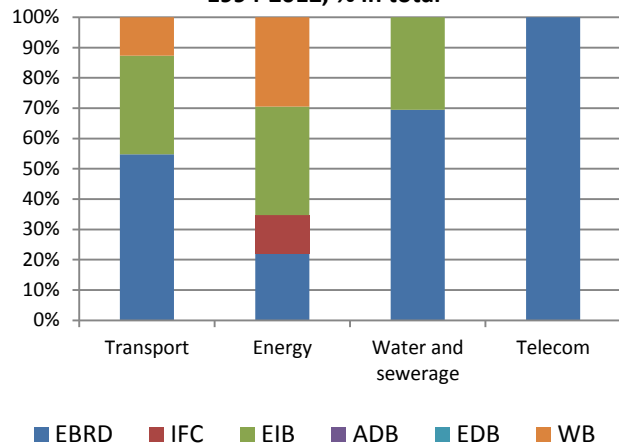


Figure 4.16. IFIs' investments in by sectors, 1994-2012, % in total



**4.5. AZERBAIJAN**

Investments in infrastructure in Azerbaijan fluctuated from 12% of GDP in 2004 to less than 3% in 2012 (Figure 4.17). The dynamic of investments goes in line with the economic growth trend in the country. During 2004-2006 the economy was over-heating with more than 30% annual GDP growth caused by the boom in oil production and investments in the energy sector. Since the discovery of the new oil and gas field in late 90s, Azerbaijan has been an attractive destination for FDIs. Basing on the BoP data<sup>15</sup> FDIs are estimated to rise up to 40% of GDP in 2004. However, in 2008 due to the worsened external environment economic growth started to decelerate and fell to almost zero in 2011. However, according to the ADB estimates, FDI has resumed growth in 2012 due to the Shah Deniz gas field Phase 2 development and exploration of the new oil fields (ADB, 2013). Nevertheless, hydrocarbons production growth allowed the country to accumulate wealth resulting in strong external position (current account surplus is above 20% of GDP and official reserves equals 7 months of future imports) and cover fiscal imbalances through transfers from the State Oil Fund of Azerbaijan SOFAZ that allows to cover budget deficit (estimated by the EUI to be about 20%). The business environment has been worsening during recent years, thus, the country moved down in the Ease of Doing Business Rank – from 38<sup>th</sup> notch in 2009 to 67<sup>th</sup> in 2012.

<sup>15</sup> Data from Central bank of Azerbaijan

**Sources of Finance**

During the observed period there was a dramatic shift in the structure of infrastructure finance in Azerbaijan. Unlike other ENCA countries, Azerbaijan’s key source of investments in infrastructure used to be private projects. Private investments in the energy sector were favoured by the Production Sharing Agreements provided by the State Oil Company of Azerbaijan Republic (SOCAR) to develop country’s energy resources. Although oil and gas field development are not considered as infrastructure projects in the framework of this research, the infrastructure projects, in particular pipelines, are recorded instead. In 2004 two pipeline projects (see below) reached financial closure and caused a significant growth of the Azeri infrastructure investments – up to 12% of GDP in 2004. In particular, private projects reached 10% of GDP in 2004, however fell to zero in recent years due to completion of the major pipelines and worsened external environment. Public projects have been slowly growing from 0.5% of GDP in 2003 to 1.5% in 2012. Corporate non-project investments reached almost 2% during the economic boom in 2006, but fell to 0.1% in 2011-12.

Figure 4.17. Total Infrastructure Finance by type of finance, in % of GDP

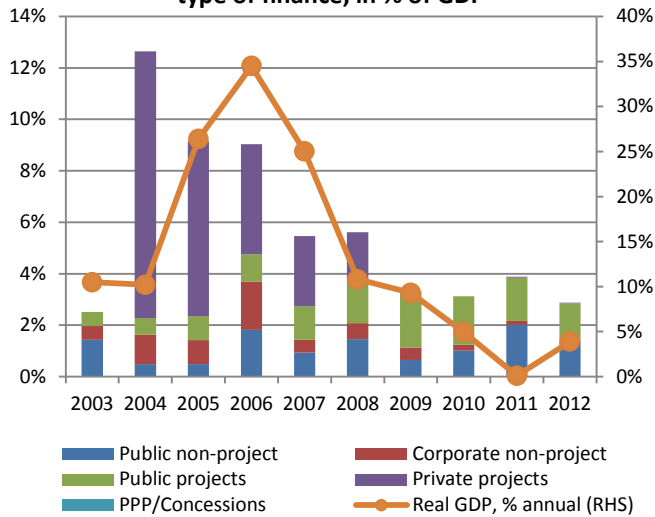
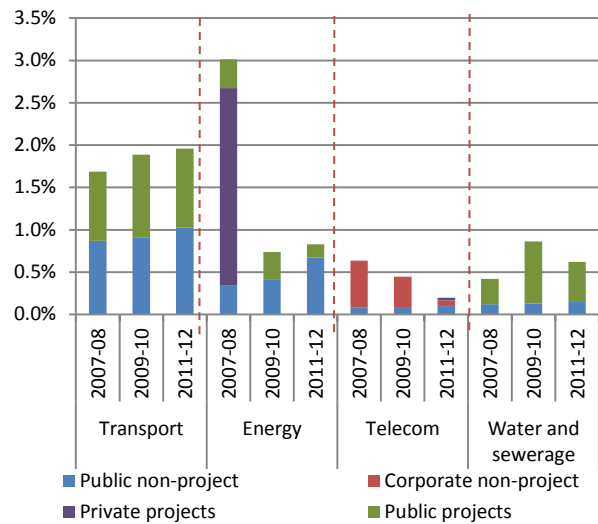


Figure 4.18. Infrastructure Finance by Sectors



**Sectoral developments**

Energy and transport sectors are estimated to be the largest recipients of investments (Figure 4.18). However, energy sector investments have been considerably hit by the global financial crisis due to the FDI outflow and drop of the oil prices.

- Investments in the *transport* sector equalled 2% of GDP in recent years with a growing share of public projects, while public non-project finance remained almost unchanged – about 1% of GDP. 14 public projects were recorded during 2003-2012 with a total volume reaching almost 1% of GDP and mostly funded by the EBRD, World Bank and the ADB. The majority of projects were focused on rehabilitating and upgrading national roads and road connections to the Georgian border.
- Investment in the *energy* sector was on a downward trend recently. It fell from 3% of GDP in 2007-2008 to less than 1% of GDP in 2011-2012 mainly due to the drop of investments through private projects. In 2004 two pipeline projects reached financial closure – “South Caucasus Pipeline” and “Baku-Tbilisi-Ceyhan Pipeline” with overall volume of \$ 4.5 billion. Both pipelines connect Azerbaijan to Turkey through the

Georgian territory. South Caucasus Pipeline project entails the construction of a pipeline that transports gas from the Shakh Deniz gasfield to Turkey. While Baku-Tbilisi-Ceyhan Pipeline is aimed to export oil to world markets via Turkey from three oil fields (Azeri, Chirag and Gunashli) in the Caspian Sea, which the Azerbaijan International Operating Consortium (AIOC) has been developing. Both pipelines became operational in 2006. Recently there were no new private projects in the sector. However, in 2012 a new pipeline project has been developed between Turkey and Azerbaijan – Trans-Anatolian pipeline (TANAP), which will carry gas from the second phase of Shah Deniz project, however at the time of the research completion the project has not reached financial closure.

Apart from private projects, there was a number of small scale public projects with a total value equal to 0.1-0.3% of GDP. The projects are mainly focused on upgrading energy generation and transmission facilities in the country.

- Investments in the *telecommunication* sector in Azerbaijan were declining since 2007 and equalled 0.2% of GDP in 2011-2012. Two companies, J.V. Bakcell and Azercell Telecom BV, obtained the licenses to operate mobile phone services in the country in mid-90s; Azerfon entered the market in 2006. All companies report to be owned by the pull of foreign investors. During the observed period 2003-2012, as it was estimated more than \$1.5 billion was invested in the network development.
- There were number of public projects aimed to rehabilitate Azeri *water* supply and sanitation facilities during the observed period with the total volume of \$1.8 billion. Overall, the investments in the sector were estimated to level out at 0.6% of GDP in 2011-2012.

**IFIs infrastructure investments in Azerbaijan**

IFIs are estimated to have invested more than \$5 billion in the infrastructure sectors in the country, with the ADB making half of all investments in all sectors except telecommunications (*Figure 4.20-21*). World Bank Group takes a share of 30% of all the IFIs’ projects in the country, mainly investing in water and transport projects. The EBRD with a total share of 20% of the IFIs market in the country, has been involved in the transport and energy sector development. Other IFIs do not appear to be involved in the country’s infrastructure investments. Within the data available no data on IFIs’, investments in the Azeri telecom sector has not been recorded.

Figure 4.20. Investments Share of Key IFIs in Azerbaijan, % of total

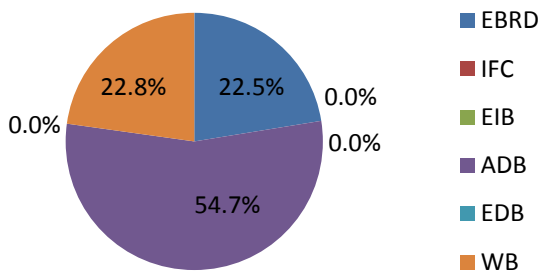
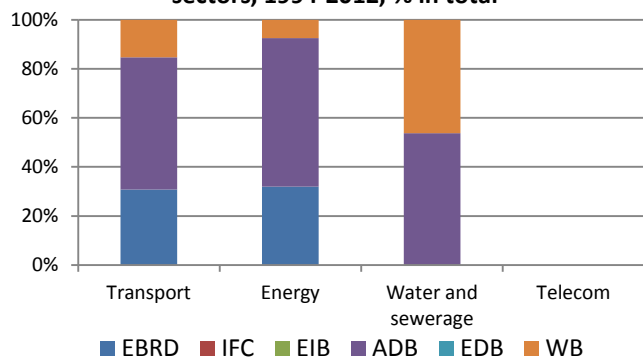


Figure 4.21. IFIs’ investments in Azerbaijan by sectors, 1994-2012, % in total



### 4.6. KAZAKHSTAN

Investments in infrastructure in Kazakhstan were estimated to be about 2.5-3% of GDP during 2003-2012 (Figure 4.22.). The investments in infrastructure picked up at 3% of GDP in 2007 on the back of strong macroeconomic growth of almost 9% in 2007. However, in 2008 after the outbreak of the financial crisis there was a slight decrease of public spending on infrastructure development due to worsened fiscal position, which was however compensated by the increase of public and private projects. But in 2009 with a steep fall of the GDP and considerable aggravation in the financial sector, investments in infrastructure started to go down to 2.7% of GDP and remained on that level till 2012. Despite of improved business climate as marked by the increased rank in the Ease of Doing Business rank, the foreign investments in the economy were on the downward trend (from 5.5% of GDP in 2008 to 3.4% in 2012).

#### Source of Finance

Public funds were the major source of the Kazakhstan infrastructure investments amounting to 1.5-2% of GDP in 2003-2009. However, after the beginning of economic recession, public spending started to contract and fell to 1.1% of GDP in 2012. Private non-project investments remained almost unchanged during the observed period slightly narrowing to 0.4% of GDP in 2011-12. In contrast, public and private projects have been increasing in the recent years, mostly due to energy and transport projects (see below). Overall, project finance increased from 0.2% of GDP in 2007 to 1% of GDP in 2012. In 2005-2007 two concession agreements were signed in Kazakhstan transport sector what equalled about 0.1% of GDP. Recently, no new PPPs or concessions were recorded in the country.

Figure 4.22. Total Infrastructure Finance by type of finance, in % of GDP

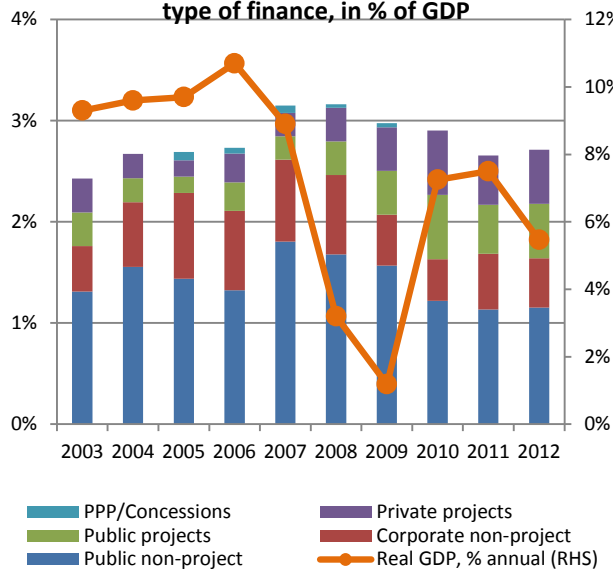
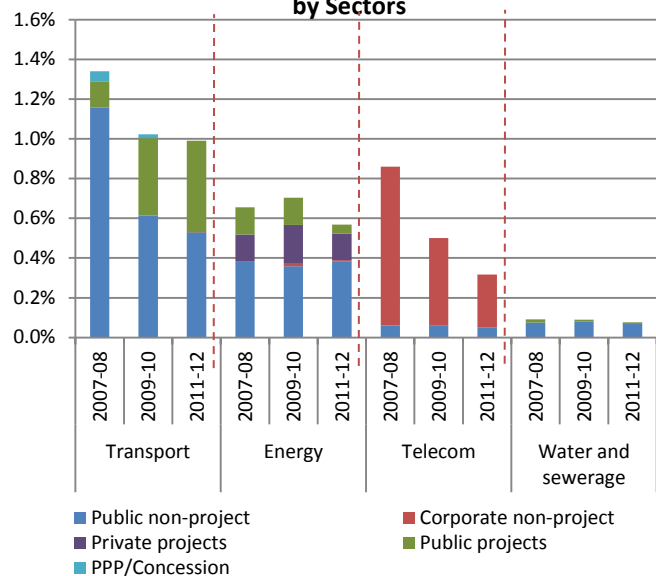


Figure 4.23. Kazakhstan: Infrastructure Finance by Sectors



#### Sectoral Development

The transport and energy sectors appear to be the most successful in attracting investments (Figure 4.23). Unlike the telecommunication sector, where the volume of investments has decreased considerably in recent years, the investments in the other sectors remained almost unchanged.

- The investments in the *transport* were estimated to be about 1.3% of GDP in 2007-2008 with a slight decline afterwards. Despite the decreasing volumes of public non-project investments in the sector, the number of public projects has been on the rise reaching 0.5% of GDP in 2011-12. Public projects in the transport sector were mainly projects to develop transport corridors within Central Asia Regional Economic Cooperation (CAREC) Program. The six CAREC corridors link the region's key economic hubs to each other, and connect the landlocked Central Asia countries to other Eurasian and global markets. The ADB is one of the key IFIs in the Central Asia that investments in the transport corridors development. In particular, during 2008-2012 the ADB has participated in constructing three transport routes within the CAREC program with \$4 billion total projects cost. Two small-scale urban transport development projects in Almaty city and rehabilitation of the road section between the Russian border and the city of Aktobe, which is part of "Western Europe – Western China" Corridor projects were financed by the EBRD. In addition, there were two concession projects to construct (1) a new railway Shar-Ust-Kamenogorsk in the East Kazakhstan and (2) Aktau Airport terminal. Construction of the Shar-Ust-Kamenogorsk railway was envisioned by the Kazakhstan Development Strategy until 2010. The project was initiated by the state-owned Kazakhstan Investment Fund<sup>16</sup> in 2005 and was structured in the absence of the law on concession which was adopted only in 2006. The project was the first PPI experience in Kazakhstan financed by the equity (US\$4.4 million) provided by the project sponsors and proceeds from the issue of the infrastructure bonds for US\$231 million. The total volume of concession projects amounted to \$260 million. The concession company, Doszhan Temir Zholy JSC, was set up jointly by the Kazakhstan Investment Fund (49% stake) and three local private companies. The second concession agreement was signed in 2007 as ATM Group (joint venture between Turkish and Kazakh investors) committed to invest \$30 million in the construction of the new passenger terminal and rehabilitation of existing infrastructure at the Aktau Airport.
- Investments in the *energy* sector composed 0.6% of GDP on average over the period. The key source of finance was public funds coupled with the growing volumes of private projects due to the large-scale Kazakhstan-China Oil Pipeline project. The oil pipeline project of total cost \$1.18bn entails the construction of the 980km of the pipeline that connects Kazakhstan and China. The project is funded jointly by the Chinese Export Credit Agency and international banks (ICBC and ING). The borrower, Kazakhstan-China Pipeline LLC is owned 50/50 by the Chinese oil giant China National Petroleum Corp (CNPC) and KazTransOil (KTO), the oil pipeline subsidiary of the Kazakh national oil and gas company KazMunaiGaz.

It is worth noting, that in 2000 the new oil field was discovered in Kazakhstan - Kashagan oil field that is the largest oil field discovered in the North Caspian Sea. It has been designated as the main source of supply for the Kazakhstan-China oil pipeline. However, the oil field development project does not fall in the current analyses as the mining activities are not considered within the scope of this research. However, the bridge that connects the offshore oil field with the city of Atyrau (about 80km) is considered within the current research and is anticipated as a public project (as the key equity investor and the borrower is state-owned KazMunaiGaz company) in the energy sector. Overall, the share of public projects amounted to 0.1% of GDP.
- The investments in the *telecommunication* sector were dominated by corporate non-project finance, what was at the level of 0.8% of GDP in 2007-08, but fell to 0.4% of GDP in recent years. Kazakh telecommunication sector is dominated by state-owned Kazakhtelecom and few privately-owned mobile operators. Kazakhtelecom is a national monopoly in fixed line and long distance services, while others obtained licenses to provide mobile phone services using GSM technologies. However, Kazakhtelecom also fully controls Altel mobile operator and used to hold a stake in two other mobile operators (GSM Kazakhstan and MTC), which were later sold to Swedish investors (Telesonera and Tele2 AB). Russian communication company, ViompleCom, has also entered the market in 2004

<sup>16</sup> The Kazakhstan Investment Fund was 100% state-owned development institution established in 2003. The Fund provided financial support to the private sector initiatives to promote competition in non-extractive industries in Kazakhstan.

through purchasing a stake in Kar-Tel mobile operator. After various mergers and acquisitions in the Kazakh telecom sector, it is estimated that more than \$5.5 billion were invested in the physical assets development in the sector.

- The *water and sewerage* sector appears to have been less financed than other sectors, with the volume of investments equalling to less than 0.1% of GDP, with public funds being the key sources for sector finance. Nevertheless, five public projects were recorded in the sector mainly financed by the EBRD and the World Bank and aimed to improve country's irrigation and drainage systems, solid waste management and water supply development in the rural areas.

**IFIs infrastructure investments in Kazakhstan**

Among the key IFIs that invest in the country's infrastructure, the ADB take the leading role with 70% of share of total IFIs investments in the Kazakh infrastructure (Figure 4.24-25). In particular, the ADB invested more than \$3 billion in developing countries transport sector and is estimated to be the major creditor of transport projects in the country. The EBRD, second most active institution in the country's infrastructure investments, took 27% of the market and was involved in investments in each infrastructure sector. World Bank Group (the IBRD and IDA) was mainly involved in developing Kazakh water and sewerage sector. Other IFIs have not implemented any infrastructure projects in the country during the observed period.

Figure 4.24. Investments Share of Key IFIs in Kazakhstan, % of total

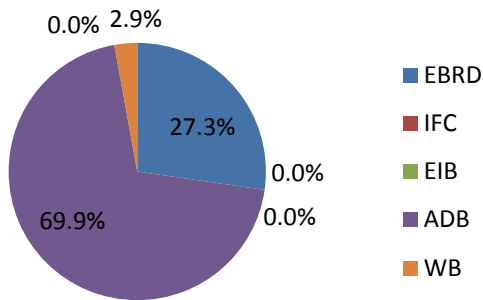
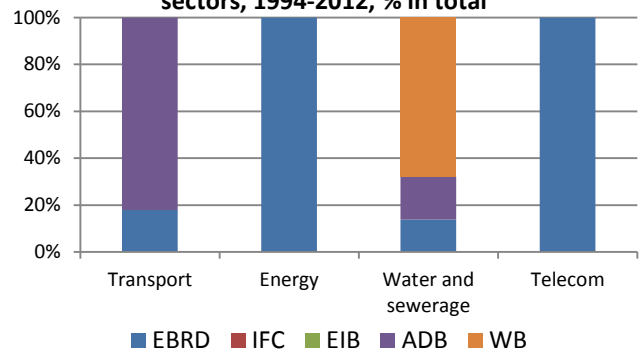


Figure 4.25. IFIs' investments in Kazakhstan by sectors, 1994-2012, % in total





### 4.7. RUSSIA

Investments in infrastructure in Russia are estimated to be on average 2-2.5% of GDP during 2003-2011 (Graph 4.26). The investments have been steadily growing until 2008, and lowered to 2% since 2009. The investments have been hit by the worsened macroeconomic conditions. In 2009 the economy contracted by 7.8%, but partly recovered afterwards reaching 4% annual growth in 2010-2012. The public investments in infrastructure have decreased the most, presumably due to the budget deficit that went up to 6.3% of GDP in 2009. External investments have been negligible as the level of FDIs in the Russian economy does not exceed 2% of GDP. Moreover, in the after-crisis period the business environment has been downgraded in Russia – from 106<sup>th</sup> notch in 2007 to 120<sup>th</sup> in 2011 in the World Bank’s “Ease of Doing Business” rank.

#### Sources of Finance

The main source of finance has been public non-project investments, which accounted for 1.2% of GDP on average over the period. Private non-project investments have decreased in the recent years to 0.5% of GDP after 0.9%-average over 2003-2008. However, the growing number project investments have been recorded in the recent years. In particular, public projects increased from 0.02% of GDP to 0.3% in 2012, whilst private projects volumes were almost zero until 2009 and reached 0.2% of GDP in 2012 mostly due to the large-scale projects in the energy sector (see below). In terms of attracting private funds into infrastructure finance, Russia was the most successful among other ENCA countries in launching PPPs. In 2010-2012, there have been four PPP projects launched in the transport sector with the total volume of almost \$ 7 billion. Moreover, there was a number of BOOT concession agreements signed in the water and sewerage sector. Overall, the volume of PPP/concession investments in Russia equalled to 0.1% of GDP in 2012.

Figure 4.26. Total Infrastructure Finance by type of finance, in % of GDP

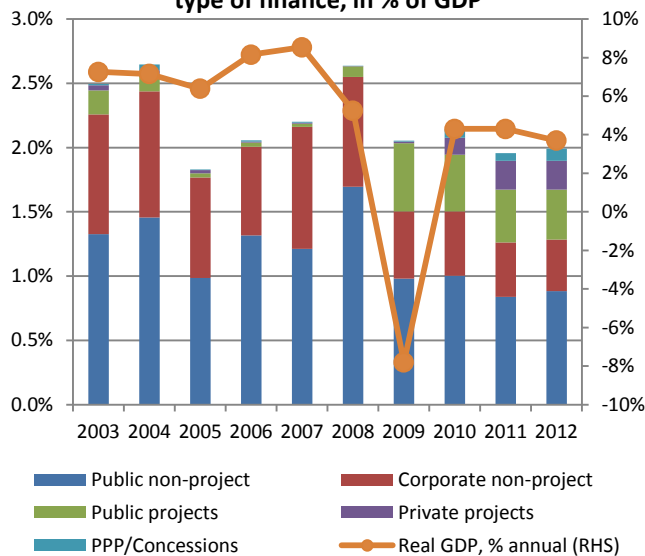
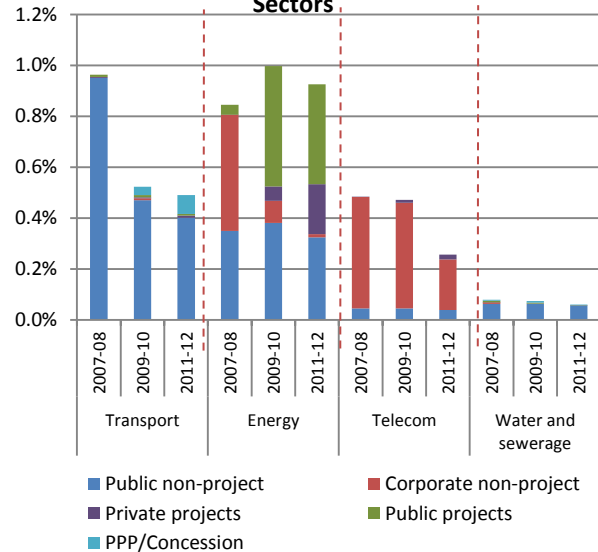


Figure 4.27. Infrastructure Finance by Sectors



As to PPPs, they started to appear in ENCA region only within the last few years. During 2010-2011, the first PPP projects (Renaissance Capital Group, 2012) (Table 4.1.) have been launched in Russia. In the rest of the

ENCA countries, there is a growing interest in developing PPP schemes, and the majority of countries have updated their PPP-related legislation, started PPPs promotion and information campaigns, however there is still a legislation gap to ensure private capital inflow in PPP schemes in the infrastructure sectors.<sup>17</sup>

The PPP projects, launched in Russia recently, have been characterised by the high investment cost and low leverage levels (See Section 3). The main institutions that provided funding for the projects were mostly Russian state-owned banks and the IFIs. Nevertheless, according to the Allen & Overy Global Guide to Public-Private Partnerships (2010), Russia has made significant progress in introducing changes to the legal framework applicable to PPPs, however, a number of legislation inconsistencies pose a challenge for the further PPPs development in the country.

Table 4.1. PPPs in Russia

Name of the projects	Year	Project Cost	Country	Description	Shareholders	IFIs/other institutions funding
Western High Speed Diameter Motorway Central Section PPP	2012	\$1.8 bl	Russian Federation	Construction of 46km motorway and central station in St.Petersburg	Northern Capital Highway – project sponsor.	Vnesheconombank, VTB, Gazprombank, Eurasian Development Bank, EBRD
Pulkovo Airport Modernization PPP	2010	\$1.6 bl	Russian Federation	Construction of a new, 140,000m <sup>2</sup> airport passenger terminal.	SVP: Northern Capital Gateway OOO	VEB, EBRD, IFC, Eurasian Development Bank, Nordic Investment Bank, Black Sea Trade and Development Bank
Moscow-Minsk Highway (M1 Odintsovo Bypass) Project	2010	\$890 m	Russian Federation	Construction of 19km road sections of the Moscow-Minsk highways	Concession awarded to FCC consortium (Alpine/FCC/Gazprom/Brisa/Lider/Stroygazconsulting)	Funding by state guaranteed bond issued by Gazprom
Moscow-St Petersburg Highway Project	2010	\$ 2.3 bl	Russian Federation	Construction of 43km 8-10 lane first road section (15km to 58km) of the Moscow-St Petersburg, five bridges, eight junctions and 21 flyovers	Concession awarded to North Western Concession Co consortium (Vinci/Eurovia/N-Trans)	VEB, Sberbank, bonds guaranteed by the state and the state grant.
Western High Speed Diameter Motorway PPP	2012	\$3.9 bl	Russian Federation	Development of the 11.7km eight-lane central section of the WHSD, of which the southern and northern sections are already under construction. The total road length will be 46.6km.	Northern Capital Highway Consortium led by VTB Capital and Gazprombank.	EBRD, EDB, Gazprombank, VTB Capital, State Investment Fund, VEB.

Source: Projectware, Infrastructure Journal

## Sector Developments

In the investment structure by sectors, energy and telecommunications sectors have received the largest amount of investments during the observed period (Figure 4.27).

- The *transport* sector is mostly funded from public sources. Investments in transport have been on the downward trend since the crisis due to decreased volume of public investments. Nevertheless, the volume of PPPs has increased to 0.07% of GDP in 2011-2012. Four big PPP projects, mainly

<sup>17</sup> TRACECA Country Reports on Infrastructure and Finance (2010)

financed by the state Russian banks, are aimed to upgrade and develop highways and the passengers' terminal in Pulkovo airport. There were a few public and private projects aimed to modernize airport facilities (i.e. Sheremetuevo Airport extension) or support large scale railcar acquisition by private railway companies in order to develop private investments in the sector. However, overall the volume of investments through public and private projects in the transport sector was small in terms of GDP – 0.01%.

- The investments structure in the *energy* sector has been changing in the recent years, albeit the level of investments remained stable – 0.9% of GDP. In 2007-2008, non-project investments were the main source for the sector development. In particular, the share of corporate non-project investments grew significantly due to the energy sector reform that started in 2003. The Russian energy monopoly company RAO UES, the main shareholder of the Russian energy assets, was restructured in a number of companies. Six wholesale generation companies (OGKs) were formed on the basis of large federal plants with a typical installed capacity of 1000-2000 MW and were to become the largest participants and the main competitors on the wholesale power market. The reform also created Territorial generation companies (TGKs) by uniting combined heat and power plants with a typical installed capacity of 100-500 MW. In the course of the sector reform, the wholesale generation companies (OGK) and territorial generation companies (TGK) were privatized by Russian and foreign investors, what was followed by the investments in the extension of the physical assets of the generation companies of total value \$16 billion during 2003-2011. Moreover, due to the limited capacities of the power grids to deliver electricity to remote regions or due to growing demand in the urbanized areas, the four new power plants were constructed by private investors to meet the regional demand. For example, a joint venture between Turkish Zorlu Enerji (51%) and U.S. Invar International, Inc (49%), ICFS International, have invested about \$1 billion in the construction of the two new power plants in the Moscow region (Teleshkovo and Kozhukhovo power plants) in order to meet growing demand in the capital region. Overall, corporate non-project investments equalled 0.5% of GDP in 2007-2008, and fell to almost zero in recent years.

However, there was a growing number of public and private projects in the sector starting from 2009. Public projects were mostly aimed to improve energy efficiency in the district heating companies, modernize the federal grid or extend the oil pipelines network. The outstanding public project with a project cost of \$ 25 billion on the day of financial closure was Eastern Siberia-Pacific Ocean (ESPO) Oil Pipeline, aimed to develop a 4,700km oil pipeline to connect East and West Siberia and to access the Chinese market. The project is operated by the Russian state company OAO Transneft, which is supported by the Chinese government who agreed to lend \$15bn in return 15 million tonnes of oil to be supplied to China each year for 20 years. Another large-scale public projects was Sakhalin 2 what develops the first LNG in Russia and after completion will deliver liquefied natural gas (LNG) to customers in Japan, Korea and the North American West Coast. The total projects cost is estimated \$23.7 billion, however only Phase 2 (\$5.3 billion) has reached financial closure. The project is funded by the Japan Bank for International Cooperation and a pull of foreign banks; the key equity investor, though is state-owned Gazprom. All in all, public projects equalled 0.4% of GDP in 2009-2012.

Private projects reached 0.2% of GDP in 2011-2012 mostly due to the Nord Stream Gas Pipeline<sup>18</sup> project, construction of which started in 2010. The two lines of the project (Phase 1 and 2) were finished in 2010-2011 with a total invested volume of \$12.5 billion.

- The *telecommunication* sector is mostly dominated by the private companies. In early 90s a number of private companies received the license to operate on Russian telecommunications market. After sector consolidation in early 2000s, there are three major players in the sector – Rostelecom, VimpleCom and Mobile Telesystems (MTS). All in all, it is estimated that around \$ 52 billion were invested by the own funds of companies in the physical assets development in the sector, what amounted to 0.4% of GDP in 2007-2010, and lowered to 0.2% in recent years. In addition, large-scale

<sup>18</sup> The project is considered as “private”, as the project company “Nord Stream AG” is indicated as a private corporate company by Projectware database.

private project was recorded in Russian telecommunication sector in 2010 – the construction of two telecommunications satellites launched by Gazprom Space Systems JSC. The project aims to supply mobile coverage across Russia and was financed through credit facility by Coface, Gazprombank and three foreign banks<sup>19</sup>. In general, the volume of private projects amounted to 0.02% of GDP in 2011-12.

- Although more than \$1.6 billion were invested in the Russian *water and sewerage* sector, in terms of GDP and in comparison with other infrastructure sectors the sector appears to be under-invested. During 2003-2006 there were a few projects in the sector mainly due to investments from Rosvodokanal (RVK), one of Russia’s largest private utility operators, which received concession contract from various cities across the country to modernize and operate local water utilities. However, in 2008-2010 small-scale waste-recycling and wastewater treatment projects with the overall volume of only \$100 million were conducted in the country. All in all, investments in the sector are estimated to be on the level of 0.1% of GDP during 2007-2012.

**IFIs infrastructure investments in Russia**

Various IFIs operate on the Russian market, among which the EBRD takes the leading role with a share of 75% of all the infrastructure projects financed by the IFIs during the observed period (*Graph 4.28-29*). The EIB started its operations in Russia in 2003 with a loan in the water and sewerage sector, afterwards the EIB also provided funds for OGK-5 power plant modernization and MTS mobile broadband development; overall the share of the EIB in Russian IFIs’ market amounted to 8% during the observed period. Other IFIs, like IFC and the ADB were providing additional finance to the projects and have minor shares on the Russian market among other IFIs. As it was mentioned before, the Eurasian Development Bank (EDB) – the new development institution established with an aspiration to promote regional integration within the future Eurasian Economic Union – has been actively involved in providing funds of total volume more than \$ 400 million to the PPP projects development in the Russian transport sector; however its share in IFIs market in the country equalled only 2%.

Figure 4.28. Investments Share of Key IFIs in Russia, % of total

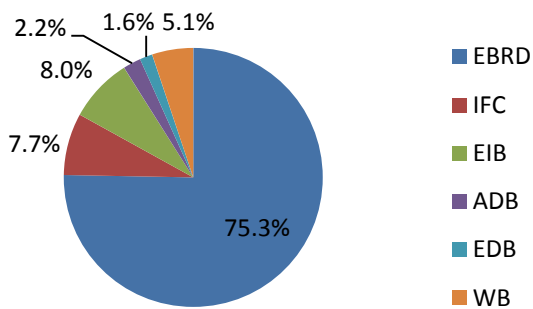
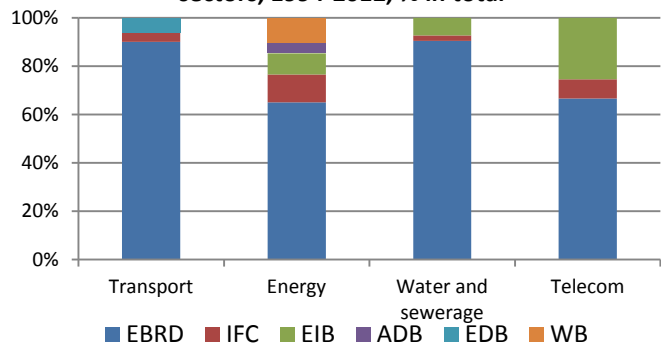


Figure 4.29. IFIs' investments in Russia by sectors, 1994-2012, % in total



<sup>19</sup> BNP Paribas, Citibank and Credit Agricole.

## 5. EIB in the ENCA region

The Bank supports the EU Eastern Neighbourhood Policy and the EU Central Asia Policy, which together cover 12 post-Soviet states, by financing investment projects that contribute to the achievement of the EU's policy objectives in these regions.

The Eastern Neighbourhood region is of strategic importance to the EU, in both economic (trade, energy, migration) and political (security, stability) terms. The Eastern Neighbourhood includes the Eastern Partnership countries (Ukraine, Moldova, Armenia, Azerbaijan, Georgia, and subject to future Council and European Parliament Agreement, Belarus) and the Russian Federation. The EIB confirmed its commitment to the region at the Warsaw Eastern Partnership Summit, following the adoption of the revised External Mandates and resulting in an increase in lending ceilings for the region as well as the new Climate Action mandate.

Regarding Central Asia, the EU has strengthened its relationship with the region since the adoption of "The EU and Central Asia: Strategy for a New Partnership" by the European Council in June 2007. The adoption of the EU-Central Asia Strategy in 2007 marked the beginning of a new and enhanced form of cooperation between the EU and the states of Central Asia.

To date, the EIB has signed Framework Agreement with seven ENCA countries, including five Eastern Neighbours and two Central Asian countries (Tajikistan and Kazakhstan), and is therefore currently operational in these countries. Against this background, the Bank's lending operations in ENCA expanded over the years, with a notable increase since 2010, bringing EIB financing in the Eastern Neighbourhood and Central Asia to a total of EUR 3 billion at the end of 2012.

Under the EC mandate, the EIB key priority is to develop infrastructure in the region contributing to the modernization of the economies and their integration with the EU economy. Therefore, out of 43 operations performed in the region since 2003 30 projects were in the infrastructure sectors (transport, energy, telecommunications and water and sewerage) (*See Annex 3 for full list of the EIB operations in the region*), accounting EUR 2.2 billion or 73% of total amount invested in the region. The key sectors for the EIB operations were transport and energy with EUR 996 million and EUR 920 million invested in the sectors respectively (Figure 5.1). In the energy sector the EIB mainly invested in the modernization of hydropower plants and upgrade of electricity transmission lines. In the transport sector, the Bank mainly funded projects in upgrading road corridors improving the region's transport links with the neighbouring EU Member States (mainly in Ukraine). Moreover, the EIB has been active in supporting urban transport modernization, particularly in Moldova and Armenia. The EIB launched 8 small-scale projects in the water and sewerage sector with total amount of less than EUR 200 million. In 2009, the first telecommunication project was funded by the EIB in Russia aimed to increase the quality and accessibility of broadband services, what was the only loan in the sector by the end of 2012.

Figure 5.1. Volumes of EIB Investments in the ENCA region by sector, EUR mln

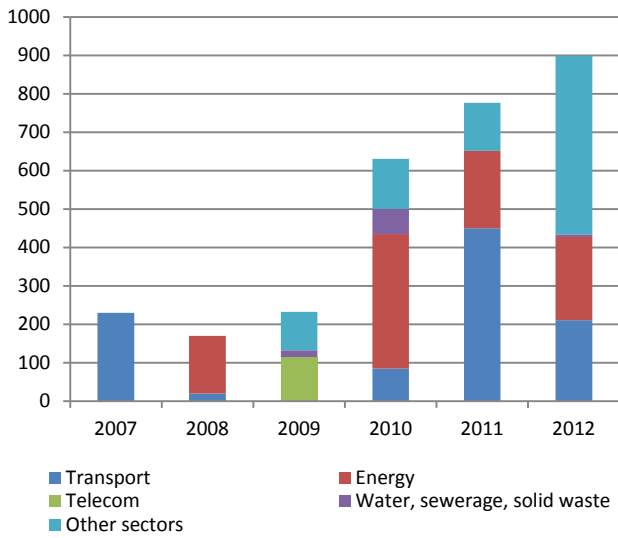
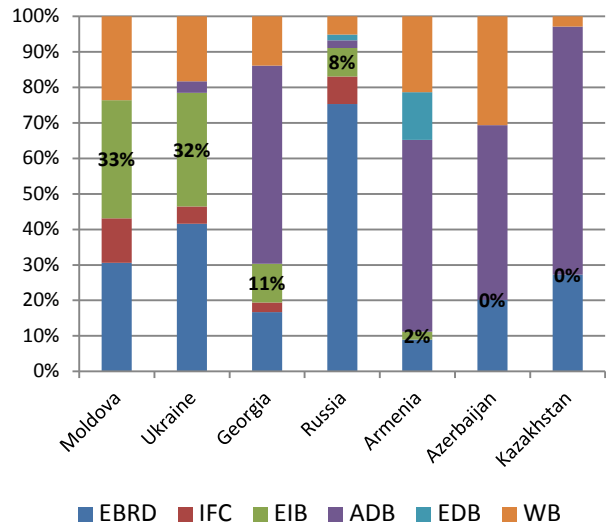


Figure 5.2. Infrastructure investments across selected ENCA countries by key IFIs



Among the main IFIs that operate in the region, the EIB's share has been steadily growing. As it was mentioned in the section 3.4., the EIB's share in all IFIs' infrastructure investments accounted 7% during observed period. However, starting from the 2010 the volume of investments has been on the rise reaching 0.02% of the regional GDP. Despite of the recent entrance in the market, the EIB has managed to get one third of the IFIs market in the countries like Moldova and Ukraine (Figure 5.2). In other countries of the region, the EIB presence is relatively small, but is supposed increase due to the fast expansion of the EIB operations in the region.

## Concluding Remarks

Developing infrastructure is one of the key tools to support and promote economic growth. Starting from late 90s, there is ongoing discussion on how infrastructure should be managed, owned and operated. In particular, the sources of investment in infrastructure are at the core of the discussions as the global infrastructure needs are so large (with OECD estimates of \$ 50 trillion to 2030). One of the key solutions to finance this investment is to attract private capital in the sector.

The infrastructure in the ENCA region appears to be a bottleneck for further economic growth in the region. The countries inherited from the Soviet era a legacy of extensive interconnected infrastructure facilities, which lack efficient insulation, control systems, etc., resulting in considerable technical losses. During the transition period consumers and industrial demand on infrastructure services significantly decreased, leading to huge excess of infrastructure capacities. Moreover, after the collapse of Soviet Union, maintenance and rehabilitation works were postponed, mainly due to insufficient investments and widespread corruption resulting in a deterioration of asset quality.

The quality of infrastructure is falling behind. Key quality indicators of the infrastructure services in the ENCA region demonstrate that the sectors are lagging behind in comparison with other regions. In addition, according to the Global Competitiveness Report 2011, ENCA countries rank relatively low for infrastructure. In particular, in comparison with NMSs that had been at almost the same level of infrastructure facilities development before the collapse of the Soviet Union ENCA countries are considerably lagging behind nowadays.

Investments in infrastructure in the region are seriously impeded by the macroeconomic and regulatory environment in the region. Exchange rate volatility, high inflation and rising fiscal deficit are the key macroeconomic constraints for the investments in the region. Moreover, regulation issues and poorly-developed capital markets pose additional obstacles for investments in infrastructure sectors. The regulatory environment is weak as well due to the drawbacks in the legislation concerning the private capital participation in the infrastructure sectors.

Investments in infrastructure in the ENCA region are estimated to be slightly different between the two groups of countries – oil and gas importing and exporting countries in the region. In particular, during 2003-2011 O&G Im countries have been investing on average 2.8% of GDP. The dynamic of infrastructure investments in O&G Im was predefined by the overall macroeconomic performance in those countries; therefore, in after-crisis period the volume of investments decreased significantly – from 3.5% of GDP in 2008 to 2.3% in 2011. O&G Ex countries invested on average 2.3% of GDP. The impact of the crisis on the investments was not as obvious as in importing countries and the dynamic differs from country to country. Nevertheless, on average the level of investments in after-crisis period remained almost unchanged – about 2.3-2.5% of GDP. Therefore, oil and gas importers invested more on average through the whole period, but suffered deeper cuts after the global financial crisis. Moreover, oil and gas importers started from a lower base in terms of infrastructure provisions and those that made market-based reforms are successful in attracting private capital, while oil and gas exporting countries did less do promote private investments in the sector.

Non-project finance was the main source of investments both for oil and gas importing and exporting countries. However, recently non-project finance has been declining due to both decreasing public and private non-project investments. The opposite dynamic was observed in project finance, as the volume has been increasing recently in both groups of the countries. In particular, public projects have been on the rise recently. There were a few concession projects in oil and gas importing countries (mostly in Armenia and Tajikistan), while in exporting countries, in particular, in Russia five PPP projects were recorded; nevertheless PPPs development still remains in the embryonic stage mostly due to drawback in legislation.

In the funding structure of the infrastructure projects, equity investors, IFIs and commercial banks take the leading role. Public and private equity investors take the biggest stake in infrastructure investments (about 36%) in the form of sponsors' contribution. Among the main IFIs, there are four main institutions that operate in the region – the EBRD, the ADB, the EIB and the WB. The EBRD has the leading role in the region,

however recently both the ADB and the EIB have been increasing operations and strengthening their presence in the region. Investments by commercial banks into infrastructure assets in the region were low, however the volumes of investment have been growing since 2007. Commercial banks tended to invest in the big scale projects with substantial governmental support (e.g. Nord Stream gas Pipeline Project).

The estimated level of the ratio suggests that on average infrastructure projects in the region are poorly-leveraged. The analysis of the average Debt-to-Equity ratio for 21 projects, for which the transaction data is available, equals 64/36. The lowest level of leverage was recorded for Pulkovo Airport PPP project, where Debt-Equity ratio equalled only 32/67.

Transport and energy sectors have been the most successful in terms of attracting investments. The investments in the transport sector were mostly arranged in the form of public non-project finance (i.e from the budget) or public projects. The volume of public projects in the transport has significantly increased in the recent years mostly due to the large-scale projects financed by the IFIs. In the energy sector the finance was arranged mostly in the form of corporate non-project finance, concessions and public projects. The telecommunication sector is mostly privately-owned, therefore corporate non-project finance was the main source of investments in the sector. Water and sewerage sector appears to be least attractive for private investors. As the water utilities are mostly state-owned, finance from the budget was the main source of investments in the sector.

The EIB's operations in ENCA expanded over the years, with a notable increase since 2010, bringing the EIB financing in the Eastern Neighbourhood and Central Asia to a total of EUR 3 billion at the end of 2012. Under the EC mandate, the EIB's key priority is to develop infrastructure in the region contributing to the modernization of the economies and their integration with the EU economy. Therefore, out of 43 operations performed in the region 30 projects were in the infrastructure sectors, accounting EUR 2.2 billion or 73% of total amount invested in the region. The key sectors for the EIB operations were transport and energy. In the energy sector the EIB mainly invested in the modernization of hydropower plants and upgrade of electricity transmission. In the transport sector, the Bank funded projects in upgrading road corridors improving the region's transport links with the neighbouring EU Member States.

Among the main IFIs that operate in the region, the EIB's share has been steadily growing as the EIB's infrastructure investments accounted 7% of total IFIs investments in infrastructure in the region. Despite of the recent entrance in the market, the EIB has managed to get one third of the IFIs market in the countries like Moldova and Ukraine. In other countries of the region, the EIB presence is relatively small, but will increase fast due to the expansion of the EIB operations in the region.



## References

- Allen & Overy , 2010, Global Guide to Public-Private Partnerships, available at: [http://www.allenoverly.com/publications/en-gb/pages/global-guide-to-public-private-partnerships-\(ppp\).aspx](http://www.allenoverly.com/publications/en-gb/pages/global-guide-to-public-private-partnerships-(ppp).aspx), retrieved on 15/01/2013
- Article at The Hindu “China offers \$10 billion loan to SCO members”, <http://www.thehindu.com/news/international/article3500924.ece>, retrieved on 24/10/2012
- Asian Development Bank, DB Development Outlook 2013. Azerbaijan, April 2012, available at: <http://www.adb.org/sites/default/files/ado2013-azerbaijan.pdf>, retrieved on 30/04/2013
- Calderon, C., Infrastructure and Growth in Africa, World Bank, Policy Research Working Paper 4914, April 2009, available at: [http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2009/04/30/000158349\\_20090430144152/Rendered/PDF/WPS4914.pdf](http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2009/04/30/000158349_20090430144152/Rendered/PDF/WPS4914.pdf), retrieved on 22/11/2012
- Calderon, C., Serven, L., Infrastructure in Latin America, World Bank, Policy Research Working Paper 5317, May 2010, available at: <https://openknowledge.worldbank.org/bitstream/handle/10986/3801/WPS5317.pdf?sequence=1>, retrieved on 22/11/2012
- Development Bank of Kazakhstan website, available at: <http://www.adfiap.org/members/DBK/DBK.htm>, retrieved on 05/12/2012
- Dmitriev V. “VEB will show even more impressive results, if not distract him on non-core activities” , Newspaper “Kommersant”, №114 (4899), 26.06.2012 (Дмитриев, В. "ВЭБ покажет еще более впечатляющие результаты, если не отвлекать его на непрофильную деятельность". Газета "Коммерсантъ", №114 (4899), 26.06.2012), available at: <http://www.kommersant.ru/doc/1967036/print>, retrieved on 19/11/2012
- Doing Business 2012. Doing Business in a More Transparent World, World Bank Group, October 20, 2011, available at: <http://www.doingbusiness.org/reports/global-reports/doing-business-2012>, retrieved on 22/02/2013
- EBRD Transition Report 2012, available at: <http://www.ebrd.com/downloads/research/transition/tr12.pdf>, retrieved on 30/04/2013
- EIB Papers Volume 15. n°1/2010, p17-39: Public and private financing of infrastructure: trends and future perspectives; Infrastructure finance in Europe: Composition, evolution and crisis impact
- Golodniuk, I., Financial Systems and Financial Reforms in CIS Countries, CASE, Warsaw, July 2005., available at: <http://www.case-research.eu/en/node/55328>, retrieved on 13/04/2013
- IEA 2008, Energy Technology perspectives: Scenarios and Strategies to 2050, available at: [http://www.iea.org/techno/etp/ETP\\_2008\\_Exec\\_Sum\\_English.pdf](http://www.iea.org/techno/etp/ETP_2008_Exec_Sum_English.pdf), retrieved on 12/12/2012
- IEA 2011, Energy for All. Financing Access for the Poor, Special early excerpt of the World Energy Outlook 2011, available at: [http://www.iea.org/papers/2011/weo2011\\_energy\\_for\\_all.pdf](http://www.iea.org/papers/2011/weo2011_energy_for_all.pdf), retrieved on 12/12/2012
- IMF Working Paper, February 2006, Quasi-Fiscal Deficits and Energy Conditionality in Selected CIS Countries, available at: <http://www.imf.org/external/pubs/ft/wp/2006/wp0643.pdf>, retrieved on 22/11/2012
- Infrastructure Debt Syndication in Russia, Renaissance Capital Group, available at: <http://www.ebrd.com/downloads/loans/14a.pdf>, retrieved on 22/11/2012
- Izaguirre K.A., Kulkarni S.P., Identifying Main Sources of Funding for Infrastructure Projects with Private Participation in Developing Countries: A Pilot Study, Public-Private Advisory Facility, World Bank Working

Paper No.9, May 2011, available at:

[http://www.ppiaf.org/sites/ppiaf.org/files/publication/PPI\\_pilot\\_study\\_WP9.pdf](http://www.ppiaf.org/sites/ppiaf.org/files/publication/PPI_pilot_study_WP9.pdf), retrieved on 22/11/2012

Macquarie Renaissance Infrastructure Fund acquires interest in a leading Russian telecommunications Tower developer and operator, 29 February 2012, available at:

<http://www.macquarie.co.uk/mgl/uk/about/news/2012/20120229a>, retrieved on 17/11/2012

OECD 2007, Infrastructure to 2030 Volume 2 Mapping Policy Reform for Electricity, Water and Transport, available at: <http://www.oecd.org/futures/infrastructureto2030/40953164.pdf>, retrieved on 22/11/2012

OECD, September 2011, International Futures Programme, Project on Strategic Transport Infrastructure to 2030. Pension Funds, Investments in Infrastructure, available at:

<http://www.oecd.org/sti/futures/infrastructureto2030/48634596.pdf>, retrieved on 22/11/2012

Sugolov, P., Dodonov, B., von Hirschhausen, C., Infrastructure Policies and Economic Development in East European Transition Countries: First Evidence, Institute for Economic Research (IER), Working Paper (2003), available at: <http://tu->

[dresden.de/die\\_tu\\_dresden/fakultaeten/fakultaet\\_wirtschaftswissenschaften/bwl/ee2/lehrstuhlseiten/ordner\\_publicationen/publications/wp\\_psm\\_02\\_sogulov\\_dodonov\\_hirschhausen\\_infrastructure\\_growth\\_transition.pdf](http://tu-dresden.de/die_tu_dresden/fakultaeten/fakultaet_wirtschaftswissenschaften/bwl/ee2/lehrstuhlseiten/ordner_publicationen/publications/wp_psm_02_sogulov_dodonov_hirschhausen_infrastructure_growth_transition.pdf), retrieved on 17/11/2012

TRACECA Country Reports on Infrastructure and Finance (2010), available at: <http://www.traceca.org/en/investments/investment-forum-2012/country-reports-2010/>, retrieved on 17/12/2012

World Bank, Global Development Finance, 2004, "The Challenge of Financing Infrastructure in Developing Countries", available at:

[http://siteresources.worldbank.org/GDFINT2004/Home/20177051/gdf\\_chapter%206.pdf](http://siteresources.worldbank.org/GDFINT2004/Home/20177051/gdf_chapter%206.pdf), retrieved on 22/11/2012

World Bank Policy Research Report, 2004, Reforming Infrastructure, Privatization, Regulation, and Competition. Kessides, I., available at: [http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2004/06/16/000012009\\_20040616143838/additional/310436360\\_20050007115940.pdf](http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2004/06/16/000012009_20040616143838/additional/310436360_20050007115940.pdf), retrieved on 25/04/2013

World Bank, June 2006, "Infrastructure in Europe and Central Asia Region. Approaches to Sustainable" Services, available at: <http://siteresources.worldbank.org/INTECAREGTOPENENERGY/Resources/flagship-main-june-1-06.pdf>, retrieved on 25/04/2013

## Projects Data Sources:

Asian Development bank, Projects, available at: <http://www.adb.org/projects>, retrieved on 02/04/2013

European Investment Bank Projects: <http://www.eib.org/projects/loans/regions/cei/index.htm>, retrieved on 02/04/2013

European Bank for Reconstruction and Development Projects:

<http://www.ebrd.com/saf/search.html?type=project&country=Armenia>, retrieved on 02/04/2013

Infrastructure Journal Projects: <http://www.ijonline.com/ProjectSearch/> retrieved on 02/04/2013

International Finance Corporation Projects: <http://www.ifc.org/projects>, retrieved on 02/04/2013

World Bank Projects: <http://www.worldbank.org/projects>, retrieved on 02/04/2013

World Bank Group Private Participation in Infrastructure Database:

<http://ppi.worldbank.org/explore/Report.aspx>, retrieved on 20/08/2012

Dealogic Projectware Database: <http://www.dealogic.co.uk/en/marketdata.htm>, retrieved on 09/08/2012

## ANNEX 1. Key Macroeconomic Indicators

ENCA Oil & Gas Exporting Countries						
<b>Azerbaijan</b>						
	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
GDP growth (annual %)	25.00	10.80	9.30	4.96	0.09	3.89
Gross fixed capital formation (% of GDP)	21.40	20.09	18.29	18.46	21.13	19.38
General government net lending/borrowing (% GDP)	2.29	19.99	6.57	13.98	11.29	8.29
General government gross debt (% GDP)	8.61	7.30	11.79	11.15	9.99	11.41
Inflation, CPI (% change)	16.60	20.82	1.56	5.67	7.87	3.00
Domestic credit to private sector (% of GDP)	14.43	15.59	19.07	17.88	17.98	-
Current account balance (% of GDP)	27.26	35.48	22.98	28.42	26.45	20.35
Workers remittances (% of GDP)	3.90	3.18	2.88	2.71	-	-
FDI (% of GDP)	-	-	-	-	-	-
Gross reserves (in months of imports coverage)	5.44	6.77	6.52	7.28	7.41	7.38
Doing business - Ease of Doing Business Rank	96.00	33.00	38.00	54.00	66.00	67.00
<b>Kazakhstan</b>						
	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
GDP growth (constant prices; annual %)	8.90	3.20	1.18	7.25	7.50	5.47
Gross fixed capital formation (% of GDP)	30.51	26.49	28.75	25.26	21.25	22.12
General government net lending/borrowing (% GDP)	5.22	1.21	-1.24	1.54	5.88	3.57
General government gross debt (% GDP)	5.93	6.66	10.23	10.68	10.51	12.40
Inflation, CPI (% change)	10.78	17.15	7.30	7.13	8.33	5.04
Domestic credit to private sector (% of GDP)	58.94	49.65	50.27	39.30	36.27	-
Current account balance (% of GDP)	-8.07	4.68	-3.57	1.63	7.58	6.18
Workers remittances (% of GDP)	0.21	0.14	0.23	0.20	-	-
FDI (% of GDP)	5.47	5.45	3.86	2.24	2.57	3.44
Gross reserves (in months of imports coverage)	4.24	4.36	6.41	7.09	9.33	10.27
Doing business - Ease of Doing Business Rank	71.00	70.00	63.00	59.00	47.00	49.00
<b>Russian Federation</b>						
	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
GDP growth (constant prices; annual %)	8.54	5.25	-7.80	4.30	4.30	3.70
Gross fixed capital formation (% of GDP)	21.00	22.29	21.99	21.76	20.96	20.88
General government net lending/borrowing (% GDP)	6.75	4.87	-6.31	-3.51	1.56	0.53
General government gross debt (% GDP)	8.51	7.88	11.34	11.82	11.96	11.03
Inflation, CPI (% change)	9.01	14.11	11.65	6.85	8.44	5.10
Domestic credit to private sector (% of GDP)	38.81	42.19	46.15	44.90	45.88	
Current account balance (% of GDP)	5.93	6.25	4.05	4.70	5.34	5.21
Workers remittances (% of GDP)	0.36	0.36	0.44	0.35	-	-
FDI (% of GDP)	3.89	4.15	1.98	1.92	1.88	1.86
Gross reserves (in months of imports coverage)	19.86	13.48	19.77	16.88	13.68	12.67
Doing business - Ease of Doing Business Rank	106.00	120.00	120.00	123.00	120.00	112.00
<b>Turkmenistan</b>						
	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
GDP growth (constant prices; annual %)	11.06	14.75	6.13	9.16	14.65	7.97
Gross fixed capital formation (% of GDP)	18.18	13.51	11.42	-	-	-
General government net lending/borrowing (% GDP)	3.91	10.00	7.02	2.05	3.62	6.81

General government gross debt (% GDP)	2.42	2.81	2.44	10.63	7.28	14.43
Inflation, CPI (% change)	6.26	14.54	-2.67	4.45	5.28	4.31
Domestic credit to private sector (% of GDP)	-	-	-	-	-	-
Current account balance (% of GDP)	15.55	16.55	-14.75	-10.60	2.03	-1.51
Workers remittances (% of GDP)	-	-	-	-	-	-
FDI (% of GDP)	3.30	5.93	22.52	16.39	12.11	9.44
Gross reserves (in months of imports coverage)	32.26	25.70	20.04	20.58	18.59	21.64
Doing business - Ease of Doing Business Rank	-	-	-	-	-	-
<b>Uzbekistan</b>						
	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
GDP growth (constant prices; annual %)	9.50	9.00	8.10	8.50	8.30	7.36
Gross fixed capital formation (% of GDP)	30.00	31.00	31.00	30.67	30.89	30.85
General government net lending/borrowing (% GDP)	5.18	10.17	2.78	4.94	8.99	3.03
General government gross debt (% GDP)	15.79	12.73	10.98	9.96	9.10	8.84
Inflation, CPI (% change)	12.28	12.75	14.08	9.38	12.82	12.91
Domestic credit to private sector (% of GDP)	-	-	-	-	-	-
Current account balance (% of GDP)	7.32	8.69	2.20	6.15	5.78	4.71
Workers remittances (% of GDP)	-	-	-	-	-	-
FDI (% of GDP)	3.31	3.33	3.83	4.71	4.47	3.89
Gross reserves (in months of imports coverage)	7.07	8.79	10.48	12.13	11.66	12.47
Doing business - Ease of Doing Business Rank	138.00	138.00	150.00	150.00	166.00	154.00
<b>ENCA Oil &amp; Gas Importing Countries</b>						
<b>Armenia</b>						
	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
GDP growth (constant prices; annual %)	13.75	6.95	-14.15	2.10	4.55	3.91
Gross fixed capital formation (% of GDP)	36.94	39.76	36.41	33.07	28.75	30.72
General government net lending/borrowing (% GDP)	-2.33	-1.76	-7.69	-4.92	-2.84	-3.13
General government gross debt (% GDP)	14.25	14.63	34.14	33.34	35.13	34.19
Inflation, CPI (% change)	4.55	9.02	3.54	7.27	7.65	2.81
Domestic credit to private sector (% of GDP)	13.58	17.77	23.30	26.50	33.05	
Current account balance (% of GDP)	-6.40	-11.85	-15.81	-14.65	-10.93	-9.84
Workers remittances (% of GDP)	9.19	9.11	8.90	10.63		
FDI (% of GDP)	7.61	8.06	8.38	6.00	4.36	4.72
Gross reserves (in months of imports coverage)	5.55	3.56	6.53	5.32	5.01	4.72
Doing business - Ease of Doing Business Rank	39.00	44.00	43.00	48.00	55.00	32.00
<b>Belarus</b>						
	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
GDP growth (constant prices; annual %)	8.65	10.25	0.16	7.74	5.34	4.30
Gross fixed capital formation (% of GDP)	31.38	33.30	35.90	39.34	37.98	34.50
General government net lending/borrowing (% GDP)	2.26	3.35	-0.42	-1.83	3.28	0.05
General government gross debt (% GDP)	18.35	21.73	34.87	42.04	49.78	38.33
Inflation, CPI (% change)	8.43	14.83	12.95	7.74	53.23	60.19
Domestic credit to private sector (% of GDP)	24.80	28.63	37.15	44.37	42.00	
Current account balance (% of GDP)	-6.71	-8.21	-12.55	-14.99	-10.47	-3.57
Workers remittances (% of GDP)	0.78	0.73	0.73	0.68		
FDI (% of GDP)	3.63	3.32	3.70	2.44	6.84	3.32
Gross reserves (in months of imports coverage)	1.56	0.78	1.92	1.31	1.70	1.06
Doing business - Ease of Doing Business Rank	110.00	85.00	58.00	68.00	69.00	58.00
<b>Georgia</b>						
	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>

GDP growth (constant prices; annual %)	12.34	2.31	-3.78	6.25	6.95	6.54
Gross fixed capital formation (% of GDP)	25.72	21.49	15.32	19.33	21.93	21.93
General government net lending/borrowing (% GDP)	0.83	-1.98	-6.54	-4.78	-0.87	-1.41
General government gross debt (% GDP)	21.55	27.62	37.29	39.16	33.88	33.78
Inflation, CPI (% change)	9.24	10.00	1.73	7.11	8.54	0.16
Domestic credit to private sector (% of GDP)	27.84	33.05	30.93	31.81	32.84	
Current account balance (% of GDP)	-19.65	-21.94	-10.63	-10.26	-11.77	-12.58
Workers remittances (% of GDP)	6.84	5.72	6.63	6.93		
FDI (% of GDP)						
Gross reserves (in months of imports coverage)	2.76	2.37	4.81	4.54	4.36	4.05
Doing business - Ease of Doing Business Rank	18.00	15.00	11.00	12.00	16.00	9.00
<b>Moldova</b>						
	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
GDP growth (constant prices; annual %)	3.00	7.80	-6.00	7.09	6.41	3.00
Gross fixed capital formation (% of GDP)	34.10	34.00	22.60	22.62	23.16	23.64
General government net lending/borrowing (% GDP)	-0.23	-1.00	-6.35	-2.48	-2.38	-1.32
General government gross debt (% GDP)	23.97	18.83	28.63	26.19	23.18	22.40
Inflation, CPI (% change)	12.38	12.70	0.01	7.36	7.65	5.15
Domestic credit to private sector (% of GDP)	36.86	36.46	36.00	33.27	33.63	
Current account balance (% of GDP)	-15.25	-16.17	-8.55	-7.91	-11.52	-11.39
Workers remittances (% of GDP)	34.03	31.34	22.26	23.57		
FDI (% of GDP)	7.85	8.67	2.95	2.88	3.21	3.39
Gross reserves (in months of imports coverage)	3.70	3.52	4.45	4.65	4.15	4.36
Doing business - Ease of Doing Business Rank	92.00	103.00	94.00	90.00	81.00	83.00
<b>Kyrgyz Republic</b>						
	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
GDP growth (constant prices; annual %)	8.54	7.57	2.90	-0.47	5.68	1.00
Gross fixed capital formation (% of GDP)	20.06	19.37	22.02	22.91	23.45	24.12
General government net lending/borrowing (% GDP)	-0.64	0.97	-1.27	-5.85	-4.78	-6.49
General government gross debt (% GDP)	56.80	48.46	57.99	60.32	52.44	55.09
Inflation, CPI (% change)	10.20	24.53	6.85	7.76	16.59	2.86
Domestic credit to private sector (% of GDP)	15.05					
Current account balance (% of GDP)	-6.21	-15.54	-2.51	-6.38	-6.27	-12.78
Workers remittances (% of GDP)	18.80	23.98	21.15	26.60		
FDI (% of GDP)	5.46	7.99	4.05	9.13	11.72	6.97
Gross reserves (in months of imports coverage)	4.15	2.93	4.88	4.95	4.08	3.86
Doing business - Ease of Doing Business Rank	94.00	68.00	41.00	44.00	70.00	70.00
<b>Tajikistan</b>						
	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
GDP growth (constant prices; annual %)	7.80	7.90	3.90	6.50	7.40	6.80
Gross fixed capital formation (% of GDP)	22.04	20.43	18.39	16.58	19.01	19.85
General government net lending/borrowing (% GDP)	-5.53	-5.06	-5.23	-2.98	-2.14	-2.95
General government gross debt (% GDP)	34.61	29.84	36.22	36.34	35.47	36.39
Inflation, CPI (% change)	13.17	20.43	6.51	6.46	12.42	5.96
Domestic credit to private sector (% of GDP)	28.93					
Current account balance (% of GDP)	-8.61	-7.64	-5.92	-0.25	0.57	-0.40
Workers remittances (% of GDP)	45.46	49.29	35.12	39.96		
FDI (% of GDP)						
Gross reserves (in months of imports coverage)	0.71	0.70	1.52	2.08	1.80	1.94
Doing business - Ease of Doing Business Rank	153.00	159.00	152.00	139.00	147.00	141.00

Ukraine						
	2007	2008	2009	2010	2011	2012
GDP growth (constant prices; annual %)	7.90	2.30	-14.80	4.10	5.15	3.00
Gross fixed capital formation (% of GDP)	27.52	26.39	18.35	18.10	21.03	18.29
General government net lending/borrowing (% GDP)	-1.97	-3.17	-6.26	-5.75	-2.73	-3.15
General government gross debt (% GDP)	12.31	20.55	35.38	40.50	35.99	35.24
Inflation, CPI (% change)	12.84	25.20	15.90	9.36	7.96	1.97
Domestic credit to private sector (% of GDP)	58.17	73.88	73.43	62.41	55.87	
Current account balance (% of GDP)	-3.69	-7.09	-1.48	-2.21	-5.45	-5.62
Workers remittances (% of GDP)	3.16	3.21	4.33	4.11		
FDI (% of GDP)	6.13	5.41	3.40	4.08	4.59	4.47
Gross reserves (in months of imports coverage)	5.29	3.70	5.47	5.58	3.87	3.02
Doing business - Ease of Doing Business Rank	139.00	145.00	142.00	145.00	152.00	137.00

## ANNEX 2. Classification of Infrastructure Finance in ENCA region

Infrastructure investments are classified in five categories:

**Public projects** – infrastructure projects of the public companies, which are implemented through attracting external investments, i.e. not financed from the budget. Classification is based on the following approach: for Projectware and Infrastructure Journal database – ownership structure of the borrower is taken as a key indicator to justify whether the project is public or private; for projects of EBRD, ADB, IFC databases – used classification of the IFIs, which provide their own justification if a project is public or private. It should be noted the following: (1) subsidiary companies of Gazprom (which is a public company) are presented in Projectware database as private entities, therefore projects of these companies are considered as private projects; (2) Nord Stream Gas pipeline appears as a private project as the borrower (“Nord Stream AG”) appears as a “private corporate” company in Projectware database.

Source: Projectware, EBRD, IJ, ADB, EIB, WB

**Private projects** – infrastructure projects of private companies (private utilities), which are implemented through attracting external investments, i.e. not financed from the own funds of the company.

Source: Projectware, EBRD, IJ, ADB, EIB, WB PPI database

**PPP/Concessions** – investments in the construction of new facilities, which serve the public, by the private company under BOT or BROT contract signed with the government, or through SPV mechanism.

Source: Projectware, EBRD, IJ, ADB, EIB, WB, WB PPI database

**Corporate or private non-project** – resources the private company (or private utility) commits to invest in expanding and modernizing its current facilities. Investments of divestitures companies (partly or fully privatized) are included in this section based on assumption that the finance in facilities extension is made mostly by the private entity. It should be noted the following assumptions were used to estimate this category:

- If a state enterprise from another country privatized the company X, investments of company X are considered as private in the home country of the company (i.e. not financed from the budget of the home country);
- Privatization payments (i.e. commitments to the government) are not included in this estimate;
- As the WB PPI database provide additional information on physical assets (“Capacity”) created, investments are included only if a new capacity appears in the year of investment.

*Example 1:* After winning the tender for 90% stake in ArmenTel, state-owned Hellenic Telecommunications Organization (OTE), the Greek national operator, invested about 200 mln USD for reconstruction and development of telecommunication infrastructure of Armenia, according to company reports.

*Example 2:* SOCAR Energy Georgia, the Georgian subsidiary of Azerbaijani state oil and gas firm SOCAR, signed an agreement with the Georgian government to purchase of 23 regional gas distribution companies with connecting mains and two gas pipelines serving about 30,000 consumers. Under the signed contract SOCAR was to (i) invest US\$40 million in the Georgian gas distribution network over the next three years, (ii) expand the gas distribution networks to supply an additional 150,000 Georgian households in the same time period, (iii) guarantee five years supply of natural gas to the companies operated, and (iv) by the end of 2010, provide 85% of gas supply in Georgia. As of 2010, SOCAR claimed it had already spent US\$15-16 million for gasification in Georgia.

Source: World Bank Private Participation in Infrastructure database

**Public non-project** – investments from the budget funds on development of existing infrastructure facilities. This category also includes operation/maintenance costs as it is impossible to exclude this type of investments due to the lack of appropriate data. The estimation of “Public non-project” investments is shown in the following formula:

Public non-project finance = (Public Gross Fixed Capital Formation\*Share of Infrastructure sectors in GFCF) – Public projects

The estimation is based on the data from the IMF World Economic Outlook, where data on “Gross public fixed capital formation” is provided for almost all ENCA Countries (except Belarus, Tajikistan and Kyrgyzstan). In order to estimate public gross fixed capital formation in four infrastructure sectors, we estimated the share of infrastructure sectors in total gross fixed capital formation (based on the data from State Statistics Agencies of Armenia, Russian Federation, Ukraine, Moldova and Kyrgyzstan as for the rest of ENCA countries there is no relevant data available) and applied this estimation

to public gross fixed capital formation. It should be noted that State Statistics Agencies from mentioned countries use different approached to classify gross fixed capital formation by sectors. On average, the shares of sectors are estimated to be the following: transport – 21%, water and sewerage - 2%, energy – 9% and communication – 1%. All in all, the share of four infrastructure sectors is estimated to be 33% of total gross fixed capital formation. This estimation is applied to all other ENCA countries, where these kind of data is unavailable. In order to avoid double calculation of project finance by public sector, estimation of 'Public projects' is subtracted from public gross fixed capital formation in infrastructure sectors.

*Source: IMF, State Statistics Agencies of ENCA countries, own estimations.*



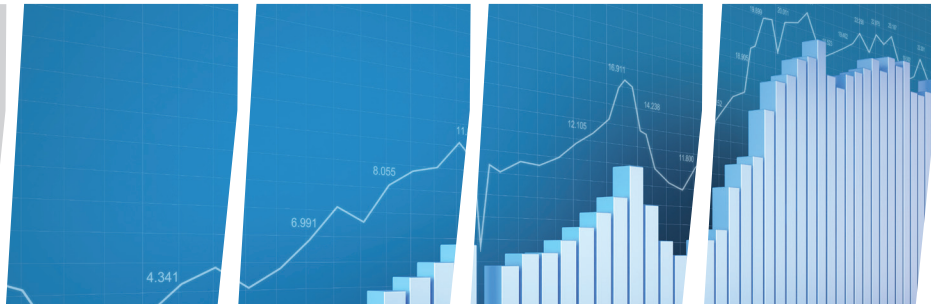
## ANNEX 3. EIB Operations in the ENCA region

Name	Sector	Signature date	Signed Amount (Euro million)
<b>Armenia</b>			
ARMENIA WATER SECTOR PROJECT	Water, sewerage, solid waste	07/08/2012	7
BORDER CROSSING AND INFRASTRUCTURE	Transport	07/08/2012	30
PCH LOAN FOR SME AND PRIORITY PROJECTS	Credit lines	28/10/2011	15
CRESCENT CLEAN ENERGY FUND TURKEY	Energy	12/09/2011	1
YEREVAN METRO REHABILITATION	Transport	10/08/2010	5
<b>Total Amount</b>			<b>58</b>
<b>% of infrastructure investments in total</b>			<b>74%</b>
<b>Georgia</b>			
TBC BANK SME & ENERGY ENV LOAN	Credit lines	06/07/2012	25
GEORGIA EAST - WEST HIGHWAY	Transport	11/05/2012	170
PCH LOAN FOR SME AND PRIORITY PROJECTS	Credit lines	28/10/2011	15
VARDNILI & ENGURI HYDRO REHABILITATION	Energy	28/12/2010	20
SOCIETE GENERALE SME & ENERGY ENV LOAN	Credit lines	17/12/2010	35
WATER INFRASTRUCTURE MODERNISATION	Water, sewerage, solid waste	15/09/2010	40
HIGH VOLTAGE TRANSMISSION LINES	Energy	26/03/2010	80
<b>Total Amount</b>			<b>385</b>
<b>% of infrastructure investments in total</b>			<b>81%</b>
<b>Moldova</b>			
CHISINAU URBAN ROADS	Transport	21/09/2012	10
MOLDELECTRICA POWER TRANSMISSION	Energy	26/06/2012	17
PCH LOAN FOR SME AND PRIORITY PROJECTS	Credit lines	28/10/2011	20
SOCIETE GENERALE SME & ENERGY ENV LOAN	Credit lines	24/11/2010	20
FILIERE-DU-VIN UPGRADING (MOLDOVA)	Agriculture...	23/11/2010	75
MOLDOVA ROADS II	Transport	23/11/2010	75
CHISINAU TROLLEYBUSES	Transport	13/10/2010	5
MOLDOVA WATER SECTOR PROJECT	Water, sewerage, solid waste	16/09/2010	10
MOLDOVA CHISINAU AIRPORT	Transport	18/12/2008	20
MOLDOVA EUROPEAN ROADS	Transport	28/06/2007	30
<b>Total Amount</b>			<b>282</b>
<b>% of infrastructure investments in total</b>			<b>59%</b>
<b>Russia</b>			
MONDI SYKTYVKAR MILL MODERNISATION	Industry	20/12/2011	65
MONDI SYKTYVKAR MILL MODERNISATION	Energy	20/12/2011	25
MONDI SYKTYVKAR MILL MODERNISATION	Agriculture...	20/12/2011	10
OGK-5 POWER PLANT MODERNISATION	Energy	26/03/2010	250
MTS MOBILE BROADBAND	Telecom	26/06/2009	115
ST PETERSBURG VODOKANAL III	Water, sewerage, solid waste	04/06/2009	18
ST PETERSBURG FLOOD BARRIER PROJECT	Water, sewerage, solid waste	03/05/2005	40
ST PETERSBURG VODOKANAL II	Energy	08/04/2005	2

ST PETERSBURG VODOKANAL II	Water, sewerage, solid waste	08/04/2005	18
ST PETERSBURG WASTEWATER	Water, sewerage, solid waste	23/12/2003	25
<b>Total Amount</b>			<b>568</b>
<b>% of infrastructure investments in total</b>			<b>87%</b>
<b>Ukraine</b>			
<b>Name</b>	<b>Sector</b>	<b>Signature date</b>	<b>Signed Amount</b>
UKREXIMBANK LOAN FOR SMES & MID-CAPS	Credit lines	28/12/2012	100
PROMINVESTBANK LOAN SMES & MID-CAPS	Credit lines	21/12/2012	200
UNICREDIT LOAN SME & PRIORITY PROJECTS	Credit lines	20/12/2012	140
HYDRO POWER PLANTS REHABILITATION	Energy	21/09/2012	200
750KV ZAPORIZHZHIA-KAKHOVSKA LINE	Energy	16/09/2011	175
EUROPEAN ROADS UKRAINE II	Transport	27/05/2011	200
EUROPEAN ROADS UKRAINE II	Transport	27/05/2011	250
MYKOLAYIV VODOKANAL	Water, sewerage, solid waste	02/02/2010	16
FORUMBANK SME & ENERGY_ENV LOAN	Credit lines	23/12/2009	100
RIVNE-KYIV HIGH VOLTAGE LINE	Energy	20/10/2008	150
EUROPEAN ROADS UKRAINE	Transport	30/07/2007	200
<b>Total Amount</b>			<b>1,731</b>
<b>% of infrastructure investments in total</b>			<b>69%</b>
<b>Total Amount of the EIB Investments in ENCA</b>			
			<b>3,023</b>
<b>% of infrastructure investments in total</b>			<b>73%</b>







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