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Hydro Politics in Central Asia and CASA 1000

Kubanychbek Ormushev MA on Political Science and Security Studies, OSCE Academy.





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Regional Institute of Central Asia 109/B Turusbekov Street, B/C "Maximum+" 720001 Bishkek, Kyrgyz Republic Tel.: +996 (312) 88 22 01 E-mail: press@rica.network Web.: www.rica.network

HYDRO POLITICS IN CENTRAL ASIA AND CASA 1000

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ABSTRACT

After gaining independence hydro-rich countries Tajikistan and the Kyrgyz Republic were seeking for possibilities of developing their hydro-electric energy potential and export electricity surplus, but it was impossible without major investments in construction of electric energy facilities and transmission lines in these states. Another problem was poor cooperation of CA states. So CASA 1000 project seems to resolve this hydro energy export problem.

Tajikistan and the Kyrgyz Republic in Central Asia, Afghanistan and Pakistan in South Asia have been pursuing the development of a Central Asia South Asia Regional Electricity Market (CASAREM). These four countries have intensified their cooperation since 2005 among themselves and with the International Financial Institutions (IFIs) comprising the Asian Development Bank (ADB), the European Bank for Reconstruction and Development (EBRD), the International Finance Corporation (IFC), the Islamic Development Bank (IsDB) and the World Bank (WB).

The CASA 1000 Project would comprise:

(a) Around 750 km High Voltage Direct Current (DC) transmission system between Tajikistan and Pakistan via Afghanistan;

(b) A DC to Alternate Current (AC) converter station in Kabul to supply Kabul area;

(c) AN AC transmission link between Kyrgyz Republic and Tajikistan to supply Kyrgyz electricity to South Asia via Tajikistan;

INTRODUCTION

One should understand that the problem of water sharing and electricity is very much interconnected between Central Asian states. The first thing is that two states Kyrgyzstan and Tajikistan in a position of the upper stream states and the Uzbekistan, Kazakhstan and Turkmenistan have the role of downstream states. Although, the downstream states possess an immense deposits of the fossil energy resources and the upstream countries do not have any large fossil resources and constantly remain in a debt-stricken position with no possibility to improve their economic position without sizable investments. Summer time water sharing problems were the issue of many debates between the Amu Darya and Syr Darya basin states.

The second issue is that, Kyrgyzstan, Uzbekistan and Kazakhstan are connected to the single electric power grid - the remnant of the Soviets, United Dispatch Center -Energia, located in Tashkent, thus heavily influenced by Uzbekistan.

Taking into account all of these difficulties, there is some hope that project Central Asia – South Asia (CASA 1000/see figure #1 and #2) electricity transmission line will somehow resolve this tensions between Central Asian states and may give an opportunity to landlocked states like Kyrgyzstan and Tajikistan to improve their economies by exporting its electricity to the South Asia.

The problem with energy efficiency is extremely acute in Kyrgyzstan and Tajikistan. For example in Kyrgyzstan it is estimated that energy serving companies are losing about 100 million US dollars annually due to the various black financial schemes and corruption, deteriorated condition of transmission lines and substations, and simply due to the poor performance of the energy sector workers, who do not repair the breakdowns in time and let to the overloading of the energy system causing the damages to the remaining part of the electricity lines and substations. I addition, we have a very poor energy sector management. Inefficient redistribution of electricity through the entire state, which leads to the electricity shortages in one part, while it is wasted for nothing in other places.

Kyrgyzstan and Tajikistan are upstream states with great hydro energy potential, although their real export capabilities are rather weak today, since they even cannot supply the internal market, especially in winter time. They can export electricity only after construction of the big dams: Rogun in Tajikistan and Kambar Ata 1 in Kyrgyzstan. Both dams require immense investments, which these states cannot afford.

Another problem is that Uzbekistan, downstream country is fiercely opposing the construction of any big dams upstream on the discourses of the Amu Darya and Syr Darya. Moreover Uzbekistan has its` own electricity transmission line till Kabul and already exporting electricity to Afghanistan and not interested in CASA 1000 project. Although CASA 1000 needs Uzbekistan; Presently, Kyrgyzstan and Tajikistan have electricity surplus only on summer time and cannot supply Afghanistan and Pakistan on spring, autumn and winter. That's when Uzbekistan could export its electricity surplus via CASA 1000 transmission lines, however it's not clear yet whether Uzbekistan will be involved in CASA 1000 or not.

One more problematic issue of the project is the real payment capacities of the potential electricity consumers. Will Afghanistan and Pakistan be able to pay back for the electricity to Tajikistan and Kyrgyzstan? If there is any compromising measures in case of payment delays or on the contrary electricity shortages from the exporters? Here the main problem for the project is the longest part of the transmission lines must go through the territory of Afghanistan. The instability of the region raises numerous questions, without securing the transmission routes it's rather impossible to start the project, since the transmission lines requires the continuous service and maintenance.

There is also possibility of the internal and external actors, who could somehow influence the project. For instance, the Taliban insurgents; the Pakistani IFS; India is also interested in importing electricity. Russia is interested in enrollment to the project too. It's worth to examine these peripheral actors to track down their goals and scope of influence.

HYDRO POLITICS IN CENTRAL ASIA

Iaxartes and Oxus¹; water and energy nexus.

After the collapse of the Soviet Union, the Central Asia was divided into five independent states. This region became a large land locked area with no entrance to the seas or oceans and no straits nearby. As a result, these states had to be content with their roles of transit countries, even in that case only to some extent and that was the cause to Central Asian states to get very inwardly focused in their policies. Such conditions led to a high dependence by these countries on their internal resources, with the transboundary waters considered as one of the most important ones. Central Asia has two big transboundary rivers: Amu Darya that takes its origin from the Pamir Mountains in Tajikistan and then it flows along the border with Afghanistan then to Uzbekistan, Turkmenistan and back to Uzbekistan before reaching the Aral Sea. According to J.Michael Biddisons` report, "Amu Darya has the biggest water bearing capacity in Central Asia, its` annual discharge is 78.5km³. The second river which forms the Aral Sea basin is Syr Darya, it takes its` beginning from the Tyan Shan mountain ranges in Kyrgyzstan, in smaller part goes through Tajikistan then to Uzbekistan and finally flows into Kazakhstan where it fills the Aral Sea. The annual discharge of the Syr Darya is $37 \text{km}^{3,2}$. Both rivers are largely fed by the glaciers and snowmelt.

All the way along the Amu Darya and Syr Darya there is a wide network of dams, irrigation canals and reservoirs that results in the complexity of water sharing between states. For better understanding the level of difficulty and diversity of water management in Central Asia, one has to go back and examine the roots of this issue. When the whole energy system of the Central Asia was constructing from the midst of 1950s, there were two major points of the Soviet administration that shaped the current energy system. Firstly, according to Jeremy Allouche, the Director

of the Water Institutions and Management Competence Centre at the Swiss Federal Institute of Technology, the water sharing and energy system were constructed in such way, that all the CA republics were interdependent to each other, the system worked on sustainable competition between water-surplus and water-deficit republics, and Moscow ensured itself to be the permanent mediator between them. Thus realizing the Soviets divide and rule policy³. Secondly, the USSR was a single state and Central Asia wasn't an exception, the region was considered as a one state, so all the hydroelectric constructions were planned and built according to the agricultural and energy needs of the whole region, and it was economically much cheaper and strategically prudent than to construct individual and independent energy systems for each country. Moreover Soviet planners built HPPs prevailingly to meet the irrigation needs of the downstream countries, since the first priorities were to raise the harvest of cotton and other crops in perfectly warm but dry terrains of Uzbekistan and

Turkmenistan.

As a consequence, all the hydroelectric and thermal electric plants of Central Asian states were linked and unified to the giant network of transmission lines of electricity. Hence this energy grid was As a consequence, all the hydroelectric and thermal electric plants of Central Asian states were linked and unified to the giant network of transmission lines of electricity

called UPS (United Power System) or CAPS (Central Asian Power System). Biddisons notes that

"The United Power System of Central Asia developed in the 1960's and operated by the Soviets as an integrated electric power pool, has been separated into relatively independent national power systems, which are now loosely coordinated through the United Dispatch Center - Energia (UDC) in Tashkent. The UDC is responsible for maintaining the balanced and synchronized operation of the electrical power transmission and distribution systems of the five Central Asian countries. During the Soviet era, the UDC had unconditional control of all power systems in Central Asia"⁴.

Thus the Soviet administration created a single energy circle, which bonded the transmission lines of five Central Asian states. As a result, the distribution of electricity was more or less conducted through UDC in Tashkent. The UPS proved good in the times of the Soviets, since it maintained stability within the UPS. For example, when there were electricity disruptions in one particular state, it was quite easy to conduct electricity through UDC and supply electricity to that state. The role played in this system to hydroelectric dams is important, since if there is an energy disruption, the generating units could be flooded by water, which means the total destruction of the generating unit. However, UPS

However, UPS became very problematic after the dissolution of USSR

became very problematic after the dissolution of USSR. Nonetheless, CA states managed to integrate and on October 1991 they signed the Almaty agreement, according

to which they agreed that they would stick with the Soviet's water distribution scheme. At the same time, the Interstate Coordinating Water Commission (ICWC) was established to regulate the implementation of quotas, with decisions on key issues to be made by consensus of the five member states. Several treaties and agreements were signed and numerous donors were involved in order to facilitate the agreements and help to manage the ecological disaster of the shrinking Aral Sea. However, those agreements were never fully implemented and interstate cooperation between CA states was very poor.

A report by the International Crisis Group described the problem in detail:

"The upstream countries trade water to Uzbekistan and Kazakhstan for energy in the form of gas, coal or power. Since energy deliveries have been unreliable, Kyrgyzstan has responded by releasing more water through its hydropower dam in winter, which results in downstream flooding and less water for summer irrigation. Attempts by Kyrgyzstan to demand payment for water have been resisted by the downstream countries. As each country has started to view the problem as a zero-sum game, it has taken steps to increase control over water, often to the detriment of the others"⁵.

BEAR AND THE BULL; UPSTREAM AND WNSTREAM RESISTANCE

Kyrgyzstan's winter water release is unavoidable, since it has to somehow compensate for its domestic energy demand for heating, a situation that did not exist in the Soviet times. The water release was only in spring and summer time in order to meet the agricultural needs of the downstream countries. According to the report of Erika Weinthal, these winter water releases went to the Chardara water reservoir, which divide the Uzbekistan and Kazakhstan, because of the freezing of the downstream parts of the Syrdarya, Uzbekistan could not handle the overwhelming water pressure and in some cases it threatened to break through the Chardara water reservoir, so Uzbekistan diverged the overflow of water into the natural Arnasay Depression, as a result a new giant Aydarkul lake was formed in the desert, these wasteful discharges are lost to downstream use, including the flow to the Aral Sea⁶. The creation of artificial Avdarkul

Lake is a good example of the bad management of the three Syrdarya river sharing states. In fact, all CA states are quarrelling over water; Turkmenistan and Uzbekistan blamed each other of using too

The creation of artificial Aydarkul Lake is a good example of the bad management of the three Syrdarya river sharing states

much water, Kazakhstan on its turn blamed Uzbekistan of overusing its share from Syrdarya, Tajikistan and Uzbekistan still confronting each other on water issue.

One remarkable thing is that upstream countries Kyrgyzstan and Tajikistan have very few fossil energy sources while the downstream countries Uzbekistan, Turkmenistan and Kazakhstan have vast amounts of fossil energy sources. The lack of fossil energy sources in upstream states makes them too dependent on their hydroelectric energy systems (see figure #3).

The world market prices for the gas and oil are constantly increasing, so the downstream states which have plenty of

oil and gas are in a much better condition. A Giant network of pipelines helps these states to export their fossil energy sources to the West through the Russian Federation and Azerbaijan, and to the East to China. Thus huge revenues from the oil and gas improve their economies significantly. On the other side, the upstream states having been unable to attract big investments to their mineral sources (except Kumtor Gold mining company in Kyrgyzstan and Talco aluminum company in Tajikistan), seems to have no choice but to construct strategies that ensure their energy security in order to have financial stability in their countries.

Regarding this policy, the upstream states are more interested in changing the status quo in these "river relations," leading to super projects such as constructing big dams in the courses of the Amu Darya and Syr Darya.

Regarding this policy, the upstream states are more interested in changing the status quo in these "river relations," leading to super projects such as constructing big dams in the courses of the Amu Darya and Syr Darya Kyrgyzstan initiated its` projects by constructing Kambar Ata-2, whose first generating unit was launched in 2010, and are currently seeking investments for Kambar Ata-1. Tajikistan, having built the Sangtuda-1 in cooperation with Russia, who has 75% ownership of that HPP, continued to build

Sangtuda-2 with the partial help of Iran. Tajikistan has also started its` own giant HPP – Rogun, projected to bear the capacity of 3200 megawatts. Of course such projects are negatively perceived by downstream states, especially by Uzbekistan the biggest consumer of water due to its huge cotton fields and large irrigation system for agriculture. Nevertheless it is worth to mention, that Rogun and other HPP projects in Tajikistan were designed in Tashkent`s scientific institutions at the times of the Soviets.

Uzbekistan showed its serious concerns about the Rogun HPP by imposing a rail road blockade to Tajikistan. According to Alexander Sodiqov, Central Asia-Caucasus Institute analyst, since February 2010 Uzbekistan on its railway network is holding up about 2000 of Tajikistan's transit cargo wagons, one-third of which are loaded with construction materials for the Rogun dam, attributing it to the logistical and technical issues. However, in June 2010, the Iranian state railroad company warned Uzbekistan that they would stop all the Uzbekistan's wagons loaded with cotton and other goods headed towards the Persian Gulf through the Iranian railroads. Uzbekistan depends to a large extent on Iranian railroads and seaports, as about 150 Uzbek freight cars loaded by cotton passes through Iran per day⁷. Whether Iran's position will would resolve the problem or not, its firm interference into Tajik-Uzbek rail dispute shows that Iran will not stay aside to protect its interests and uses its own leverages to promote Iranian influence in Central Asia.

Another method of influence that Uzbekistan often uses is the cut-off of the gas supply. Parshin writes that "Two days after the Sangtuda ceremony, Uzbekistan's state gas

distributor sent a letter to its Tajik counterpart saying that unless Tajikistan immediately repaid its \$1.6 million debt, Uzbekistan would have no choice but to cut Tajikistan's off gas supplies. The upstream country relies on Uzbekistan for up to 95 percent of its gas supplies"⁸. In addition to

Whether Iran`s position will would resolve the problem or not, its firm interference into Tajik-Uzbek rail dispute shows that Iran will not stay aside to protect its interests and uses its own leverages to promote Iranian influence in Central Asia.

this "Uzbek State Committee on Environmental Protection, Narimon Umarov", "predicted that Rogun would inflict \$17.8 billion in damage on Uzbekistan during its first five years of operation"⁹.

Gas supplies were always a good leverage to Uzbekistan towards Tajikistan and Kyrgyzstan, since two latter countries are hugely dependent on the Uzbek gas supply during winter time. According to Kyrgyz scholar Rustam Mukhamedov, "when in the past Kyrgyzstan tried to raise unpleasant issues concerned with Uzbekistan it reminded to Kyrgyzstan about its gas debt and even cut off the gas supply in winter 2001"¹⁰.

Uzbekistan's aggressive policy toward upstream countries became clear if we try to analyze their stand from the inside. Firstly, there are no big sources of fresh water in Uzbekistan, as no mountain range is located there, and more than a half of its territory is covered by the Karakum and Kyzyl-Kum deserts. Secondly, the agricultural economy of Uzbekistan is deadly dependent on irrigation, especially cotton sector. If we refer to researcher Akbar Saidzoda, "26% of its` economy budget derived from the cotton and Uzbekistan holds the 4th place in world producing cotton"¹¹. Thirdly, as a result from the above mentioned reasons Uzbekistan constructed a great number of water reservoirs. If we refer to researcher Bektash Sadbayev, he says that according to official information of European Economic Commission of the UN by 2007 Uzbekistan have built 54 big dams in its` territory. The total capacity of these dams is approximately 80 km³ ¹². Another fact from his work is that, the today's water capacity of Sary-Kamysh lake in Uzbekistan is leveled up to 100 km³, in comparison to this the Toktogul water reservoir in Kyrgyzstan holds only 19,5 km^3 of water¹³. So it is contradictory for Uzbekistan to blame upstream countries for releasing a small portions of water, having collected in own territory such a big amount of water. But from this point we are not trying to undermine Uzbekistan, we are just trying to figure out Uzbekistan's internal dependence on water. Thus we can assume that Uzbekistan's opposition to upstream countries derived from the protection of their agriculture and cotton sector on which Uzbekistan depends a lot.

DAM WARS OR MEGAPROJECTS

So we investigated the internal factors that affect Uzbekistan's position to the water issue. What about two upstream countries? As we discussed before these two states are highly dependent on the hydro energy power. Not just for the industry, but mainly as an electricity source for the population and for the heating in severe winter months. In order to solve these acute domestic problems the heads of the states started big projects, construction of huge dams. The president of Tajikistan Emomali Rahmon chose the boldest way. The several billion dollars` project Rogun dam was first started with Russian RUSAL Company, but later officials of Tajikistan refused this partnership and declared that they will complete the construction by their own. The probable reason was that Russians objected to Tajikistan's evaluation of the project, since according to the Soviets` project it had to be about 300 meters high, but Tajikistan's engineers remade it to 335 meters, which make it the tallest dam in the world, which also broadened the volume of the

projected reservoir water capacity by many times. Russian engineers warned about high risk of building such dam in seismic active region, subsequently RUSAL hesitated invest money in fragile project. "On 5 January 2010, Rahmon

Russian engineers warned about high risk of building such dam in seismic active region, subsequently RUSAL hesitated invest money in fragile project

called upon his people to each make a financial contribution to the project. He emphasized that every family should buy stocks in the dam (voluntarily, of course). His speech was broadcast by all state media"¹⁴. We also could hear in his speech about the energy shortages, "Every winter, when the country experiences an energy crisis, I suffer with the people. It hurt me greatly when, as head of state, the energy shortages in 2008 caused the deaths of newborn children"¹⁵. According to neweurasia.net journalists, the huge brainwashing campaign started. All the mass media were advertising this fundraising project, the images of people overjoyed with their stock purchases were always on screens, nevertheless it didn't seem to be realistic. The main imams added this notion in their Friday preaching. "Some media have reported that there is a certain list of Tajik organizations with mandatory donation sums listed next to each of their names. Experts believe it will negatively affect businesses, particularly the banking sector, the internet and mobile communications"¹⁶. Such project was very negatively perceived by the local population and E.Rahmon and his administration refused this way of investment. It's interesting, but almost the same methods were used in building the Kambar Ata -2 dam in Kyrgyzstan by Kurmanbek Bakiev. Of course compulsory money collecting was not applied; instead K.Bakiev negotiated with Russian administration and was promised to take a low percent credit for 2 billion dollars. Unfortunately first transaction weren't donated to Kambar Ata-2 project, the construction mostly acquired the local budget money. This mega project was a good money laundry for the Bakiev's clan, the first part of Russian credit was transferred out of state during the April upheaval.

Well, now we can more or less figure out the causes of upstream countries' policy towards Uzbekistan and their behavior at home. The lack of the fossil sources forces them to invent an idea; the idea of future prosperity and stability, through engagement of the local population on a mass construction project. The best definition of the current situation of upstream states is probably was given by another Kyrgyz researcher Zainiddin Karaev: "They are poorer, less powerful, and have few resources to develop. Water is one of the few assets Kyrgyzstan and Tajikistan

According to BBC journalists, the Golden Century Lake is the biggest and most ambitious in the world, and could cost up to 20 billion dollars possess. Yet, if they face retaliatory cutbacks in gas supplies, their urban populations put pressure on the governments for a more flexible water strategy. Giving up more water, however, undercuts their

hydroelectric production which only makes them more vulnerable to energy blackmail from their downstream neighbors"¹⁷.

Nevertheless, downstream countries do not just sit aside and wait for the water; they are taking all the measures, which they could do. Turkmenistan in the year of

2000 restarted the old Soviet project, Golden Century Lake. According to BBC journalists, the Golden Century Lake is the biggest and most ambitious in the world, and could cost up to 20 billion dollars. The goal of the project is to divert all the water from the cotton fields of Turkmenistan to the Karashor Depression, the creation of the new lake in the middle of the Karakum desert supposed to bloom the local terrain. Although, there are many critics that say that the lake will be full of fertilizer and insecticides, a lot of water will be simply lost into the deserts sands, thus leaving the rest of water highly salinated. Which means the lake would become a new Dead Sea. The project had to be completed to the 2010, but digging works are still going on, the new president of Turkmenistan is very enthusiastic about this project and fully supports it. The experts fears, that it would take many years to fill in the lake that should cover the 2000 sq. km. and that Turkmenistan could siphon the fresh water from the Amu Darya, which could trigger hostile interaction with Uzbekistan¹⁸.

Observing such kinds of projects and constructions of its neighbors Kazakhstan also started its own Koksaray water reservoir project. But this project raised hot debates, while Kazakhstan's side claims, that Koksaray water reservoir is vital for Kazakhstan, in order to prevent seasonal flooding of more than seventy villages in downstream parts of Syrdarya and for collecting water in winter for irrigational use it in summer. The Uzbekistan's side believes, that this project is not well-thought and does not reflect the reality, as an example they pointing to the Aydarkul Lake in Uzbekistan, which's vast amount of water are out of use now, due to its high salinization. Although as Ferghana.ru journalists report,

"This is not an easy decision to commit ourselves to such a big and expensive project, however, we do not have another choice," Kazakh President Nursultan Nazarbayev has said. He calls Koksaray a social project, meaning there is no commercial motivation for it, but it is crucial to solving many problems....[]....Kamitzhan Pulatov, advisor to the chairman of the Committee for Water Resources at the Kazakh Ministry of Agriculture, sees only one disadvantage to the project, and it is not ecology. Pulatov thinks the price Kazakhstanis will have to pay for the reservoir is excessive. Today's projected budget is 500 million US dollars, as opposed to 223 million dollars initially planned for construction of the reservoir"¹⁹.

Discussing about CA relations over water one doesn't has to forget that the Aral Sea basin includes also Afghanistan, and as Jeremy Allouche says, "Although 12.5 % of the Aral Sea Basin water resources originate from this country; only a fraction is used for irrigation. However, the situation is now different and it would be naive to think that Afghanistan will rehabilitate its agriculture without increasing its intake from the Amu Darya. Actually, the Ministry of Irrigation, Water Resources and Environment is developing a long term undertaking entitled the 'Good Hill' project which would pump water from the Amu Darya River into a canal to be transported to Mazar-I-Sharif. Solutions to maximize efficiency and minimize any additional intake are therefore needed to lessen the negative impact on downstream countries and prevent tensions between Central Asian states and Afghanistan. It is nonetheless clear that future water management initiatives will have to take into account Afghanistan's possible demands"²⁰.

So, as we can see Central Asian relations over water includes complexity of other issues such as: political resistance, economical profits, energy power grid interdependence and permanent attempts for over dominating each other. The main reason for such poor cooperation between the Central Asian states is the lack of trust since no one of them has been able to maintain and fulfill their obligations

Riparian states are so self-oriented and the 'water relations' are so complex, that even if one or two of them are willing to cooperate it `s still hard to cope, when a single actor can hinder all the development process over water and energy treaties for various reasons. Riparian states are so self-oriented and the 'water relations' are so complex, that even if one or two of them are willing to cooperate it's still hard to cope, when a single actor can hinder all the development process. Ill-management of Central Asian

states' integration are in such a deep stage, that instead of using common facilities and benefitting from them, they are just shifting apart from each other by constructing additional very expensive water reserving facilities, and even projecting the transmission power lines to withdraw from the UPS, so that to be independent and make sure own energy security. The position of Uzbekistan is crucial in water management, if Uzbekistan will use more flexible policy towards upstream countries, perhaps there wouldn't be so much tensions over water and energy issue. Kyrgyzstan and Tajikistan on its turn should take into account the pivotal role of water for the downstream states.

The possibility of military conflict between CA states over water is very small, since every one understand that no state could devastate the other one completely, in order to gain total control of the whole water discourses, it's obvious that, such a game does not worth a candle. In addition to this there are permanent presence of interests of the greater powers; USA, Russian Federation, China and maybe even Iran, whose influence would always restrain the CA states from such actions. However little skirmishes over irrigation waters between local peasants on the borders are happen from time to time.

It is not surprising then the emergence of the CASA 1000 project in such difficult conditions between Central Asian states, this project is intend to eventually resolve the deadlock in water sharing and energy distribution in Central Asia. From the first glance the project seems to be ideal and, since it requires the export of hydro-electricity surplus from Kyrgyzstan and Tajikistan to energy deficient Afghanistan and Pakistan. So it should help both: possibility for the upstream countries in Central Asia to utilize their hydro energy potential and make profit and the possibility for the South Asian states to cover their electricity shortages. However, there are still big issues that require closer research. The first question is about the projects feasibility; whether the upstream countries have the capacity to maintain the electricity exports. Second, the unstable and corrupt regimes could use the revenues from the sale of electricity for their own enrichment. Third, the tariff and price negotiations between producers and consumers, will they be accepted as it projected now. Fourth, the highly unstable Afghanistan, will it be safe to build and maintain the transmission lines?

CONCLUSION

The issue of energy always has been one of the first priority cases in Central Asia and electricity generation has become extremely important on the last decade, since all the five Central Asian republics position it not only as a source of economic development, but also as a geopolitical and strategic goals, which they have to reach at any stakes. CASA 1000 project raised great debates and some tensions between upstream and downstream countries, cotton rich Uzbekistan is desperately defends its` interests, and due to this World Bank and other IFI's are still hesitating in funding project, that became so delicate now. In fact CASA 1000 project is for far useful and great project; it will help to distribute the summer electricity surplus of Central Asia to electricity deficient South Asia. If the project will succeed it will boost the local economies and will serve as a successful example to fasten the other transboundary projects between Central Asia and South Asia. However, the problem is that no matter to what extent the project is looking smart and attractive, such projects may never be implemented without addressing and mitigating the internal problems first. As for Central Asian states, they still have domestic troubles with low capacity, low efficiency and low money collection for the electricity they generate. In addition to this Kyrgyzstan and Tajikistan have the lowest cost efficiency in Central Asia for the electricity pricing; moreover both states are in the top ranks for the corruption index according to the Transparency International and other surveys. Another problem is that Central Asia lies in the intersection of the interests of some great powers like: US, Russia and China, and all of them to the various extent enrolled in the electricity generating and exporting projects in Central Asian republics. So that when it comes to solve one particular problem, it is immediately touches other sectors like: irrigation, electricity production, electricity export, transboundary rivers problem, problems with CAPS, social and political stability, national interests and interest of the external powers. However the biggest problem of the transnational projects in Central Asia is extremely poor cooperation, great mistrust and competition between each other. Therefore it is rather hard to install any firm and stabile beginning, nevertheless there is a pure necessity for Central Asian states to unite and cooperate and overcome all this obstacles, just in order not to be backward and develop in the next few decades, since they evidently possess all the necessary natural and human resources.

LIST OF FIGURES

Figure #1

CASA-1000, THE FIRST PHASE OF CASAREM, WOULD SUPPORT 1,300 MW OF CLEAN ELECTRICITY TRADE BETWEEN CENTRAL ASIA (KYRGYZ REPUBLIC & TAJIKISTAN) AND SOUTH ASIA (AFGHANISTAN & PAKISTAN)



Source: USAID (RESET) for RECCA Figure #2 Project components



- AC/DC Converter Station
- 500 kV line Datka-Khudjand (477 km), with Tajik network transferringKyrgyz exports to Sangtuda
- Tajikistan Grid Strengthening
- 1300 MW AC-DC Convertor Station at Sangtuda
- 750 km HVDC line Sangtuda-Kabul-Peshawar
- 300 MW Convertor Station at Kabul (with both import & export capability)
- •1300 MW DC-AC Convertor Station at Peshawar

Source: USAID (RESET) FOR RECCA Figure #3 Difference in energy resources in Central Asian states

<figure>

Source: World Bank/Central Asia Energy-Water development program (CAEWDP) List of figures

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Table 1: Kyrgyz Power 3,565 MW)	r Generating Facilities Kyr	gyzstan (Curre	nt Total: approx.
Plant Name	Fuel Type	Installed Capacity	Owner (if known)
Toktogul	Hydroelectric	1200 MW	
Kurp-Say	Hydroelectric	800 MW	
Bishkek	Thermoelectric	588 MW	
Tash Kumyr	Hydroelectric	450 MW	
Shamaldysai	Hydroelectric	240 MW	
Uch-Kurgan	Hydroelectric	180 MW	
Osh	Thermoelectric	50 MW	

At-Bashi	Hydroelectric	40 MW
Alamedin 1-7	Hydroelectric	20 MW
Kalinin	Hydroelectric	9 MW
Lebedinov	Hydroelectric	8 MW
Bystrov	Hydroelectric	1 MW
Sources: U.S. Departm	ent of Energy, Kyrgyz M	Ainistry of the Environment

Plant Name	Fuel Type	Installed	Owner (if
		Capacity	known)
Nurek Dam	Hydroelectric	3000 MW	
Baipaza	Hydroelectric	600 MW	
Golovnaya	Hydroelectric	210 MW	
Yavan	Thermoelectric-	200 MW	
	Gas		
Dushanbe	Thermoelectric-	200 MW	
	Oil		
Kayrak-Kumskaya	Hydroelectric	134 MW	
Kairakkum	Hydroelectric	126 MW	
Varvarinskaya	Hydroelectric	28 MW	
Perepadnaya	Hydroelectric	24 MW	
Tsentralnaya Tajik	Hydroelectric	18 MW	
Pamir I	Hydroelectric	14 MW	
Khorog	Hydroelectric	10 MW	
Sangtuda I	Hydroelectric	670 MW	RAO-UES
Sangtuda II	Hydroelectric	220 MW	Government of

Source: World Energy Council.

Table 3: Uzbek Powe 12,000 MW)	r Generating Facilities Uz	bekistan (Curren	at Total: approx.
Plant Name	Fuel Type	Installed Capacity (MW)	Owner (if known)
Syrdarya	Thermoelectric- Gas	3,000.0	
Talimardjan II	Thermoelectric- Gas	2,400.0	RAO-UES
Novo-Angren	Thermoelectric-	2,100.0	

Table #4: Growth in Production vs. Growth in Consumption Country	Period (for which data is available)	Expected Generation Growth Rate	Expected Consumption Growth Rate
Kazakhstan	2005-2010	31.1 %	>18.9 %
Kyrgyzstan	2004-2010	35.7 %	> 29.9 %
Tajikistan	2010-2020	69.2 %	>24.0 %

	Coal	
Tashkent	Thermoelectric- Gas	1,860.0
Navoi	Thermoelectric- Gas	1,250.0
Talimardjan	Thermoelectric- Gas	800.0
Charvak	Hydroelectric	620.0
Khodzhikent	Hydroelectric	165.0
Gazalkent	Hydroelectric	120.0
Farkhad	Hydroelectric	120.0
Chirchik-2	Hydroelectric	80.0
Tavak	Hydroelectric	74.0
Chirchik-1	Hydroelectric	42.0
Akkavak-1	Hydroelectric	30.0
Khisraus	Hydroelectric	20.0
Aktepin	Hydroelectric	20.0
Nizhne-Bozsuyskiy-23	Hydroelectric	18.0
Kadyryin	Hydroelectric	10.0
Kibrai	Hydroelectric	10.0
Shakhrikhan-5	Hydroelectric	10.0
Salar	Hydroelectric	10.0
Nizhne-Bozsuyskiy-14	Hydroelectric	10.0
Burdzhar	Hydroelectric	10.0
Nizhne-Bozsuyskiy-19	Hydroelectric	10.0

Source: World Energy Council. Raoca studies

Tajikistan	2010-2020	69.2 %	> 24.0 %
Turkmenistan	2004-2010	122.3 %	129.2%
Uzbekistan	2010-2020	21.4 %	No data

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Kubanychbek Ormushev

National Project coordinator at United Nations office on Drugs and Crime (UNODC) officer in Bishkek.

MA on Political Science and Security Studies, OSCE Academy.

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Regional Institute of Central Asia 109/B Turusbekov Street, B/C "Maximum+" 720001 Bishkek, Kyrgyz Republic Tel.: +996 (312) 88 22 01 E-mail: press@rica.network Web.: www.rica.network