

CAPE TOWN AND CRIMEAN WATER RESOURCES CRISIS: SOME SIMILAR PROBLEMS AND POSSIBLE SOLUTIONS

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Abstract: The author presents a vision of the main factors of the water resource crisis developments in two BRICS countries, South Africa and Russia, concretely in Cape Town and Crimea. Although Russia, contrary to South Africa and many other countries, disposes abundant water resources, there are areas of scarcity and arid lands, Crimea among them. In both considered cases poor management and planning, lack of funding, worn out infrastructure and factors of mismanagement and corruption added to natural or geopolitical causes of resent hardships. Besides improvements in above mentioned fields and general modernization of infrastructure, also desalination, complex waste water recycling and turnover to drip irrigation are among proposals discussed.

Keywords: Cape Town, Crimea, water resource crisis, poor management, modernization of infrastructure, water recycling, desalination.

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Country and case similarities: poor management, inequality and corruption

According to UN prognosis in a matter of a decade almost two thirds of the world population would be living under the stress of water deficit conditions. Though Russia, contrary to South Africa and many other countries, is lucky to dispose abundant water resources, there are areas of scarcity and mismanagement where crisis developments with similar problems are encountered and have to be treated. The recently reunited with mainland Russia Crimean peninsula is one

example. Another aspect of the water resources problem is that water as a human value and social justice are interconnected as we can see in both examined cases. In both South Africa and Russia guaranteed water (in case of South Africa even constitutionally) is a human right but as in case of other resources stable access to clean water and proper sanitation and sewerage is beyond reach of a large segment of the population. Example: roughly half of Cape Town's population lives in townships, that is low income informal settlements, which receive only 5% of the city's total water supply. Both South Africa and modern Russia are countries suffering from inadmissible levels of social inequality, corruption and bureaucratic malpractice. South Africans can at least blame consequences of apartheid. We don't have that excuse. The earnings of Russian top wealthy 10% exceed 16 times that of 10% most poor according to official statistics and 30 times according to independent expertise [6]. More than that: our medium wage is about 1 thousand rubles per day, while a top manager of a big corporation including state ones gets a million per day and more. Thousand times disparity definitely not for managerial talents in a shamefully stagnating economy...

On the margin of BRICS-2018 Summit in Johannesburg Russian and South African ministers responsible for natural resources and ecology and water utilities signed an intergovernmental Memorandum on cooperation in the field of use and protection of water resources. It is planned to develop a "road map" for specific projects with timing of their implementation, including "Clean rivers of BRICS", development of the "Green platform" etc. Joint research and training of personnel is also in the projects pipeline. Most welcome agreements and decisions that should be implemented regardless of not inspiring past experience of wishful thinking and meagre results. Up to now as a Russian proverb puts it, the mountain gave birth to mice. It would be a marvel if things change and the cooperation potential of both our countries and BRICS in general could turn into visible reality.

Comparing the situation with water scarcity in Cape Town and Crimea one should also note that both are among the most beautiful places in the world and

attract to their natural and cultural wonders about 6 million tourists each year creating an additional burden for the economy already under stress of the soaring local population.

To illustrate similarities in both cases let me cite two articles from the press.

“Cape Town, a city of some 4 million people, is on the verge of running out of water. Terrifying as it may sound, water scarcity never happens by surprise. At the national, provincial and municipal levels South Africa’s leaders ignored Cape Town’s shrinking water supply until it became a crisis. The mistakes were made at every level. Cape town had no comprehensive, long term water plan to match water resources with the city’s soaring population. No official program encouraged planting water efficient crops or use of water saving technologies. The city reused only 5% of its wastewater for industrial and irrigation purposes... And most remarkably, although Cape Town is on a sea coast hugging the southern Atlantic Ocean, officials delayed building desalination plants for the city” [3].

“According to Viktor Tarasenko, President of the Crimean Academy of Sciences, the situation with water supply on the peninsula is not catastrophic but ‘without safety margin’, reservoirs are filled by 30-50%, and in Eastern Crimea the situation is even worse. Scientists offer to save water in surface and underground reservoirs, to desalinate water and to purify municipal sewage. About 150 million cubic meters are being dumped. In Crimea a lot of excess water could be recovered through drainage reuse but lack of economic insight, planning and financial resources limits efforts to solve typical problems of water scarcity... More than half of the water supply networks of the peninsula are worn out and need to be replaced [2].

As Dr. Anthony Turton, a professor of the Center for Environmental Management at the University of Free State (Bloemfontein) put it, addressing a recent seminar on the Cape Town water crisis, held in Jerusalem, South Africa doesn’t have a water scarcity problem as much as it does a “pollution problem, a salt problem, or a problem about water at the wrong time, the wrong place, too far, too dirty – that is the problem.... We must recover the water from waste, that is the first thing we have to do and we have to put time, energy and technology into that.” The crisis reflects a woeful lack of planning, according to Turton.

“More planning went into the Rugby World Cup, the planning around that was more sophisticated than the planning we’ve had for this particular event.”

Drawing a Russian parallel, we had besides more thorough planning of the sport events also dozens of billions of dollars spent on the recent Soccer World Cup and Sochi Olympic games, that could have been more than enough to resolve water infrastructure problems throughout the country, not only Crimea. Not to mention mass poverty and lack of proper medical care and housing that continue to

be sadly neglected in most parts of our great country.

As Dr. Turton also noted, the national government is ANC controlled while the Western Cape is controlled by the opposition, so political finger pointing has triumphed over sober planning. Water crisis timely solutions were possible had they gone down the route of wastewater recovery and desalination.

As Dr. Turton put it in a recent interview [4]:

“The unspoken evil in South Africa is corruption. Fifty billion Rand has been stolen by the former president [Jacob Zuma] and his cronies – and that’s the money that should have gone into the provision of infrastructure.”

The same words could be well attributed to Crimean cities such as Sevastopol or Yalta...The problems of water supply in Sevastopol are discussed regularly, but the only reservoir that can practically serve as an additional source of water to the city is beyond its control. It is a lake in the vicinity of Mount Gasforta, which together with the reservoir was in 2015 as in an opaque deal leased almost free-of-charge to a high-level backed biker club "Night Wolves" and is now out of reach of the city authorities. Deputies of Sevastopol Legislative Assembly tried many times but were powerless to change anything...

Local corruption is also out of hand. A vivid example of “tenderocracy” or simply swindling with involvement of kleptocratic bureaucracy and its protected business, so familiar to South Africans:

“Sevastopol, a deeply subsidized city-region “lose” billions, allocated from the state treasury: 2 billion rubles, which were supposed to go to the construction of the “Yuznye” water treatment facilities just evaporated, another billion went to the state contract with a local company with frozen accounts” [1].

Another striking similarity: Informal and illegal housing and construction are as widespread in Crimea as in South African townships.

Thus, low pace of modernization of water supply networks is due not only to financial and technological problems as such but also to poor management and corruption. Access to fresh drinkable water is one of the basic human rights but human values seldom prevail over confronting political interests and commercial

greed.

Blocking sustained and inclusive development is mismanagement and corruption abundant at all levels of power in all countries of BRICS with the only exception of China where these evils are harshly contained, but at the same time actively exploited in relations with the outside world. Anyway, Chinese-implemented infrastructural projects give a good example of cost-effective engineering. While the strategically important and long-awaited 19 kilometer New Crimean bridge connecting the peninsula with North Caucasus Krasnodar Krai was erected in three years (another year is needed for the railway) by the company of one of Rotenberg brothers, our top privileged businessmen, cost our taxpayer more than \$ 4 billion, we discover with surprise that the world's longest Danyang-Kunshan 165 km viaduct between Shanghai and Nanjing, including a high speed railway and a sea bridge, was built in just two years costing only \$1,5 billion, that is \$ 9 thousand per meter compared to \$209 thousand in the case of our Crimean bridge [5].

World experience shows that public awareness and efforts of the civil society accompanied by honest and smart state involvement can bring good results: proper careful professional use of existing resources and introduction of progressive technologies in most cases provide feasible solutions. Lack of public awareness and good governance prove the opposite. To put an example, about a third or more of water transit in both Russian and South African water networks is lost cause to worn out and leaking pipes. Compare with less than 10% loss in super-water efficient and much more arid Israel.

Crimea before and after reunification with Russia

Crimea covers an area of 27000 square kilometers, in other words, it is 0,02% of the Earth land and about 0,3% of European territory. The Crimean peninsula is deeply exposed to the Black Sea, which washes it from the south and west, from the east it is washed by the Azov Sea and Lake Sivash. In the north it connects the continent with a narrow (up to 8 km) Perekop Isthmus. The relief of

the Crimean peninsula is represented by three unequal parts: the North Crimean plain with the Tarkhankut Upland (about 70% of the territory), the Kerch Peninsula and the mountainous Crimea stretching three ridges in the south. The length of the coastal strip of the Crimean peninsula is 1500 km. The area of the peninsula divides on the following parts: 72% is plain, 20% are mountains and 8% are lakes, rivers and other water objects. The large amount and variety of nature conditions and landscapes, which are bound by its geographical location and geomorphological structure, characterize the Crimean Peninsula.

Water resources of the Crimea are limited and do not provide completely the region with drinking and household water. For about half a century, the Crimean peninsula was supplied with fresh water from the Dnieper River through the North Crimean Canal (built in 1961-1971); however, after the Crimea's reunification with Russia, Ukraine blocked this water supply. In the view of aggravating political crisis between Russia and Ukraine, the situation in the Crimea water supply looks quite difficult. To solve this problem, we should focus on the internal capacities of the peninsula (while in the future political normalization may bring the Dnieper waters back to Crimea). The Crimea provided its own water supply, for up to 20%, at the best, with most of fresh water having been spent for irrigation. There is a real opportunity to extract additional amounts of fresh groundwater of good quality. Only 41% of provisional groundwater reserves are developed in the Crimea (33% of which are accounted for operating reserves of ground water), more to be prospected. Taking into consideration the present day situation, it is necessary to develop a fundamentally new strategy in water resources development in the Crimea. No need using drinking water for irrigation. The undrinkable groundwater should be used for irrigation as well. Groundwater protection is a pledge of potable water quality. The main operating aquifer in the mountain area (Upper Jurassic) is being polluted heavily. This fact deserves more attention. Particularly bad situation is registered on the Ai-Petri plateau, occupied with cafes, restaurants, and tourist entertainment facilities (camel riding) with no

centralized collection and disposal of sewage and domestic water. The latter is typical of almost all Crimea with sewerage streams spilt out into the sea causing water intoxication and spread of infectious disease.

Crimea belongs to a risky agricultural zone, droughts are frequent. The main cause of water pollution is the poor technological state of the equipment and weak water removal capacity etc. Many rivers on the peninsula dry almost completely in summer. Poor management of water resources, lack of planning and funding, outdated equipment add to the natural problems and those caused by the Ukrainian canal blockade. During transport from water intake sources to the consumers from a third to half of the water is lost. This is because waterways have not been repaired for decades, water supply systems wear was more than 60%. As a result of these losses water infiltrated into the soil, leading to swamping, underflooding, salinization and worsening of geological conditions of many areas, especially in the north of the peninsula. Typical of water supply and sewerage enterprises is a shortage of qualified personnel, poor quality of supplied water. On the territory of the Republic of Crimea there are about 110 operating wastewater treatment plants with capacity significantly overloaded. Efficient sewage treatment facilities and spare capacity are only in the cities of Yevpatoria and Alushta. As well as in different parts of the world, in Crimea there is a huge problem of solid household waste and garbage, as well as industrial waste and dirty sewage. 10.6 million tons of toxic wastes have been accumulated in the territory of Crimea, including thousands of tons of unsuitable, banned and unidentified pesticides. In Crimea there are 28 officially registered landfills of solid domestic waste, where 18.3 million tons of waste are accumulated. Most of the landfills have exhausted their sanitary and technical and territorial capabilities. This problem has not been solved for many years due to the lack of financing and the lack of free land. Everybody litters here: both the inhabitants of cities and tourists. Virtually no one worries about the purity of nature. But the garbage, falling into the water, bears death to the animals. Abandoned plastic, polyethylene, glass, diapers and other wastes are

recycled in nature for hundreds of years. Thus, eventually the resort may turn into a big dump.

Crimea that was joined to Russia in 1783 (conquered from the local sultan, a vassal of the Turkish Osman Empire) during the reign of Catherine the Second has since been considered a pearl of the Russian crown. Most now existing infrastructure was erected in Soviet time, the latest in the seventies. Ukrainian authorities did not appreciate this gift of fortune (or rather Boris Yeltsin, who gave it away in December 1991 with the dissolution of USSR) and treated Crimea as its Russian colony, impoverishing it by non-investment in any development program, but never missing coercive efforts towards Ukrainization of the Russian-speaking majority. After Crimea spectacularly rejoined Russia in 2014 in realization of a definite desire of an overwhelming majority of its people, suffering from Ukrainization (brief Ukrainian rule in 1992-2014 is remembered here alike apartheid in South Africa), the Ukrainian authorities imposed a water and electricity blockade of the peninsula. These sanctions brought no political effect but caused hardships to the population and the economy in addition to existing natural problems and those caused by poor governance. At the time of the dramatic events of 2014 about 85% of water consumed in Crimea was supplied from Ukraine via the North Crimean channel taking water from Dnieper river. This canal was built in Soviet time and, though extremely inefficiently managed (about half of the water leaked on the way) gave impetus to agriculture development and helped to double the population of the peninsula. This was mainly water for technical needs and irrigation while drinking water was taken from underground stocks, mountain floods and rainfall. Last infrastructure improvements date back to late 1970-ties, while in the 80-ies the most important project – the erection of the Crimean nuclear power station was suspended.

Efforts towards crisis solution

Today In Crimea problems of shortage of fresh water are partially solved, particularly by the transfer of water from the Crimean river Biyuk-Karasu to the

North Crimean canal and drilling of a large number of artesian wells. Modernization of water storage and distribution as well as the sewage systems has started. But agricultural and industrial development needs development of desalination projects, particularly with the use of solar and other renewable energy sources as besides water shortage there is an energy shortage in this very sunny peninsula (Israeli and South African experience may be useful). Resumption of the nuclear power project may be also considered.

Local authorities hope to boost the peninsula's water supply through methods that don't rely on rainfall, like repairing and modernizing water delivery infrastructure, drilling boreholes to access groundwater, desalination, and water re-use(recycling) plus turnover to drip irrigation. Everything needs additional research, planning and, most of all, additional money that is expected to come from Moscow federal institutions.

The launch of the new water delivery system was scheduled for the end of 2017 but postponed due to financial and technological problems. As the water that passes through the new treatment system has to be repeatedly tested in the different health services and assessed on the level of salt concentration the implementation of the project proved too complicated to be achieved in the immediate future. Even so the officials affirm that the water is already clean enough for every resident of the peninsula drink it safely straight from the tap (this opinion is contested). On the peninsula there is an expansion of grain crops though water-intensive rice and water melon growing projects had to be abandoned. In general heavy winter rainfall and subsequent flows from the mountains helped to deposit enough water resources for 2018, though there is no strategic readiness for possible future droughts especially harmful for Northern and Eastern Crimea. Some desalination projects in concrete spheres may be soon implemented such as a big desalination plant for the needs of strategic titanium production.

On a recent scientific conference in Simferopol, researchers from Crimea and from the mainland of the country jointly discussed necessary measures to

improve the inadequate situation with water on the peninsula. In June 2018 six districts in Crimea, mostly located in the north of peninsula and occupying about 20% of its total land area, announced emergency due to acute water shortage. On 3 July 2018, the head of the administration of Crimea Sergey Aksenov requested urgent financial assistance from the Russian government amid drought-induced state of emergency in those districts. In August 2018 Russian PM Dmitry Medvedev took additional measures to resolve the situation – he instructed the Federal Ministry of Natural Resources to create an interdepartmental working group to develop, prior to September 10, a program aimed at solving problems of water shortage in the Republic of Crimea. The Russian Academy of Sciences and the nuclear power agency Rosatom are among those involved. By the way, not long ago Rosatom proposed to build a desalination plant in South Africa fueled from a nuclear power station that has yet to be approved. Scientists point out that an overall professional investigation of the Crimea's water resources, still very approximately estimated, with composition of a detailed hydrological map of the peninsula should be a starting point of a new program of measures to resolve the accumulated problems.

Within the changing global geopolitical context of new trade wars and sanctions inspired by fading but fighting US hegemonism it is important that BRICS countries show solidarity and jointly finance important infrastructural projects particularly improving water supply in scarcity and risk areas partly via the help of such instruments as NDB or Chinese “One Belt - One Road” program. Both South African and Russian leaders dream of turning their countries into fast growing developmental states capable of solving existing acute socio-economic problems. However, a breakthrough out of the current stagnation seems unlikely while both countries remain still to a large degree state - captured by kleptocratic oligarchy and “tenderocracy” within the existing liberal model. A yoke imposed by the Washington consensus, aspiring to retain the neocolonial world economic order with our countries in particular being held as raw material appendixes of the global

market. Hope remains for a more optimistic scenario with reindustrialization (ending a period of liberal deregulation and deindustrialization) becoming a high priority in both countries, creating, inter alia, an advanced technological basis for water resources management.

There is another particular issue that can be mentioned here. A number of South African Boer/Afrikaner farmers have expressed their willingness to move to the southern regions of Russia with natural conditions close to South African. This emigration mood may strengthen as their government at home seeks to amend the constitution to allow for land seizures without compensation, so that many white farmers express anxiety about their future. Crimea in particular, with vast still virgin lands in its North, may be a good option for creative and hardworking South Africans. The first of them have only recently visited Stavropol Krai and returned with positive impressions. Anyway, if there is no significant upsurge of violence and no Zimbabwe-style agrarian downfall in RSA, most white farmers would stay in South Africa continuing to benefit the country's economy. Keeping out of politics, a new South African – Russian connection with a certain number of successful South African farmers involved in Russia may be also fruitful as an economic/technological and human cooperation endeavor. One should also keep in mind that only in recent decades thousands of Russian and post-USSR emigrants seeking a better life settled and now successfully work in South Africa. So, no offence meant, this is a two-way street. We also understand quite well that in spite of all existing problems, South Africa remains one of the few cases of a stable democracy and economically most developed country on the continent.

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