

Water and Electricity: Utilities in Crisis in Eastern Ukraine

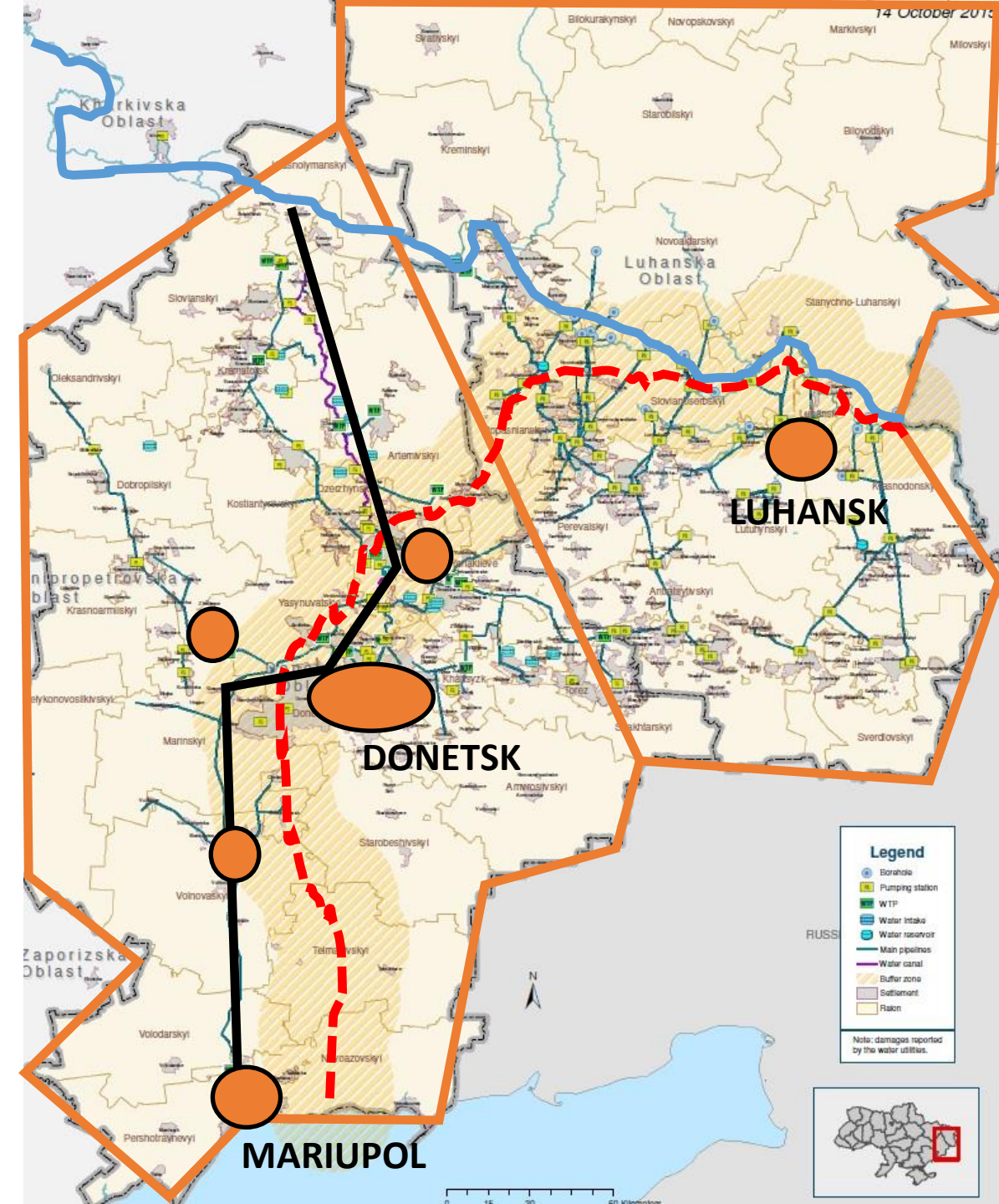
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Lets talk about water...

- Almost all water comes from the area near the Siversky Donets river (a few exceptions).
- Government Controlled Areas (GCA) and Non-Government Controlled Areas (NGCA) are interdependent.
- Heating systems for all major town and cities need water and electricity.
- Without water millions of people may need to relocate.



UNICEF Water Risk Assessment, 2017

How can water continue to flow to people in the conflict affected area; with the existing system continuing to operate for 5-10 years so that strategic issues are resolved?

UNICEF and the WASH Cluster considered risks related to:

- Technical
- Environmental
- Financial and economic
- Governance
- Security

Funded by Canada



System overview

Sieverskiy Donets Donbass Channel (built 1950-1958)

- Expanded in 1978 to supply 43m³/s of water for industry, now 13 – 15 m³/s.
- 200m elevation over 135 km distance
- Four pumping stations (around 400m m³ of water in 2016)
- Channel should be kept full to avoid structural collapse
- Pumping could be more efficient (frequency regulators)

South Donbass Water Way (between 2 and 4 of DN1200-1500 pipes)

- 130 km long - much of first 40km is at risk due to location along Line of Contact
- Three pumping stations – first one is greatly at risk

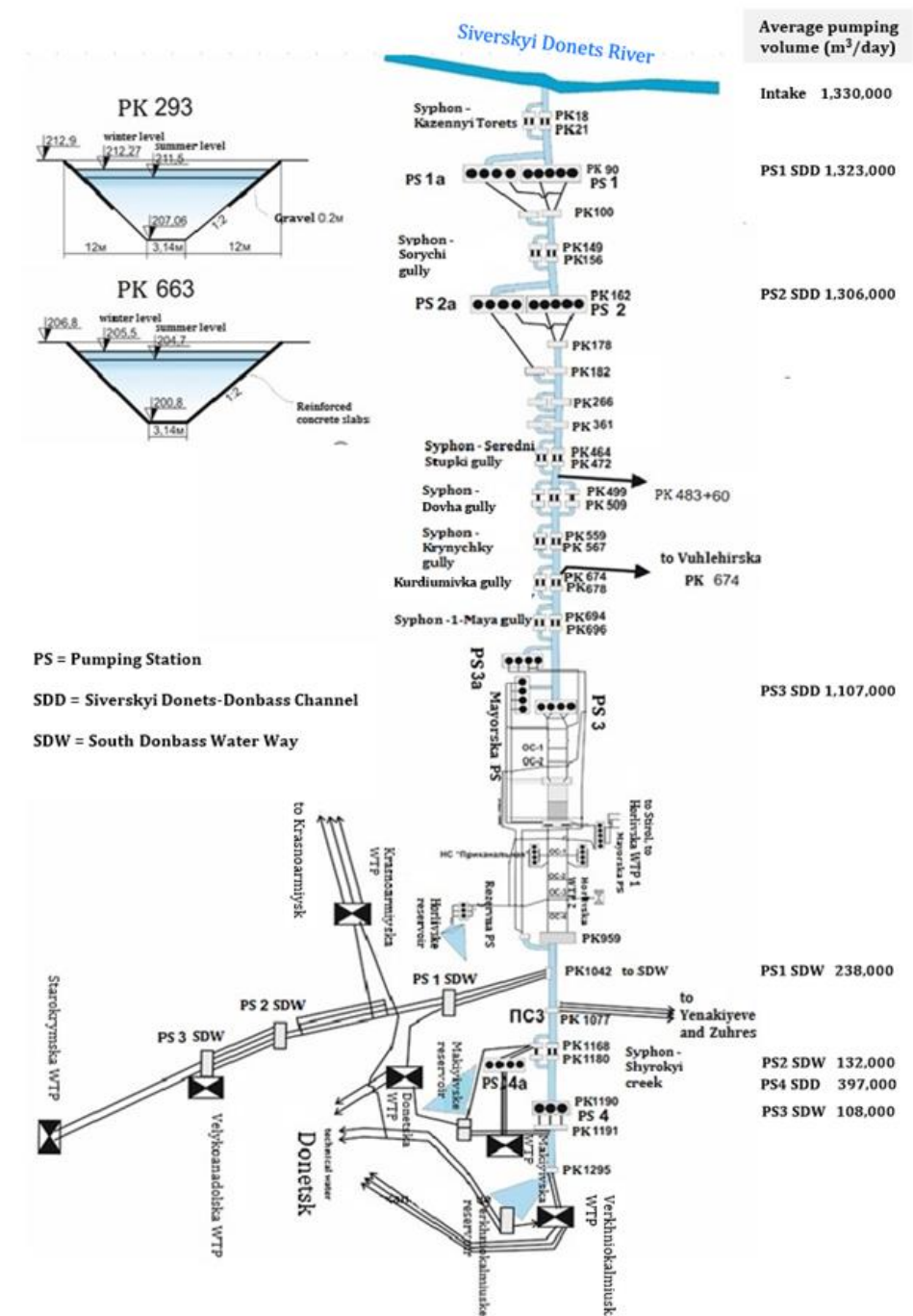
2nd Donetsk Water Way, 75km long, connects Sloviansk, Kramatorsk, Druzhkivka, Kostiantynivka towards Toretsk

- First 20km is very fragile
- Toretsk itself is not served and is highly at risk due to a leaky pipe form Horlivka

The water system:

- Supplies 3.65 to 3.9 million people
- 17 reservoirs with a total storage capacity of 775 million m³ (incl. 9 reservoirs for drinking water);
- 11,950 km of water supply pipelines;
- 18 water treatment plants (WTPs) with a design capacity of 2.79 million m³/day;
- 246 water pumping stations (PSs);
- 299 underground water wells (amounting for 6 % of the total water volume);

Schematic: Siverskiy Donets-Donbass Channel & South Donbass Water Way



Prioritised technical actions

Overall **170 Million USD** is required (humanitarian and recovery):

- Year 1 **32 M USD**
- Year 2 **56 M USD**
- Years 3-5 **82 M USD**

Also

- Strategic projects **220 M USD**
- Operational costs
e.g. chemicals for water treatment



Pollution and Security Risks

- 60% sewers are in a severely dilapidated state and power cuts cause release of untreated wastewater;
- Known chemical pollution risks and mines along the Line of Contact;
- Chlorine bottles each 900kg;
- Low and high intensity shelling of water infrastructure despite ongoing demilitarization;
- 9 staff died in line of fire and 12 injured;
- Administrative, social, labour and other rights of 7,000 VD staff in non-government controlled areas;
- Crossing the line of contact by staff and materials.



Financial and Governance Risks

- Energy costs rose from 53% of operating costs in 2012-2014 to 62% in 2015-2016;
- Water losses increased from 36% in 2013 to 46% in 2016;
- Tariff collection rate decreased from 100% in 2012 to 66% in 2016;
- Disequilibrium of tariffs on both sides of the line of contact (200-300% difference);
- State budget funding of 'water scarce regions' limited;
- Risk of parallel corporate governance structures as company is located on both sides of the line of contact;
- Ambiguity of the scope of executive powers exercised by individual line ministries on water issues;
- Status of 'duty bearers' in non-government controlled areas is indistinct.

Electricity and Water: what are the connections?

- Voda Donbasa and DTEK both have significant debt issues;
- Restructure of the electricity sector, applying European Union standards may cause stoppage of electricity to Voda Donbasa by 1st December 2018;
- Stopping water would affect coal mining, steel production, even energy production;
- Workers continue to put their lives at risk to do repairs and provide services;
- Winter is always coming
- Water is life, and so is electricity

