



International Exhibition

of equipment and technologies for municipal and industrial sewage treatment

Waste Water Management 2019

9-10 April, Kyiv, Ukraine, ACCO International

We have prepared for your consideration the **market & investment projects overview**, **legislation news** and other **important facts** of the rapidly developing and reforming sewage treatment sphere of Ukraine.

Check the review at the following link - <http://www.wwm-expo.com/market/market-reforms-projects>

You can meet the **key participants of projects and reforms** at the III International Exhibition of equipment & technologies for **industrial & municipal** sewage treatment **Waste Water Management 2019** (9-10 April, Kyiv, Ukraine, ACCO International - www.wwm-expo.com)

Projects, market background & important facts, reforms & legislation

This overview consists of:

- [Market background & important facts](#)
- [Decentralization and growth of local budgets](#)
- [Reform of the water monitoring sector](#)
- [Investment PROJECTS](#)
- [News, legislation](#)
- [Top polluters \(enterprises, 2017\)](#)
- [Top polluters \(regions, 2017\)](#)
- [State of water industry of Ukraine in 2016](#)

Market background & important facts

Total amount of **necessary investments** in the water industry of Ukraine has been estimated by international financial institutions at **7 billion USD**.

The Association agreement between EU and Ukraine has been **implemented on 1 September 2017** and provides:

- phased **adoption of the European environmental legislation** in Ukraine
- transition to the **European standards of water and sewage treatment**
- providing the **central water supply and sewerage services in all towns** with a population of more than 2000 people (while only 48% of households are connected to the central sewerage, more than 95% of villages in Ukraine are not sanitized)
- introduction of **tertiary sewage treatment from nitrogen and phosphorus compounds**, which currently has been realized by 3% only in Ukraine.

UKRAINE NEEDS TO:

- **reconstruct 35%** of outdated water supply and sewerage **networks**
- **replace 40%** of water supply and canalization **equipment**
- **reconstruct 25%** of existing water treatment **facilities**
- **install new water purification facilities for 85%** of industrial enterprises.



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Decentralization and growth of local budgets

Financial Decentralisation reform started in 2014 lead to **increase of local budgets' in 3.5 - 7 times (or 100 bln UAH !)**. Big part of these funds is already being invested in **reconstruction of existing and implementation of new water and wastewater treatment facilities** in order to **fulfill the obligations**, undertaking after recent **signing Association agreement** with EU.

The **state budget for 2019** provides for the **continuation of growth of local budgets** of communities from 230 billion UAH in 2018 to 291 UAH, ie **26%**.

Reform of the water monitoring sector

From January 1, 2019, a **new European system for monitoring water resources will be introduced**.

Ukraine, in accordance with the requirements of the Association Agreement with the EU, has undertaken to **reform the water sector** and manage it on a **basin principle** as required by the EU Water Framework Directive. At the end of 2016, the Parliament approved the Draft Law No. 3603, drafted by the Ministry of Environmental Protection. It introduced the so-called integrated water resources management basin principle in Ukraine, which, in particular, provides:

- the main unit of water object is the **basin management**
- the **financial mechanism guarantees** a direct link between the payment for water use and the **financing of priority water protection measures** within the basin.

Due to the new monitoring, the data necessary for the development of the River Basin Management Plans and the Marine Strategy will be obtained.

Investment projects

Reconstruction of docking crossings through Dnipro river in Kyiv

As it became known from the announcement of the ProZorro electronic public procurement system, in December 2018 Kyivvodocanal signed an agreement on reconstruction of docking crossings through the Dnipro river in Kyiv (1, 2, 5, launch complexes).

According to the agreement, the contractor will have to reconstruct the chambers, erect shaft trunks, and reconstruct ductwork transitions on three of seven existing launcher complexes. The contractor must guarantee the quality of the work within 10 years from the date of their acceptance by the customer.

The cost of the transaction amounted to **UAH 369.9 million**. Reconstruction will last until September 1, 2020.

26.02.2019

<http://kievlast.com.ua/news/v-kievvodokanale-osvoyat-370-mln-griven-na-rekonstruktsii-chasti-dyukernyh-perehodov-cherez-dnepr>



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Biogas stations for wastewater sludge treatment in the Dnipro and Kryvyi Rih cities

A biogas plant with a capacity of 4.8 MW is being constructed in Dnipro on the wastewater treatment facilities for the treatment of sewage sludge. The cost of the project will be more than **\$ 11.2 million** and is planned to be launched in summer 2019.

The implementation of such a project is also considered in the second largest city of Dnipropetrovsk region - Kryvyi Rih. The local authorities are satisfied with experience of the regional center and are negotiating with the executor of works. Various sources of funding are also considered.

02.02.2019

<https://www.0564.ua/news/2292654/v-krivom-roge-planiruut-postroit-biogazovuu-elektrostantsiu-i-uze-isut-investora>

Ukraine and France are implementing a water supply renovation project in Mariupol

According to the project, the Government of France provides Ukraine with **€64 million** - for 30 years with a 10 year grace period and at a rate of 0.08% per annum. This is about **65% of the project cost**. The rest of the funding will be provided from other sources.

Due to this initiative in Mariupol, filtering stations and water intakes will be built, specialists will update old networks, new forms of water resources management in the city will be introduced.

29.01.2019

<https://www.kmu.gov.ua/ua/news/ukrayina-i-franciya-realizuyut-proekt-onovlennya-vodopostachannya-mariupolya?fbclid=IwAR2Qy8QrAhq9cQYPbldFq27FZHdsGVPp3WBIGAOsBczrbfuK9Lf1rQCOSY>

Development of Mykolaiv water supply and drainage system with assistance of EIB and E5P

The project: "Development of the water supply and drainage system in the city of Mykolaiv" is implemented in accordance with the Law of Ukraine "On ratification of the Financial Agreement between Ukraine and the European Investment Bank" dated 20.06.2012, No. 4987-VI.

On 19 October 2018, an agreement was signed on extending the lending terms within the framework of the investment project "Development of the Water Supply and Wastewater System in the City of Mykolaiv " (**EIB - €15.54 million**) and the Grant Agreement for Granting €5.11 million Grant from The Eastern Europe Energy Efficiency and Environmental Partnership (**E5P - €5.1 million**).

The above mentioned funds will be directed to the modernization and reconstruction of water supply and sewage pumping stations, which will greatly increase the energy efficiency of the enterprise and, accordingly, reduce electricity consumption. The first results of the project can be seen already at the sewage treatment facilities, where a reconstruction of the unit of mechanical wastewater treatment (reception chamber, lattice building and sand dispenser) was carried out. Also the reconstruction of sewer collectors is included into the framework of the investment project. The actual date for launching the Project can be considered 29 December 2014, when Ukraine received the first tranche of loans from the EIB.

22.01.2019

<http://www.vodokanal.mk.ua/uk/noviny/spivpractia-z-evropeyskim-investitsiyim-bankom-27>



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Ecological fund and plans of Lutskvodokanal

An ecological fund "E go2020" was created in Lutsk, which will attract funds for environmental projects and environmental protection.

First plans of work:

- clearing and restoration of sewage network capacity;
- installation of ozonation and air purification, which minimizes unpleasant smells at sewage pumping stations;
- reduction of harmful emissions;
- improvement of working conditions of workers and implementation of a number of other measures that should contribute to the improvement of the environmental situation in Lutsk and in the drainage systems of the enterprise.

18.01.2019

<https://www.volynnews.com/news/society/u-lutsku-vpershe-stvoryly-ekolohichnyy-fond-dlia-turboty-prodovkillia/?fbclid=IwAR2En6NmSxx5A1wfsvM1SvBRyc5tEwZ9spB7NYmGPitKtvETbeGPL2FJ0Yo>

A laboratory for water quality measuring to be built in Vyshhorod, Kyiv region

The EU will allocate **€500,000** for the functioning of the laboratory, which will allow the purchase of modern equipment for measuring water quality and measure 33 parameters from the list of 45 most dangerous substances, in particular, in the Dnipro reservoirs.

All equipment (gas chromatograph, nitrogen and mercury analyzer, a water purification system, a laboratory dishwasher and a thermoreactor for the determination of phosphorus) are planned to be purchased and installed by the end of 2019. EUWI + is a project of the European Union, its full name is "Water Initiative Plus". The project helps Ukraine bring the legislation closer to EU policy in the area of water resources management. Acts of cooperation with Europeans have already been signed by the State Social Insurance Fund, the Ministry of Ecology, the State Agency for Water Resources of Ukraine.

09.01.2019

<https://bigkiev.com.ua/v-vyshgorode-postroyat-laboratoriyu-dlya-izmereniya-kachestva-vody/>

New specialized car-laboratory for air and water control has been purchased in Vinnytsia region

In order to improve instrumental and laboratory environmental control, measuring equipment was also purchased: portable photometer, sample heater, portable oximeter, samplers for soil and water, automobile refrigerator for transportation of samples.

The equipment was purchased at the expense of the Regional Fund of Environmental Protection for UAH **890 thousand**.

December 2018

<http://lada.fm/2019/02/06/chistotu-povtrya-vodi-na-vnnichchin-kontrolvatime-peresuvna-laboratorya.html>



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Reconstruction of sewage treatment facilities in Morshyn, Lviv region

Reconstruction of sewage treatment facilities with the capacity of 5 thousand cubic meters per day is conducted for improving the quality of sewage treatment and elimination of discharge of sewage pollution in the river Berezhnytsia of Dnister basin. Cost is **1 million**. Source of funding - Regional Fund for the Protection of the Environment. As a result of the project implementation the level of sewage treatment will be ensured to the regulatory requirements, the works on the rebuilding of the complete biological treatment plant under aero tanks with small-bubbles aeration will be provided.

19.11.2018

https://zik.ua/news/2018/11/19/u_morshyni_na_rekonstruktsiyu_kanalizatsiynyh_ochysnyh_sporud_vytratyat_1 mln_1451279

Reconstruction of water treatment facilities and intentions for electricity production from sludge in Ivano-Frankivsk

Planned works on the reconstruction of the complex of treatment facilities in Cherniiv (**9 million UAH**) and the repair of plumbing and sewage networks for more than **6 million UAH** were carried out in Ivano-Frankivsk region. Also the "Ivano-FrankivskVodoekotekhProm" Municipal Enterprise is going to implement a project to generate electricity from sludge and negotiate with potential investors. It is planned to start the implementation of the project in a few months.

18.10.2018

<http://waternet.ua/news/newsletter/487/>

Modernization of water treatment facilities of Zaporizhzhia

In Zaporizhzhia the modernization of the Central Wastewater Treatment Plant is underway - the work on replacing the aeration system continues. In total, more than **UAH 7 million** is foreseen for the project. Local authorities also cooperate with Danish companies, which should allocate about **10 million euro** for construction of sludge processing enterprises.

08.11.2018

<https://ztv.zp.ua/u-zaporizhzhii-trivaye-modernizatsiya-tsentralnih-ochisnih-sporud/>

Integrated modernization of water supply and sewage systems, water treatment and pumping stations of Vinnytsia

In Vinnytsia, preparations for implementation of "2nd Ukraine Municipal Infrastructure Programme", jointly with the World Bank are being prepared in the framework of which it is planned to carry out a comprehensive modernization of water supply and sewage systems, reconstruction of water treatment station and pumping station of the city. The consultant starts an analysis of the city water supply network, the development of the geoinformation system, the preparation of the hydraulic model and other technical details of the project.

03.10.2018

<http://waternet.ua/news/newsletter/490/>



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The current state of the Bortnytska Aeration Station reconstruction project

Bortnytska Aeration Station (BAS) is one of the largest sewage treatment plants in the world. The BAS reconstruction project is the largest project in Ukraine among all sectors at the moment. To implement the project, the government of Ukraine signed a loan condition with JICA (Japan International Cooperation Agency) for a total of 108 billion yen (more than **800 million euro**).

The following macro stages of the project implementation have fulfilled:

- June 2015: an agreement was signed between the Government of Ukraine and the JICA (Japanese Agency for International Cooperation)
- September 2015 - September 2017: a complex of preparatory works was completed
- December 2015 - March 2018: design and tender documentation was developed
- March 2018: the Japanese consultant was determined- the negotiator of the tender for definition of general contractor, as well as implementation of technical supervision and coordination in the execution of construction work
- 2015 - 2018: the package of regulatory documents was approved.

The following steps:

III quarter 2018 - Announcement of international tender for definition of general contractor

IV quarter 2019 - Beginning of the construction work execution.

Construction work will last 6 years.

Project objectives:

- Bringing the quality of sewage treatment to the EU standards
- Implementation of modern technologies of sludge thermal utilization
- Installation of modern energy saving equipment
- Solving the problem of unpleasant odour diffusing

After implementation of 1 round of construction, the capacity of the BAS will be 1,336,900 cubic meters per day.

After the implementation of 2 round - 1 573 000 cubic meters per day.

September 2018

<https://www.youtube.com/watch?v=GkKlSe6Uquo#action=share>

New wastewater treatment plants in Rivne

"Complex modernization of central water supply and drainage systems of Rivne region cities within the limits of "Rivneoblvodokanal" project takes place within the framework of a financial agreement between Ukraine and the European Investment Bank in Rivne. The project is being implemented within the framework of the Ukraine Municipal Infrastructure Program.

The project involves the implementation of 12 events. First of all, this is the construction of new wastewater treatment plants in Rivne. Also, this project includes the reconstruction of several existing pumping stations and sewage treatment plants, the purchase of special equipment and the construction of a central drainage system in the Basov Kut city.

The preliminary amount of EIB lending is **20 million euro**.

14.09.2018

https://radiotrek.rv.ua/news/u_rivnomu_hochut_zbuduvaty_vlasni_ochysni_sporudy_foto_229786.html



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Reconstruction of water treatment facilities of the Ternopil region

12 biological treatment and sewage facilities for total amount of **2.1 million dollars** and 25 other objects of water supply and sewage system for total amount of 35.5 thousand dollars have been built and implemented already, financed from the state budget at the municipal enterprises in the Ternopil region. Due to this, purification of contaminated sewage with the volume of more than 1.5 million cubic meters per year is provided.

There are also works for the total amount of **853 thousand dollars** for the reconstruction of biological treatment facilities of the cities of Chortkiv, Kremenets (starting complex, adjustment with technology change, reconstruction of the tank unit and the construction of a blasting station) and sewage networks of Monastyrsk city.

07.09.2018

<https://www.unian.ua/ternopil/10252179-na-ternopilshchini-zbudovano-vzhe-12-ochisnih-sporud-za-2-1-mln-dolariv.html>

Reconstruction of water treatment facilities in Mukachevo

Local authorities plan to carry out the reconstruction of municipal wastewater treatment facilities, which is part of the comprehensive environmental and energy modernization of Mukachevo. Work is planned to be carried out from October 2018 to October 2019 at the expense of the local budget, but local authorities also try to get support from either the state or international financial institutions, which would allow the planned work to be done much faster and in greater volume.

September 2018

<http://ecolog-ua.com/news/kompleksna-ekologo-energetychna-modernizaciya-mista-na-prykladi-mista-mukachevo-0>

Reconstruction of sewer collectors in Poltava

There are 368.5 km of sewer networks on the balance sheet of PoltavaVodokanal. 58,5 km of which - collectors, wear and tear reaches 90%. Accidents occur mainly on large-diameter collectors constructed of reinforced concrete in the 60's and 80's. The reason for "failures" is the effect of sulfate-gas corrosion, which destroys the components of concrete. At a meeting of the city-planning commission, they decided to create a working group that would take control of the issue of the state of emergency of sewer collectors in Poltava. The recovery of emergency collectors has already begun.

26.08.2018

<http://waternet.ua/news/newsletter/457/>

Reconstruction of Zhytomyr water treatment facilities for World Bank loan funds

Zhytomyr is currently implementing **2 projects** with the attraction of World Bank funds:

1. Reconstruction of drinking water treatment facilities (**11.8 million euro**)

New buildings with a capacity of 75 thousand m³ per day will be built. This will allow one to refuse using chlorine for water purification. At the end of the technological process, the method of adding activated carbon to improve the water quality (without a specific smell and taste) will be applied. According to the results of the project, Zhytomyr will receive high quality tap water and substantial electricity savings.

June 2018

<https://vodokanal-zt.org.ua/news/naprikinci-travna-rozpoznetsa-rekonstrukcia-ocisnih-sporud-vodi-za-kreditni-kosti-svitovogo-banku>



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2. Reconstruction of sewage treatment facilities (10.6 million euro)

There are 2 treatment facilities in Zhytomyr, which together take 60 thousand cubic meters of waste water per day. All the facilities of the first treatment plant will be moved to the second. The treatment facility №2, on which the construction will be continued, can now take 27 thousand cubic meters of wastewater per day, and this capacity will be expanded to 60 thousand. Thus, instead of two buildings, for the maintenance of which it is necessary to spend money, electricity, time, there will be only one modern, efficient automated complex, built in a new way. Ending of construction is planned in 2020.

April 2018

<http://zt-rada.gov.ua/?3398%5B0%5D=3530>

Reconstruction of the water treatment facilities of the cardboard and paper mill in Zhytomyr region

The development of a project for the reconstruction of treatment facilities by Poninkivska cardboard and paper factory lasted about a year and has already passed the appropriate examination. Expected cost of project - **16.4 million UAH**.

21.06.2018

<http://zt-news.org.ua/index.php?newsid=11882>

Reconstruction of WWTP in Kharkiv

Kharkivvodokanal will begin the implementation of investment project "Improvement of the sludge management system of sewage treatment plants in Kharkiv." in the near future. Reconstruction of the city's sewerage system will be carried out at the expense of the World Bank. The project value is **\$ 66 million**, duration - about three years. The has been conducted and the winner was determined already. The project includes a complete reconstruction of the treatment facilities - from the primary treatment of wastewater to the purification of its biological composition. Nitro-denitrification methods will be introduced, which allow in-depth sewage treatment from nitrogen and phosphorus. A complex for sludge processing and biogas production will also be built

08/06/2018

<http://www.city.kharkov.ua/ru/news/kharkivvodokanal-rozpochinae-rekonstruktsiyu-ochisnikh-sporud-38974.html>

Program for 2018 - Zaporizhzhya

The total amount of the annual investment plan for 2018 is **39.9 million UAH**: 20.9 million will go to centralized water supply and another 18.9 million UAH for centralized water disposal.

The municipal enterprise, in addition to replacing the sewage and water supply networks, intends to purchase modern laboratory equipment for monitoring the quality of drinking water and sewage.

In addition, a large-scale project will be implemented in the nearest future with the participation of companies from Denmark to modernize the sewage sludge handling system (including biogas generation), which will also solve the problem of sludge fields.

January 2018

<http://1news.zp.ua/na-kp-vodokanal-podgotovili-investitsionnyy-plan-na-2018-god-s-finansirovaniem-v-40-millionov-griven/>



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Program for 2018 – Kyiv

The draft investment program for 2018 with a total volume of **229.2 mln UAH** includes:

- reconstruction of 5 sewage pumping stations;
- design for reconstruction of 15 sewer collectors;
- purchase of automation and control equipment, as well as many other machines and mechanisms.

January 2018

<https://www.vodokanal.kiev.ua/files/IP-2018.pdf>

Program for 2018 – Sumy

The total amount of funds in the investment program for 2018 - **10.8 million UAH** (without VAT), including: for water supply - 5, 47 million UAH, for drainage 5, 34 million UAH.

It is planned:

- re-equipment of wells and water pumping stations of the II stage
- creation of an automatic dispatch control system for I, II, III water lifts and sewage pumping stations
- re-equipment of sewage pumping stations with new pumps;
- purchase of a specialized vehicle - an emergency workshop with a unique equipment kit, etc.

January 2018

<http://vodokanal.sumy.ua/index.php/649-investitsijna-programa-na-2018-rik-proekt>

Program for 2018 – Cherkassy

The utility plans to invest 38.5 million UAH in reconstruction of production facilities in 2018. It is planned to invest 11.8 million UAH into the reconstruction of sewer pumping stations and the sewage pumping station.

January 2018

http://vodokanal.ck.ua/index.php?option=com_content&view=article&id=2784&Itemid=50

Program for 2018 - Lviv

The investment program for 2018 plans to invest **76.7 million UAH**:

- about 2 million UAH - reconstruction of the pumping station Batalnaya
- 16 million UAH - reconstruction of the water pipeline (800 mm in diameter)
- 5 million UAH - in the reconstruction of the sewage pumping station.

January 2018

<http://lvivvodokanal.com.ua/aboutus/investments/proekt-investytsijnoji-prohramy-na-2018-rik/>



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Major repair of the primary tanks of PJSC "AZOT", Cherkasy

In 2018 AZOT plans to carry out overhaul of the primary tanks for the amount of about 2 million USD.

December 2017

Polish company is ready to modernize Lviv treatment plants of The Visla river

Polish company is ready to modernize Lviv treatment plants in order to suspend waste pollution of The Vistula river. Expansion and modernization of the treatment plants will double the productivity: from 200 000 m³ per day to 450 000 m³ per day. The maximal possible productivity is up to 515 000 m³ per day. In October the parties plan to sign a cooperation memorandum.

06.09.2017

<http://ecotown.com.ua/news/Polshcha-hotova-modernizuvaty-lvivski-ochysni-sporudy-shchob-stoky-z-Ukrayiny-ne-zabrudnyuvaly-Vislu/>

Reconstruction of water facilities on Odessa region

The city Vilkovo in Odessa region began to implement large-scale investment project on reconstruction of the existing water treatment facilities and the expansion of the sewer system considering European standards. For the first time in Ukraine there will be a system of vacuum sewer. The project carries the Kiev company OOO "Polymerconstruction LTD." Monitoring of the first stage of works will be carried out by representatives of the German company Bilfinger Water Technologies GmbH.

<http://otkat.od.ua/masshtabnyj-proekt-v-vilkovo/>

Modernization of treatment facilities in Lviv

NEFCO and Vodokanal of Lviv signed a loan agreement on the construction of a biogas plant at the sewage treatment plants. The total investment for the reconstruction of treatment facilities amount to **31.5 million euro**, of which NEFCO will provide EUR 5 million as a loan. Funding will also provide the European Bank for Reconstruction and Development - € 15 million, the John Nurminen Foundation - 510 thousand euro and the city Lviv - 3.9 million euro, the Foundation of the Eastern European Energy Efficiency and Environment Partnership (E5P) will provide a grant of 7.5 million euro. It envisages the construction of two digesters 15 thousand cubic meters each for the decomposition of sludge and residues of a cogeneration unit to produce electricity and heat. The use of biological treatment tanks will provide a reduction in the amount of generated sludge by 30% and allow at the same time to improve its quality.

<http://www.nefco.org/news-media/novosti/lvov-moderniziruet-svoi-ochistnye-sooruzheniya>



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Reconstruction of WWTP Bortnychi (Kyiv)

At the site continues to perform works on the launch complex №5 project (preparatory works). The total percentage of readiness is 75%, completion is scheduled for January 2017. In addition, a consortium of Japanese designers is working on the development of working documentation. The following year, after the preparation of the tender documents by Japanese consultants, an international tender will be held for the definition of a general contractor. Next, the evaluation of proposals of participants, carrying out pre-contract negotiations with the winner, getting agreement from the JICA and the contract conclusion with the general contractor that will perform the work on 1-4 and 8-9 partial start-up complex project. These works will be covered by a loan from JICA. Therefore, subject to compliance with all international processes, complex reconstruction Bortnychi aeration station will begin in mid-2018. The loan will be provided by JICA in the amount of **108 billion yen**.

The customer is OJSC "Kyivvodokanal". Administration of the state budget - Ministry of Regional Development and the KSCA. General designer stage working documents' preparation - a consortium of Japanese design organizations TEC INTERNATIONAL Co., Ltd., NIHON SUIKO SEKKEI Co., Ltd. AND NIPPON KOEI Co., Ltd.

<http://vodokanal.kiev.ua/ua/news/>

Energy efficient water supply in Lutsk

NEFCO and the water company PUC Lutskvodokanal in north-western Ukraine have signed a loan agreement aimed at upgrading the city's water supply and drainage systems. NEFCO's loan of **EUR 495 000** will enable Lutskvodokanal to invest in the reconstruction of underground water intakes, modernise three pumping stations with new equipment and introduce a better monitoring system for the water supply system.

The project measures will bring about favourable environmental benefits in terms of reduced electricity consumption of 1,609 megawatt hours annually. This in turn will cut the company's emissions of carbon dioxide by 1,287 tonnes. These energy savings also have significant economic advantages since Lutskvodokanal will save approx. EUR 136,000 annually by spending less money on electricity.

<https://www.nefco.org/news-media/news/energy-efficient-water-supply-lutsk?language=en>

Restored and modernized system for wastewater treatment in one of landfills of Kyiv region

Kyiv City Council has allocated more than **3 million UAH** to the restoration of the equipment, which reduces the number of toxic leachate at the landfill MSW №5 (p. Podgortsy). Contracting companies "Ecosoft" argues that the basis of the two-stage treatment scheme is the reverse osmosis plant, construction of which allows you to filter even highly polluted water.

Also, in the initial installation of wastewater treatment system the automation system has been replaced and automatic flushing of membranes has been provided. The result - 80% of the leachate is converted into purified process water that is safe for the environment, another 20% is concentrated residue that falls into the storage pond for further processing.

The performance of the equipment is 10 m³ / hr from the leachate.

<https://kievcity.gov.ua/news/34652.html>



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Kyivvodokanal: plant construction project for the production of low-concentration hypochlorite

At present, the water treatment plants - Desna and Dnipro - which disinfect water with liquefied chlorine, requires increased production safety measures.

"We see two ways of solving the problem: it is the transition to the use of low-concentration sodium hypochlorite and mixed oxidants. We also offer options for attracting and return of investment: an investor builds a plant at its own expense and sells us finished products or provides credit for the implementation of an integrated project under the safeguards of the city. As a result, we get a safe production, reduce the risk of man-made emergency situations, and the people of Kiev - the drinking water of improved quality", - said Dmitry Novitsky.

By the way, the project of building a plant for the production of low-concentration sodium hypochlorite passed the state expertise.

Also among Kievvodokanal's projects there is the reconstruction of the energy efficient pumping stations. Today 59% of the total energy consumption of the enterprise falls on the work of these objects. The reason - outdated energy-intensive equipment.

<http://vodokanal.kiev.ua/ua/news/>

Zaporizhzhya vodokanal plans to attract foreign companies to address the issue of sludge disposal in municipal wastewater treatment plants

In wastewater treatment plants of the left bank of Zaporozhzhya waste water is treated with nitrification-denitrification technology. With this technology there is no primary sedimentation, which prevents the formation of sludge in the primary sedimentation tanks. After the wastewater treatment process only the surplus of activated sludge is formed, which is continuously removed from the system and is sealed in iloplotnitate. The volume of compacted sludge is 550 m³ / day.

Currently compacted excess sludge is dewatered on drying beds, mechanical dewatering is temporarily stopped.

<http://vodokanal.zp.ua/>

Project of investment program "Poltavavodokanal" for 2017

The investment program "Poltavavodokanal" for 2017 provides next measures:

- installations of water metering stations in residential apartment buildings in Poltava
- technical re-equipment of 2 wells on intake structures
- creation of geoinformation system of water supply of Poltava in order to ensure the economy of material and energy resources
- reconstruction of the third branch of the pressure sewer Suprunovsky SCTC.

<http://www.vodokanal.poltava.ua/novyny/proekt-investitsijnoi-programi-kp-por-poltavavodokanal-na-2017-r/>



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A joint project of the EIB and BILOTSEKOVVODA

The project, which will implement the city LLC "BILOTSEKOVVODA" together with the European Investment Bank, called "Complex modernization of water and wastewater systems in the town of Belaya Tserkov.

"Reconstruction of the sewage treatment plants - one of our priorities. Despite the fact that most consumers do not pay attention to the sewer work - this is one of the most important objects in the city. Safe operation - our environmental security and, ultimately, uninterrupted supply of city water, "- says the director of " BILOTSEKOVVODA " Olga Babiy. According to her, within this project will be the reconstruction and modernization of water supply and drainage, guaranteed European level of ecological safety, achievement of full compliance with national regulations regarding wastewater treatment and discharge them into the river Ros, as well as bringing the cleaning and delivery system to consumers drinking water in line with European standards.

http://kievlast.com.ua/text/belocerkovvoda_poluchit_mezhdunarodnie_investicii39886.html

Investment projects of Kharkivvodokanal in the field of sanitation and waste water treatment

• Increasing the reliability and durability of drainage networks by rehabilitation using modern materials and technologies.

Cost of the project - US \$ 13.957 million. Payback period - 5-6 years.

• Improving sludge management system of sewage treatment facilities of Kharkiv. It envisages the use of sludge digestion technology recovering biogas and production on its basis of thermal and electrical energy, including electricity - up to 4.0 MW / h thermal energy - 4.98 MW / h.

Project contents of:

- Work on the construction of facilities for production of electricity and thermal energy based on biogas (US \$ 9.2 million)
- Modernization of sludge dewatering plant (US \$ 33.4 million)
- Modernization of units of biological wastewater treatment (US \$ 24.0 million)
- Work on ensuring the sediment preparation with stable physical and chemical characteristics (US \$ 7.5 million)
- Work on completion of association of tone collectors in the ring (with exception of collectors infiltration; US \$ 1.7 million)
- The overall project **cost** is \$ 75.8 million dollars (60.2 million US dollars from the World Bank and US \$ 15.6 million from the Clean Technology Fund), of which the sediment reclamation - US \$ 51.8 million, reconstruction of treatment facilities - US \$ 24.0 million. The project is planned for 2015-2020 years.

• Preparation of an alternative biofuel for disposal of sewage sludge and production on its basis of electricity and heat.

Cost of the project - \$ 3.8 million. Payback period - 2 years.

• The introduction of technologies using the heat pumps for the purpose of heat supply system, hot water supply and air conditioning of the enterprise objects. Among the goals there are also closing the existing gas boiler, the elimination of greenhouse gases and harmful emissions into the atmosphere.

Cost of the project - US \$ 2,737,000. Payback period - 6 years.

http://vodokanal.kharkov.ua/content/invest_programma



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Sumy "Gorvodokanal" plans to invest 8.8 million USD for investment projects in the field of sanitation and water supply in 2017

<http://vodokanal.sumy.ua/index.php/pages/investitsijni-programi/387-investitsijna-programa-na-2016-r>

Construction of iron removal station at the site of the pumping station (III lift) in Ternopil

Ukraine has received a loan from the International Bank for Reconstruction and Development and intends to apply part of the funds of this loan to payments under the contract "Construction of a water iron removal plant at the pumping station site (III-th lift) in Ternopol."

Public utility Enterprise "Ternopolvodokanal" offers bidders to submit sealed bids for the construction of water iron removal plant at the pumping station site (III-th lift) in Ternopol.

<http://www.vodokanal.te.ua/spivprazia-iz-svitivim-bankom/item/913-zaproshehnia-uchasnykiv-torhiv>

Investment program of Municipal utility company «Hmelnytskvodokanal» for 2017 in the field of wastewater and sewage treatment

- Construction of pressure head sewer collector with length in 1325.5 m, and 400 mm diameter along the Starokonstantinovsk highway street, from camera K1-1 to the gravity sewer collector in D1200 mm. in Khmelnytsky city.
Cost of the project – 2 496 870 UAH

- Reconstruction of transformer substations-456 on Trudova str. in. Khmelnytsky city.
Cost of the project - 845 150 UAH.

Technical re-installation of the mechanical grating on the main sewage pumping station on the Trudova street in Khmelnytsky city.
Cost of the project– 625 528 UAH.

http://www.water.km.ua/index.php?item=109&item_id=82&aa=4

The project of the International Bank of Reconstruction and Development «Urban Infrastructure Development» in Kremenchug

Municipal water utility «Kremenchukvodokanal» participates in the project of the International Bank for Reconstruction and Development called «Urban Infrastructure Development».

The enterprise presented the business plan of the project "Reconstruction of energy-intensive equipment of supply and drainage systems in Kremenchug" which was positively assessed by the Ministry of Housing and Communal Services of Ukraine and the Ministry of Finance of Ukraine.

<http://www.kpkvk.org.ua/>



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The draft of investment program of "Zhytomyrvodokanal" in 2017

Reconstruction of water pumping station number 2 (the new computer room) with the installation of frequency converters on the street. **Cost** – 14,779,478 UAH.

Reconstruction of sewer collector along the street in Zhytomyr (from CC-17 and CC-39) ". The length -1010 m. **Cost** - 4,453,952 UAH.

<http://vodokanal-zt.org.ua/pages/p28>

The draft of the investment program Zhovtovods'ka Vodokanal city (Zhovti Vody, Dnipropetrovsk region)

"Gravity flow sewer"

The event provides construction of the gravity flow sewer from polyethylene pipes of 800 mm diameter. In parallel to the existing water-collecting header made of concrete pipes (length 850 m) The **cost** of construction of the second line of the collector according to the design and estimate documentation without VAT is 2.319.090 USD.

"Reconstruction of the pumping station No1 and pumping station of the 2nd ascent (III place).

Activities include the replacement of existing pumping units No 1 and No 6 on the pumps with electric motors ADCHR-630-0,69-8 ultrasonic and installation of the automated control system of the pumping station, which will ensure the supply of water in times of minimum water consumption with minimal power consumption. The **cost** of works excluding VAT is 1.767.138 USD

<http://evk.dp.ua/investprogram>

Prospects for the development of "Kramatorsk Vodokanal"

The enterprise has developed a long-term program of development of the company until 2020. It is planned to conduct a full technical re-equipment of production sectors:

- reconstruction of the sewer municipal wastewater treatment plants and construction of water pipeline for the use of treated wastewater as process water for the city enterprises
- reconstruction and technical re-equipment of a filtration plant with the introduction of new technologies for the purification of drinking water with sodium hypochlorite
- replacement of outdated and morally worn-out equipment with modern, less power consuming technologies at all water and sewage pumping stations.

It is also envisaged to optimize water supply schemes and sanitation city Kramatorsk; increase in the replacement of water supply systems with the use of plastic pipe and trenchless technology of laying; automation of process control and other activities.

<http://kramvoda.dn.ua/index.php/plan.html>



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Design, supply and installation of the Dnipro water treatment plant "Dnipro-Kirovograd"

Ukraine has received a loan from the International Bank for Reconstruction and Development (IBRD) at the expense of the Urban Infrastructure Project - 2 (PMI-2). It is assumed that part of the proceeds will be used to make eligible payments under the contract for the design, supply and installation of the Dnieper water treatment plant.

<http://dnipro-kirovograd.com.ua/index.php?p=zak-SB>

News, legislation

Common rules for reuse of treated wastewater and sludge have been approved

The Ministry of Regional Development with its order of 12.12.2018 N 341 approved the Procedure for reuse of treated wastewater and sludge, which are formed during the process of treatment facilities of centralized drainage of settlements, subject to compliance with the norms of maximum permissible concentrations of pollutants. The order is registered with the Ministry of Justice on January 22, 2019, under No. 75/33046 and comes into force on the day it was officially published.

12.12.2018

http://search.ligazakon.ua/l_doc2.nsf/link1/ed_2018_12_12/an/37/RE33046.html

The Ministry of Natural Resources has elaborated a draft Green Paper of the Water Policy of Ukraine

On the basis of this document, a draft legal act is expected to be drafted by the Strategy of Water Policy of Ukraine and the relevant political proposal with a view to submitting them for consideration and approval by the Cabinet of Ministers of Ukraine.

"There is currently an active reform of the water sector in Ukraine - basin councils have been set up, Water Management Plans have been developed, a new procedure for State Water Monitoring, which fully complies with European standards, is being revised, the principles of water use are being reviewed - to ensure sustainable development. All these measures and directions of reform needed proper systematization, and the result of its implementation was the draft of this Green Paper", - commented Deputy Minister of Ecology and Natural Resources of Ukraine on European Integration Mykola Kuzio.

The Green Paper Project: The Water Policy Strategy of Ukraine is based on the basic principles:

- Integrated water resources management based on the basin principle;
- prevention of water pollution and exhaustion;
- compliance with the principle of "water user and polluter pays";
- the need to take into account current needs for water resources management without harm or possible damage to future or future generations.

<https://menr.gov.ua/news/33021.html>

Text of the Green Paper (ua): https://drive.google.com/file/d/1_jvIralYJJB6qu4tOqDVam3B7jd7LHGh/view?usp=sharing
Presentation (ua): https://drive.google.com/file/d/1xN67aKYdIZ7xNvW2uCqmBRo4WI5CQ_6S/view?usp=sharing



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The State Water Agency of Ukraine has released data on the quality state of surface waters

The State Water Agency of Ukraine has published data for open access on 16 main indicators of 445 monitoring points for surface water quality in all major river basins in Ukraine. Such data are extremely valuable and most closed in the world, and only 23 countries in the world publish it in an open format.

You can check data here -

<http://watermon.iisd.com.ua/EcoWaterMon/MapEcoWaterMon/Index?fbclid=IwAR2gTDFdct00Ov5l4zJYbubjLA9ZBCLxuXy8tpGS-WLqCzbW-kV8Q9Ds8Ks>

08.01.2019

<http://ecolog-ua.com/news/derzhvodagentstvom-vidkryto-dani-pro-yakisnyy-stan-poverhnevyyh-vod>

List of enterprises - largest polluters on discharges of polluted sewage in Ukraine (Ministry of Ecology, 2017)

- Kyivvodokanal (municipal enterprise), Kyiv
- Azovstal (industrial enterprise), Mariupol
- Lvivvodokanal (municipal enterprise), Lviv
- DMKD, city of Kamianske, Dnipropetrovsk region
- Dniprovodokanal (municipal enterprise), Dnipro
- Zaporizhstal (industrial enterprise), Zaporizhzhya
- Mykolayivvodokanal (municipal enterprise), Mykolayiv city
- DTEK Pavlogradugol (industrial enterprise), Dnipropetrovsk Region.
- ChernihivVodokanal (municipal enterprise), Chernihiv city
- Miskvodokanal (municipal enterprise), Sumy
- Water of Donbass (municipal enterprise), Makeyevka
- Water of Donbass (municipal enterprise), city of Horlivka
- PJSC Severodonetsk Association of Azot (industrial enterprise), Severodonetsk
- Berdyanskvodokanal (municipal enterprise), city of Berdyansk
- Vodokanal (municipal enterprise), city of Shostka
- Vodokanal (municipal enterprise), Melitopol
- Water of Donbass (municipal enterprise), city of Mirnorad
- Miskvodokanal (municipal enterprise), the city of Kamyanske
- Lisichanskvodokanal (municipal enterprise), Lysychansk city
- Water of Donbass (municipal enterprise), Mariupol city
- Rubizhne Cardboard and Packaging Complex (industrial enterprise), Rubizhne city
- Energoresursy (industrial enterprise), city of Nikopol
- DniproAzot (industrial enterprise), city of Kamyanske
- Zhovtovodsky Vodokanal (municipal enterprise), city of Zhovti Vody
- Pavlograd Production Management of Water Supply and Sewerage Facilities (municipal enterprise), Pavlograd
- Water of Donbass (municipal enterprise), Yenakiyev city
- Rubizhne production management of water supply and canalization economy (municipal enterprise), Rubizhne city
- Kuznetsov Municipal Enterprise, m. Varash
- SUMIHIMPROM (industrial enterprise), Sumy
- Dnipro-Zakhidny Donbass (municipal enterprise), Dnipropetrovsk region, Sinelnikovsky district, p. Raven's



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- Production management of plumbing and sewerage economy (municipal enterprise), Konotop
- Gorkovodokanal (municipal enterprise), Khartsyzk

Among the 33 enterprises - the largest contaminants for discharged contaminated wastewater, **9** are located in **Dnipropetrovsk region**, **8** - in the **Donetsk region**, **4** in **Lugansk and Sumy region**, **3** enterprises in **Zaporizhzhya region** and 1 enterprise in Lviv region, Mykolaiv region, Rivne region, Chernihiv region, and also in Kyiv city.

The list of regions - the largest pollutants

on discharges of polluted sewage in 2017 (excl. temporarily occupied of Crimea, Donetsk and Luhansk regions)

Region	Sewage discharged, million m ³	% of total
Kyiv city	284,3	28,6%
Dnipropetrovsk reg.	230,293	23,0%
Donetsks reg.	199,391	19,9%
Lviv reg.	70,809	7,1%
Zaporizhzhya reg.	64,173	6,4%
Odessa reg.	32,657	3,2%
Sumy reg.	23,033	2,3%
Mykolaiv reg.	22,357	2,2%
Luhansk reg.	18,465	1,8%
Chernihiv reg.	13,944	1,4%
Kharkiv reg.	9,818	1,1%
Rivne reg.	4,498	0,4%
Cherkassy reg.	4,487	0,4%
Zakarpattia reg.	4,235	0,4%
Ternopil reg.	2,604	0,3%
Zhytomyr reg.	1,996	0,25%
Kyiv reg.	1,959	0,2%
Chernivtsi reg.	1,873	0,2%
Poltava reg.	1,568	0,2%
Kirovograd reg.	1,328	0,2%
Ivano-Frankivsk reg.	1,102	0,1%
Kherson reg.	0,912	0,1%
Vinnitsya reg.	0,833	0,1%
Khmelnitskiy reg.	0,609	0,1%
Volyn reg.	0,106	0,05%
TOTAL	997,35	100,0%



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The state of the water industry of Ukraine in 2016

(from the National Report for 2016)

- **sewage collected** - 166 million m³
- **passed through treatment facilities** -1535.31 million m³ or **92.47%**
- completed **full biological treatment** -1466.38 million m³ or **88.32%**
- passed through **tertiary treatment** - 97.78 million m³ or **5.89%**.

There are about **1000 sewage treatment plants** in Ukraine, a significant proportion of which was projected in the 1960s.

The coverage of cities by services of centralized drainage was 100% in 14 out of 24 regions of Ukraine and in Kyiv.

Only 380 cities out of 404 were **provided with centralized drainage (94%)**.

Only 983 villages and urban type settlements out of 26,756 were provided with **centralized drainage (3.67%)**.

The total number of **pumps** in drainage systems was **6902** units, of which **replacement was required** for 1888 or **27.4%**.

The total **length of sewage networks is 35001,2 km**, including **old and emergency** - 13984.3 km or **40%**.

The total **cost of implemented development activities** in drainage systems in 2016 - about **1.13 billion UAH**.

More than half of the volume of **lost water** falls on the housing and communal sector (778.0 million cubic meters of water, or 68.07% of all losses).

Most of the water lost in the housing and communal sector is already prepared for consumption.

In the **sectoral** section, the **major polluters** are:

- housing and communal services (294.3 million cubic meters)
- metallurgy (282.4 million cubic meters)
- agriculture (22.3 million cubic meters)
- power engineering (14.05 million cubic meters)
- coal industry (14.94 million cubic meters)

Territorially, the **largest polluters** are:

- Dnipropetrovsk region (243.8 million cubic meters)
- Donetsk region (180.2 million cubic meters)
- Zaporizhzhia region (64.3 million cubic meters)
- Lviv region (46.16 million cubic meters).

In these four areas, about 76.5% of the volume of all contaminated wastewater is disposed.

Link to the National report on the state of water industry in Ukraine in 2016 -

<http://www.minregion.gov.ua/wp-content/uploads/2017/12/Proekt-Nats.-dop.-za-2016-rik.pdf>