



Genopbygningen af Ukraine.

**Muligheder for teknologiudveksling og
partnerskaber i den Ukrainske
vandinfrastruktur**

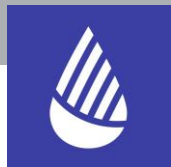
Michael Ramlau-Hansen

AVK Holding A/S





Three divisions



AVK WATER

AVK is one of the leading manufacturers of valves for Water, Wastewater Treatment, Gas, Fire Protection, HVAC & Irrigation industries worldwide.



AVK Industrial Valves

Delivering solutions within industrial valves and accessories for a broad row of industrial segments as Power Generation, Pulp and Paper, Chemical Processing, Oil and Gas, Marine, Dams & Reservoirs, Water treatment plants, Metering & Mining.



AVK Advanced Manufacturing

Manufacture components of steel, rubber, plastic, iron, aluminum and bronze as well as designing and supplying materials and handling systems for all areas of productions in all lines of business.





Advanced Water Cycle Management Course



ADVANCED WATER CYCLE MANAGEMENT COURSE 13-26 AUGUST 2023

AU SUMMER UNIVERSITY

WATEC – Aarhus University Centre for Water Technology in close collaboration with:

AVK, Grundfos, Kamstrup, NIRAS, Water Valley Denmark, I-GIS, DHI, Aarhus Universitet School of Engineering and the water utilities Aarhus Vand and Skanderborg Forsyning.



AU SUMMER UNIVERSITY 2023

DO YOU WANT TO UPGRADE YOUR WATER MANAGEMENT SKILLS?

Then sign up for the Water Summer School 2023 and get wiser on how to turn one of the most valuable resources on Earth into a SMART, resilient and sustainable business for the benefit of nature and people's well-being.

This is what you get:

After attending the course, the participant will have:

- Essential knowledge about groundwater mapping and management.
- Profound insight into state-of-the-art SMART water management and how to minimize water loss from the distribution system.
- Input on how to turn a wastewater treatment plant into a net-energy producing facility, seeing wastewater not as a problem but as a valuable resource.
- Direct insight, contact and dialogue with leading Danish technology and solution providers of high-quality products for water and wastewater infrastructure.
- Closer contact to Design Engineering companies that work with water, wastewater and climate adaptation projects.
- Information of the unique collaboration within the Danish water sector across disciplines.
- A strong competitive advantage when applying for jobs in the private or public water utility sector.
- A deeper understanding of the circular water infrastructure of a modern and sustainable society.
- Access to an international network of students and water professionals.

This course will be the perfect place to start making a difference

The course is provided by Aarhus University Centre for Water Technology in a unique collaboration with leading Danish technology providers and Danish water utilities.

A holistic overview of the water flow

The course follows three main topics:

1. Ground water resource management.
2. Management of water distribution.
3. Wastewater handling - including resource recovery.

AU SUMMER UNIVERSITY 2023



You will also experience working in teams with other course participants and you will be involved in challenges associated with water management and get the opportunity to give input on how to solve these challenges.

Clean water and sanitation - SDG6

Clean, accessible water for all is an essential part of the world we want to live in. There is sufficient fresh water on the planet to achieve this. But due to bad economics or poor infrastructure, every year millions of people, most of them children, die from diseases associated with inadequate water supply, sanitation and hygiene. Be the change and help carry out the UN Sustainable Development Goals and especially SDG6 about clean water and sanitation.

Application

The online application system will open from January 2023. The application deadline is April 2023.

Please apply at: au.dk/summeruniversity

ADVANCED WATER CYCLE MANAGEMENT COURSE

Date: August 13th - 26th, 2023

ECTS: 5

Level: Bachelor according to the admission requirements

TARGET GROUP

The course is open to a maximum of 50 participants and welcomes students and applicants from the industry according to the admission requirements. The unique teachers and students diversity at the course provides an optimal learning environment with ideal conditions for interaction and networking. For additional information on the admission requirements, please visit the course home-page.

INFORMATION

Please visit the course homepage: <http://watec.au.dk/water-management-summer-school/>

- Course description
- Application procedures
- Admission requirements
- Fees and accommodation

AU SUMMER UNIVERSITY 2023

DENMARK AS A FRONT-RUNNER

Denmark is at the forefront in terms of

- o Low non-revenue water loss (only 6-8%)
- o SMART Water Management with a holistic approach
- o Low energy consumption per sold m³ of drinking water
- o Net energy producing wastewater treatment plants

As a refreshing result of the efficient water management, CNN has designated Copenhagen the best city in the world for swimming - attributing the title to the city's clean, cool harbor baths.

<http://watec.au.dk/water-management-summer-school/>

The Advanced Water Cycle Management Course excels by its unique collaboration between: Aarhus University Centre for Water Technology, AVK, Grundfos, Kamstrup, I-GIS, NIRAS, Water Valley Denmark, DHI, Aarhus Vand, Skanderborg Forsyning/virksomhed, Aarhus University - School of Engineering.



Expect... **AVR**



Advanced Water Cycle Management Course





Nyhedernes interesse



<https://www.tv2ostjylland.dk/arkiv?date=2023-08-23&clip=bd4b2cb5-a8c8-4b9d-8f91-e9b803ec54d0>



Mykolaiv





Mykolaiv





Mykolaiv Water Infrastructure Masterplan

PROJECT OVERVIEW TIMELINE

No	TERM	PROJECT NAME	COST (EUR)	YEAR																						
				2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
INVESTMENT PROJECTS																										
1	STIP	Construction of new microfilters' unit at the site of preliminary water treatment of water-intake plant «Dnipro-Mykolaiv»	6 million																							
2	STIP	Installation of rotating screens at the site of zero-stage PS of water intake p	4 million																							
3	STIP	Mykolaiv Non-Revenue water I	6.2 million																							
4	STIP	Mykolaiv NRW-2	7.2 million																							
5	STIP	Establishment of the DMAs for water supply network in the City of Mykolaiv	39 million																							
6	STIP	Replacement of pumping and control equipment to improve energy efficiency, Integration of SCADA system at water supply PSs	N/A																							
7	STIP	Construction of solar power stations for water supply	3.6 million																							
8	STIP	Rehabilitation of Zhovtneve Reservoir	52 million																							
9	STIP	Construction of the new water treatment facilities at existing WTP	134.3 million																							
10	STIP	Rehabilitation of Wastewater Pumping Station (WWPS) of ME "Mykolaivvodokanal" with metering units of WWPS No.11A, Mykolaiv City, Heroiv Ukrainy Str., 11/2	2.5 million																							
11	STIP	Installation of Nano-bubbles generators at the existing WWTP	1 million																							
12	STIP	Installation of S: Selection unit at the existing WWTP	2 million																							
13	MTIP	Construction of the new water intake and transmission main (51 km mark on Pivdeny Buh)	128.87 million																							
14	MTIP	Rehabilitation of WWPS of ME "Mykolaivvodokanal"	N/A																							
15	MTIP	Construction of the sludge processing facilities	N/A																							
16	LTIP	Construction of a new WWTP including modernization of the sewage collect	80 million																							
17	LTIP	Wind power generation facilities	N/A																							
ENABLING PROJECTS																										
1	STEP	Twining arrangement between MVK and Danish utility	N/A																							
2	MTEP	Skills' upgrading within WSS	N/A																							
3	MTEP	Implementation of the EU Water Acquis at municipal level (MTEP 4)	N/A																							



INVESTMENT PACKAGES

Title	Projects in the package
Nova Odesa Water Supply Complex	Zhovtneve reservoir New water inlet 51 km upstream from Mykolaiv 51 km of transmission facilities New water treatment plant including filtration station. Total investments: EUR 316 mio (based on the CAPEX provided for each project)
New Wastewater Treatment Plant	Entire new wastewater treatment plant, Modernized sewage collection infrastructure (including sewage collectors and respective wastewater pumping stations). Total investments: EUR 80 mio (based in the CAPEX provided)



Assistance to the Development of the Mykolaiv Masterplan

WSS DB PIP - Annex to the Road Map Draft

November, 2023





LVIV ECO FORUM 2023





Drikkevands- og Byspildevands direktiv fra EU



DRINKING WATER DIRECTIVE

WATER BASICS SERIES

WAREG
European Water Regulators



The Urban Waste Water Treatment Directive (UWWTD) UPDATES





**TAK
for
opmærksomheden**

UKRAINE INVESTMENT FORUM

Yulia Romanenko, Principal Banker, Sustainable Infrastructure Group, EBRD

15 April 2024



European Bank
for Reconstruction and Development



EBRD's Response to the war on Ukraine

€ 4.0 billion of financing over the last two years in Ukraine

Annual Results

- **€2.1 billion** of total financing deployed for **49 projects** and over **200 trade finance** transactions
- In 2023, **90% of projects** and **50% of the finance** deployed were in the private sector

Policy Reforms

Corporate governance for SOEs and SOBs
Anti-corruption
Capacity Building
Infrastructure and Energy emergency support
Human Capital Resilience

SME support

Relocation and Reconstruction Assistance
Digital platforms

Key Areas of Focus



Trade
Finance
€ 473 million



Energy
Security
€ 553 million



Vital
Infrastructure
€ 483 million



Food
Security
€ 232 million



Private Sector
Resilience
€ 331 million

EBRD in Ukraine: Industry, Commerce & Agribusiness (ICA)



European Bank
for Reconstruction and Development

Key Features

- 100% private sector, focus on food value chain, building materials and overall resilience of corporate sector
- Financing of working capital and capital expenditures including new investment projects with focus on green investments
- Various financing structures including loans, equity and risk sharing facilities, investments into equity funds;
- Co-financing with other IFIs/DFIs.

ICA results since the start of the war:

€471
mln

Total EBRD investments

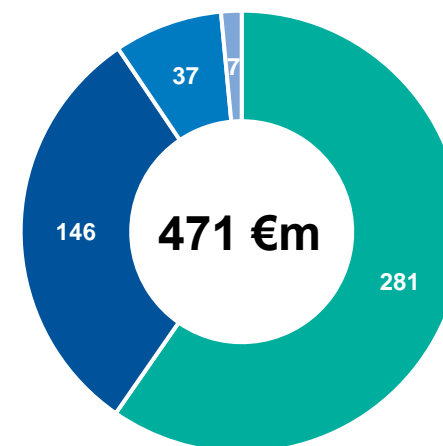
€36
mln

Total mobilised investments

24

Number of projects

ICA projects since the start of the war, €mln



- Agribusiness
- Manufacturing & Services
- Equity Funds
- Property and Tourism

Key Features

- Working in public, private and municipal sector
- Sovereign, sub-sovereign, corporate and project finance structures
- Support to the key reform initiatives
- Mobilisation of grant funding (EU, E5P, bi-laterals) and co-financing with other IFIs (EIB, WB, IFC, NEFCO)



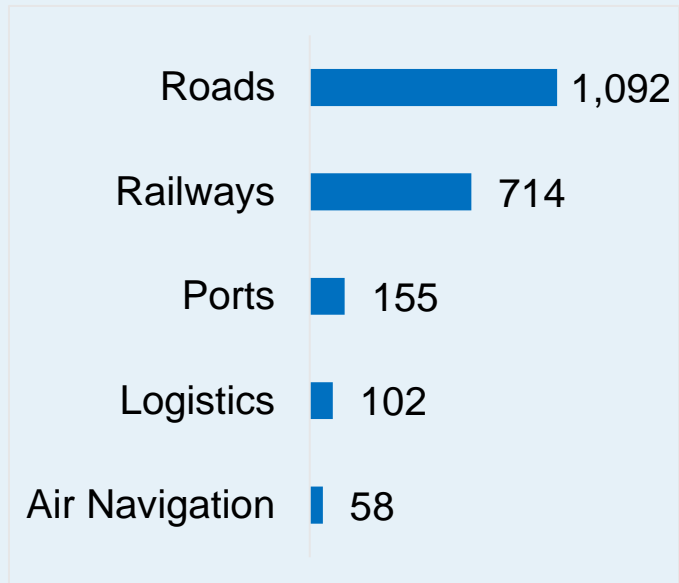


EBRD Portfolio in Ukrainian Infrastructure

82 projects • € 3,078 million

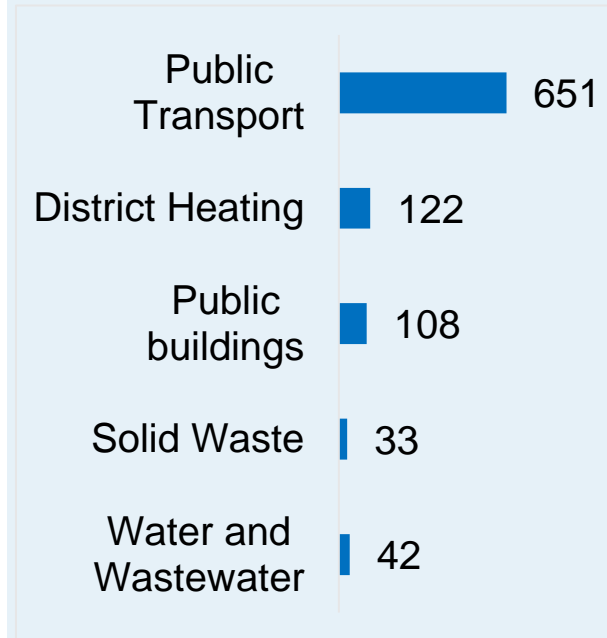


Transport, EURm



37 projects • **€ 2,121 million**

Municipal Infrastructure, EURm



45 projects • **€ 957 million**













As of April 2024

EBRD in Ukraine: Infrastructure and Energy

Key transactions since the start of the war:



European Bank
for Reconstruction and Development

Sector	Client	Amount*	Project description	
Sovereign:	 UKRENERGO Державне підприємство України	Ukrenergo	€ 677m	Existing funds reallocation for liquidity support (€ 147m), emergency rehabilitation and capital support (€ 450m loan complemented with € 70m grant from Netherlands and € 10m grant from Italy)
		Ukrainian Railways	€ 350m	Liquidity (€ 150m), emergency rehabilitation, capital support (€ 200m)
		NAK Naftogas	€ 688m	Financing of emergency capital repairs, support of natural gas purchases (€ 500 m loan + € 188m grant from Norway)
	 Державне агентство відновлення та розвитку інфраструктури України	Restoration Agency	€ 182 m	Reallocation of existing funds to the financing of road section repairs, part of the TEN-T corridors in line with the Solidarity Lanes initiative
		Ukrhydroenergo	€ 200 m	Emergency rehabilitation and capital support (co-financed with Italy)
Municipal:	 UKRPOSHTA UKRAINE'S NATIONAL POST	Ukrposhta	€ 28m	Reallocation of existing funds to new components of the network development (€23m loan + €5m grant)
		Liquidity financing for Cities	€ 50m	Liquidity support for stable public services provision for the cities of Lviv (€ 25m) and Dnipro (€ 25m)
		Khmelnyskyi public transport operator	€ 15m	Public transport capex financing (€11 loan + €4.5m grants from US and EU)
Private:	 Агросем	Agrosem	€ 10m	Financing for the expansion of grain rail terminal and construction of new container yards on Ukrainian-Polish border.
		Nova Poshta	€ 24m	Construction of a new parcel sorting terminal in Kyiv in the form of unfunded risk sharing guarantee to the Ukrainian partner bank.

* Including uncommitted financing and mobilized investments

EBRD in Ukraine: Infrastructure and Energy



European Bank
for Reconstruction and Development

Key transactions and priority areas going forward:



energy storages



distributed generation



new renewables energy capacities



intermodal terminals



preparation of PPPs in transport and energy sectors

Public sector

€268m

New components under existing loans for Restoration Agency for road rehabilitation

€27m

Liquidity support for the city of Kharkiv and Kryvyi Rih

€25m

Water system rehabilitation in the city of Mykolaiv (+€10m grants from Denmark and €5m from E5P) and Uzhgorod Wastewater Project (+€10m grant financing)

Project size:
€10m to
€70m

Public transport projects in Kyiv, Ternopil, Zhytomyr, Lviv, Kharkiv, district heating in Lutsk and Vinnytsia Region and EE projects in public buildings

Private sector

EBRD pipeline investments:

Up to €300m

Wind Power Plants with total capacity of up to 450 MW

Up to €70m

Solar Power Projects with total capacity of up to 150 MW

Up to €40m

Battery storage projects with total capacity of up to 60 MW

Up to €70m

Biofuels production facilities